Research on Information Sharing in IT Services Industry

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Abstract

A conceptual model of knowledge sharing's impacts on service providers' capability and clients' satisfaction is established. The model has five constructs: information sharing to clients given by IT service providers, information sharing to service providers given by clients, service-offering level, improvement of service providers' capability and clients' satisfaction. According to the concerned variables, questionnaires were made and a survey was conducted in some relevant companies in Xi'an Hi-tech Industrial Development Zone. And the 232 answered questionnaires were analyzed using statistics-analysis software Amos17.0. Data analysis shows that information sharing to service-providers given by clients has significant positive effects on clients' satisfaction and the improvement of providers' capability, and that information sharing to clients by providers has significant positive effects on the improvement of service-offering level and providers' capability. The finding of this study indicates that only knowledge sharing to clients given by IT service providers is not sufficient and therefore, information sharing to IT service providers given by clients must be emphasized and the bilateral information sharing helps to reach a win-win outcome.

Keywords

Information sharing, clients' satisfaction, service-offering level , IT service,

1. Introduction

With the rapid development of economic globalization, more and more multinational companies will concentrate resources on core business, shift its non-core service functions to overseas, especially in emerging market countries and regions. Under this background, the service outsourcing in China is booming at an alarming rate. According to the ministry of commerce of China, according to data from January 2016 to November 2016, Chinese enterprises to enter into service outsourcing contracts reached 836.09 billion yuan, the execution amount is 602.49 billion yuan, up by 17.5% and 17.3%. However, service providers and customers in the nationality, religion, laws and regulations, customs and habits, such as service standards differences caused by service providers is difficult to communicate with customers, hindered the establishment of trust mechanism and the information transmission, ultimately affect the performance of both parties. [1]

The existing research focuses on the impact of information sharing outsourcing projects of IT service providers. Deepa Mani et al. 5 studied the impact of information demand and information ability on the performance of service outsourcing. [2] K. d. Joshi et al. studies show that in the global procurement environment of IT services, service providers and customers innovate through information sharing to improve organizational performance. [3] The existing research mainly discusses the IT service providers to provide customers the influence of information and knowledge of IT service performance, but seldom study the customer to provide IT service provider of information and knowledge of IT service performance, especially from the viewpoint of ability to enhance customer satisfaction and service providers, the IT service outsourcing project research of two-way information transmission between service providers and customers is relatively lacking. [4]

Against the status quo, on the basis of existing research, we will IT service providers between the customer and the information sharing is divided into customer information transmission and service provider to the service provider to the customer's information transfer two cases, trying to explore both the ability to enhance service level, service providers and the impact of customer satisfaction.

We hope to enrich the research of service providers and customer knowledge sharing, and provide practical suggestions for customers and service providers with reference value.

2. Theoretical basis and hypothesis

2.1 Service providers share information with customers

Information sharing represents the process of bilateral knowledge transfer and absorption. [5] Through this process, information sharing can improve the efficiency of the organization. [6] The knowledge content of IT services is very high, involving the knowledge transfer and absorption of both parties. Therefore, IT service delivery process is a process of information sharing, which can be divided into two parts according to different perspectives of service providers and customers.

From the point of view of service providers, service providers have strong IT expertise, but often lack relevant information in their field. In the process of providing IT services, the service provider must master the relevant information in the domain of the customer. Through the process of information sharing and service providers to have tacit skills, experience, lessons and explicit text, data, and so on knowledge transfer to the customer, at the same time, relevant information in the field of service providers to receive customer, service providers will be two in the field of information fusion, in order to construct their own information superiority of the organization

From the client's point of view, although the client has mastered the professional knowledge in his field, knowledge of information technology is often insufficient. In the process of receiving IT services, IT is necessary to deliver professional knowledge to service providers in order to enable service providers to meet their industry requirements. The delivery of information from customers to service providers helps service providers better understand project requirements and clear project goals, thus achieving good project results. But, in the process of IT services provided, the customer did not give all advanced technology transfer to service providers, the main reason is that customers think that relative to transfer across the organization, information in the enterprise internal transferring more knowledge to keep competitive advantage, make them master the knowledge of profit maximization

The customer and service provider established the partnership through the contract. The establishment of cooperative relationship indicates that the service provider has obtained the basic trust of the customer. Service providers share perceived trust levels through the customer's information, and trust can affect the information sharing of service providers. Therefore, this paper puts forward the hypothesis:

H1a: the higher the level of information Shared by the customer to the service provider, the higher the level of information the service provider will share to the customer.

2.2 Information sharing and customer satisfaction and service provider capability promotion

Information sharing in the IT service outsourcing team determines the performance of the IT service outsourcing project to a certain extent. [7] Information sharing can improve the ability of both partners in outsourcing projects. [8] Information sharing helps to strengthen the partnership between service providers and customers, and this strengthening of partnership can help both parties' willingness to cooperate and enhance their common behaviors. [8] Information sharing can reduce information asymmetry between service providers and customers. These will improve the performance of the IT service outsourcing project.

Grover and others think that the performance evaluation can be carried out from three aspects: strategic interest, economic interests and technical interests. [9] Lee waited for customer satisfaction to measure the performance of outsourcing. [10]Based on customer satisfaction and service provider ability, this paper considers outsourcing performance. Customer satisfaction refers to whether the customer is satisfied with the quality of service provided by the service provider. Service provider capability enhancement refers to service provider strategy, economy, technical improvement.

Prior to the implementation of an IT service outsourcing, service providers may have mastered and accumulated knowledge of a large number of markets, technologies, processes, and other related aspects of the project. In service at the same time, the service providers constantly received from the customer knowledge sharing project, based on the existing information and the integration of sharing information, service providers can form a new knowledge system, help the service provider's ability to ascend. Service provider is passed to the customer that you have skills, experience and comprehension of the recessive knowledge and dominant information in text, data, etc, the service provider at the time of the message to its own information have a clear understanding of, and be able to realize its own information there is what defect, so as to strengthen their own learning. Therefore, this paper puts forward the hypothesis:

H2a: The more the customer shares information to IT service providers, the greater the ability of IT service providers to grow.

H2b: the higher the information-sharing of IT service providers, the greater the ability of IT service providers to grow.

High task and demand uncertainty is not conducive to project cost control and timely delivery of information system outsourcing, and customer satisfaction is relatively low. [11]There exists information asymmetry between service providers and customers. Information sharing can reduce this asymmetry, so that the partners have a clear understanding of mission requirements. There exists information asymmetry between service providers and customers. Information sharing can reduce this asymmetry, so that the partners have a clear understanding of mission requirements. Therefore, this paper puts forward the hypothesis:

H3a: the more the customer shares information to the IT service provider, the higher the customer satisfaction.

H3b: IT service provider to the customer the higher the degree of information sharing, the higher the customer satisfaction.

2.3 Information sharing and service delivery level

Knowledge management, as a management method of acquiring, storing, learning, sharing and innovating knowledge, has been regarded by most people as the way of survival of enterprises. PWC and the world economy BBS survey found 95% of chief executives believe that knowledge management is a necessary condition for enterprise success, to maintain the enterprise competitive advantage, only on the basis of knowledge innovation. Knowledge management is a necessary condition for enterprise to succeed, and information sharing is the key to knowledge management. Therefore, if an enterprise wants to be able to develop in the long run, it must carry out information sharing activities.

Information sharing has a significant impact on the success of IT service outsourcing. [12] A higher level of service is the foundation of IT service outsourcing success, therefore IT service outsourcing success means a higher level of services, and information sharing may have influence on the service level. Therefore, this paper puts forward the hypothesis:

H4a: the higher the level of information the customer delivers to the service provider, the higher the service provider's level of service.

H4b: service provider to the customer, the higher the degree of information transmission, the service provider's service level is higher.

2.4 Service delivery level with customer satisfaction and service provider's ability to improve

Customer satisfaction is reflected in the service quality of service providers, the overall effect of service, the time of service response, and cost reduction. [13] The ability of service providers is reflected in the mastery of IT skills, the updating of technical knowledge, the learning of customers' professional knowledge, and the cost reduction. [14] The improvement of service level means that information technology service providers can continuously reduce costs, improve service quality and improve work efficiency while providing services. Therefore, this paper puts forward the hypothesis:

H5a: the higher the service level of the service provider, the faster the service provider will be able to improve.

H5b: the service provider's service level is higher, the higher the customer satisfaction.

Based on the above theoretical basis and research assumptions, this paper proposes a research model, as shown in figure 1.:
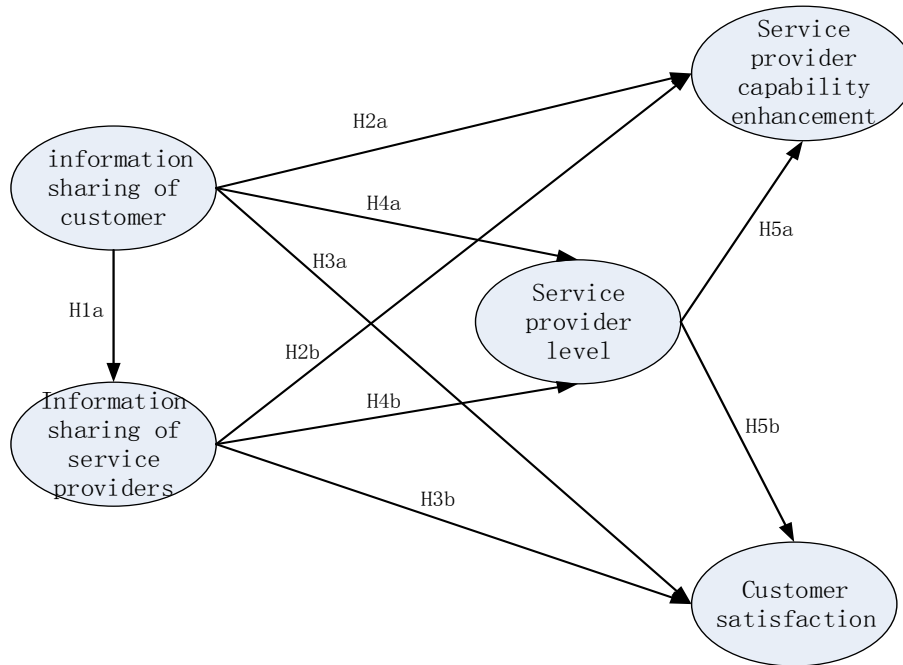

Figure 1:research model

3. Research design

3.1 Research technique

This study mainly targets employees and customers of some enterprises providing IT services in xi 'an high-tech industry development zone. The information sharing of service providers and customers, information sharing of customers and service providers is borrowed from the research of Christine Koh and others. Among them, service provider and customer information share 4 item, the customer and service provider information share 3 item. The ability of service providers to improve the ability to measure items borrowed from research by LEE et al. 17, including 5 items. [10] The customer satisfaction degree of the service is borrowed from the research of Glauco De Vita et al. 16, including 3 items. [9]

All the above mentioned scale parts adopt likert five-point scale questionnaire form, from 1 to 5 respectively expressed the attitude of the respondents strongly disagree, disagree, neutral, agree, strongly agree. For the data collected in the questionnaire, the statistical analysis software Amos17.0 was used to analyze the data

3.2 Sample description

This article USES a questionnaire to collect data. In the process of outsourcing of information technology services, the whole outsourcing operation is best understood by the internal department heads, project managers and other project team members. In order to provide a questionnaire to the relevant personnel on the site of some enterprises providing IT services in xi 'an high-tech industrial development zone, a total of 232 questionnaires were collected. After sifting through each part, the invalid questionnaire (mainly omission, multiple choice and contradictory questionnaire) was eliminated, and the actual effective questionnaire was 185.

3.3 Testing reliability validity

In this paper, the Confirmatory Factor Analysis CFA is used to verify the reliability and validity of the measured model, The reliability of this study model is also tested by Cronbachs alpha coefficient.

The combination reliability of the construct was higher than 0.5, and the Cronbachs alpha value reached acceptable level (alpha > 0.5), indicating that the questionnaire had good internal consistency reliability and the model had good inner quality.

Validity is tested in two ways. First of all, it is the structure validity, the structure validity needs to include the polymerization validity and the discriminant validity, the combination reliability index of the questionnaire is in acceptable range, indicating that the sample has good convergent validity. The average variance extraction value (AVE) is more than 0.5, which is acceptable level, which indicates that the questionnaire has a good discriminant validity. Secondly, the content validity, the questionnaire from the domestic and overseas mature scale, the preliminary test to the revision, thus guaranteed good content validity. The test results are shown in table 1.

Table 1 Sample reliability and validity index

Theoretical constructs and measurement items	Factor loading	Reliability coefficient	Composite reliability	Average variance extraction
Information sharing of information technology service providers 1. We transfer our product information to our customers 2. We share best industry experience with our clients 3. We transfer all information we know about products or services to our customers 4. We deliver complete information to our customers	0.781 0.864 0.810 0.867	0.609 0.746 0.656 0.751	Cronbachs alpha 0.892 Composite reliability 0.8993	0.6991
Customer information sharing 1. We can get the necessary information about the project from the client 2. We can learn relevant information about customers 3. We can get the necessary skills from our customers	0.667 0.927 0.741	0.445 0.859 0.549	Cronbachs alpha 0.827 Composite reliability 0.8262	0.6178
Information technology service delivery level 1. We can fully understand the requirements of our customers 2. We can respond quickly to changes in customer requirements 3. We can express ourselves clearly to our customers 4. We are able to complete the task according to the contract	0.604 0.938 0.828 0.948	0.364 0.879 0.686 0.899	Cronbachs alpha 0.897 Composite reliability 0.9039	0.7072
Information technology service provider capacity enhancement 1. We have some skills in the area of customer knowledge 2. We are very pleased with what we have learned from our customers 3. We have improved our IT capabilities 4. We reduce the risk of obsolete technology 5. We are very satisfied with the overall benefit from service delivery	0.816 0.829 0.707 0.844 0.790	0.666 0.687 0.499 0.712 0.625	Cronbachs alpha 0.892 Composite reliability 0.8977	0.6379

Customer satisfaction				
1. In terms of consistency, durability and accuracy, the customer is very satisfied with the quality of our service	0.784	0.614	Cronbachs alpha 0.836	0.651
2. The customer is very satisfied with our response to questions and queries	0.788	0.620	Composite reliability 0.8482	
3. The customer is very satisfied with the overall effect from our service	0.847	0.718		

4. Structural equations modeling

Then use the structural equation model analysis service provider to the customer information sharing with customer information sharing for service providers, service level, the relationship between the ability to enhance customer satisfaction, service providers. The relationship between customer service provider knowledge sharing and service delivery, customer satisfaction, and service provider ability. The relationship between service delivery level and customer satisfaction and service provider ability.

4.1 Theoretical model test

In this study, Amos17.0 was used to analyze the structural equation model. The structure equation model is used to measure the degree of fit between the model and the data. In this paper, we select multiple indexes of high frequency of domestic and foreign literatures to verify the theoretical model, including $\chi2/df$, RMSEA, GFI, RFI, IFI, CFI, TLI, GFI, AGFI and other indicators. Table 2 shows the test situation of each path relation, which can be obtained by the data in the table. The model fitting effect is excellent.

Table 2 Overall model fitting analysis

Fit index	Evaluation index	Model	Model adaptation judgment
$\chi2/df$	＜3.00	1.634	yes
RMSEA	＜0.10	0.053	yes
GFI	＞0.90	0.978	yes
RFI	＞0.90	0.980	yes
IFI	＞0.90	0.968	yes
CFI	＞0.90	0.955	yes
TLI	＞0.90	0.988	yes
GFI	＞0.90	0.940	yes
AGFI	＞0.90	0.980	yes

4.2 Theoretical model analysis

The theoretical model path coefficient of this study is shown in figure 2.
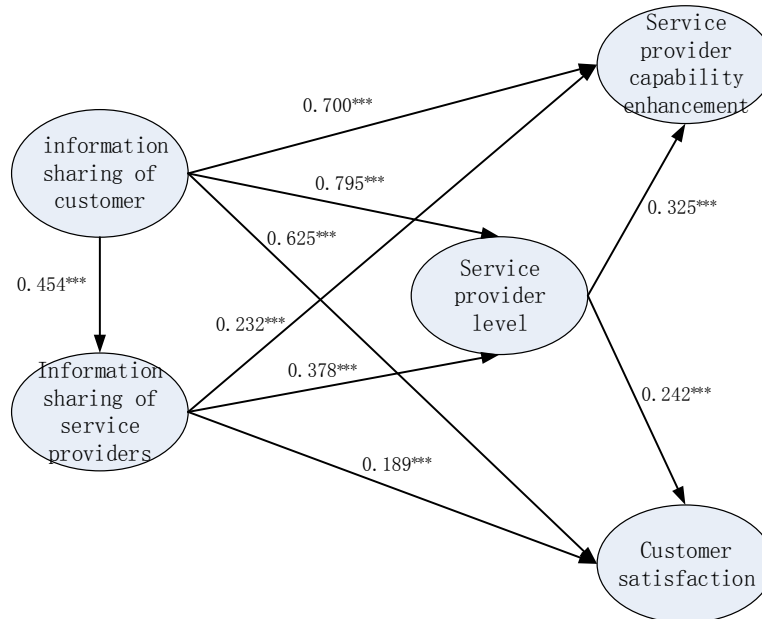
Note: * * * represents P < 0.001, * * represents P < 0.005
Figure 2 analysis result of structural equation model

Service provider and customer information sharing between the path coefficient was 0.454, reached significant level, suggests that customer information sharing have significant influence on service provider of information sharing, hypothesis H1a was established; The path coefficient between customer service provider's information sharing and service provider's ability enhancement is 0.700, which reaches a significant level, assuming H2a is established; The path coefficient between service provider's information sharing and service provider's capability improvement is 0.232, which reaches a significant level, assuming that H2b is established; The path coefficient between the information sharing and customer satisfaction of the customer to the service provider is 0.652, reaching a significant level, assuming H3a is established; The path coefficient between the service provider's information sharing and customer satisfaction was 0.189, which reached a significant level, assuming H3b was established; The path coefficient between the information sharing and service delivery level of the customer to the service provider is 0.795, reaching a significant level, assuming that H4a is established ; The path coefficient between the service provider's information sharing and service delivery to the customer is 0.378, to a significant level, assuming H4b is established; The path coefficient between service delivery level and service provider capability improvement is 0.325, reaching a significant level, assuming that H5a is established; The path coefficient between service delivery level and customer satisfaction was 0.242, which reached a significant level, assuming that H5b was established. The analysis results are shown in table 3.

Table 3 analysis of structural equation

hypothesis	description	path coefficient	结果
H1a	The customer's information sharing has a positive impact on the knowledge sharing of service providers	0.454	成立
H2a	The customer's information sharing has a positive impact on the ability of the service provider to improve	0.700	成立
H2b	The information sharing of service providers has a positive impact on the ability of service providers	0.232	成立
H3a	Customer's information sharing has a positive impact on customer satisfaction	0.625	成立
H3b	Information sharing of service providers has a positive impact on customer satisfaction	0.189	成立

H4a	Customer information sharing has a positive impact on the level of service delivery	0.795	成立
H4b	Information sharing of service providers has a positive impact on the level of service delivery	0.378	成立
H5a	Service delivery levels have a positive impact on the ability of service providers to improve	0.325	成立
H5b	The level of service delivery has a positive impact on customer satisfaction	0.242	成立

5. Results analysis and management implications

The results of this study are analyzed and the corresponding management implications are given.

5.1 The impact of customer information sharing on IT services

The information sharing of customers to service providers has a significant positive impact on the knowledge sharing of service providers. The service provider determines the degree of trust of the customer to the service provider from the extent of customer sharing information, and the customer's trust can facilitate the information sharing of service providers. Therefore, from the perspective of the customer, the customer should establish an effective information transfer mechanism and actively deliver the information needed to the service provider. From the point of view of service providers, service providers should take a positive attitude to cooperate with customers' knowledge transfer, and timely absorb and absorb the knowledge transferred by customers.

The information sharing of customers to service providers has a significant positive impact on customer satisfaction. Customer has the IT industry professional knowledge, the information sharing can reduce the customer's service provider's knowledge acquisition costs, thereby reducing the labor cost of the project, which reduced the client to the project investment, to maximize customer satisfaction depends on the output and push. Therefore, the customer can establish the performance appraisal mechanism, assess the knowledge sharing degree of the employees to the service provider, and promote the knowledge flow of the information to the service provider.

The level of information Shared by a customer to a service provider has a significant positive impact on the level of service providers and the ability of service providers. The service level of service providers and the capabilities of service providers are based on knowledge. In information transmission under the expected benefits of incentive, the customer will hold the assignment and transfer of industry knowledge to service providers, its direct result is to achieve the sharing of information, make the service provider to fully understand and grasp the customer's information, so as to improve the service level and service ability.

To sum up, in the IT outsourcing services, customers and service providers should attach importance to the customer to the IT service provider of knowledge sharing, customer should take the initiative to the IT service providers to share necessary information related to project and the necessary job skills.

5.2 Information sharing of service providers on IT services

Service providers' information sharing to customers has a significant positive impact on customer satisfaction. Service providers emphasize the sharing of information and process of information sharing, and the end result is information innovation. Outsourcing in the increasingly competitive market, in order to be able to achieve the success of outsourcing project and obtain customer loyalty, service providers should establish an effective information transfer and sharing mechanism, encourage employees to transfer information of its explicit and invisible, enable information to flow fully, so as to improve customer satisfaction.

The information sharing of service providers has a significant impact on the level of service delivery and the ability of service providers to improve. While delivering and sharing information to customers, service providers constantly find themselves inadequate and constantly improve themselves, thus

making the organization rich in information. Service provider's service level and the ability to service providers are based on information, so service providers should establish the learning organization, encourage employees to keep learning to the customer for information sharing, thus to improve its service level and service ability.

To sum up, in the outsourcing of IT services, service providers should share the best industry experience with customers and deliver all information and information about products. In customer service providers to share information at the same time, effective measures should be taken to learning and absorbing the information transfer by the service provider, and incentives to encourage the transfer of information service provider.

5.3 The impact of service delivery levels on IT services

The service level of service providers has an extremely significant impact on customer satisfaction and service providers' ability to improve. Therefore, the service provider should establish an effective mechanism to continuously improve its own service level, and achieve the goal of improving customer satisfaction while achieving self-improvement.

In conclusion, this study suggests that in the process of information technology outsourcing services, service providers and customers to establish an effective knowledge sharing mechanism, to carry out a full range of the knowledge sharing activities, in both customers within the enterprise and enterprise internal information technology service providers, or between customers and service providers, should pay attention to the sharing of information and communication, in order to improve the outsourcing performance.

6. Conclusion

On the basis of literature review and pilot study, we established a service provider to the customer information sharing, customer information sharing for service providers, service providers, service level, customer satisfaction, service provider's ability to ascend five constructs the relational model. The relevant personnel of some IT service enterprises in xi 'an hi-tech industrial development zone have carried out the questionnaire survey. Using the statistical analysis software AMOS17.0, the collected 232 questionnaires were selected and selected, and 185 valid questionnaires were selected for the data analysis. Data analysis shows that the information sharing of customers has a direct impact on information sharing, service level, capability improvement and customer satisfaction of service providers. Information sharing of service providers has a direct impact on customer satisfaction; The service level of service providers has a direct impact on customer satisfaction and the ability of service providers. These results are analyzed and the management enlightenment is given. This study showed that the IT service industry, only the service provider to the customer information sharing is not enough, must pay attention to the customer to the service provider of information sharing, service providers and two-way information sharing to help customers achieve the win-win result. Therefore, the customer should share the necessary information with the service provider in a timely manner and establish a learning organization to continuously learn and absorb the information delivered by the service provider. Service providers shall timely transfer projects related knowledge, with customers to establish effective communication mechanism, encourage employees to actively learn, absorb the customer's message, establish an effective incentive mechanism to promote employees to customers in a timely manner transfer all the information related to the project.

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