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The factors influencing study of the externalization process of tacit knowledge in knowledge services enterprises

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ABSTRACT

Current knowledge services enterprises have developed rapidly,and the core competitiveness is the tacit knowledge which is inside the enterprises and the brain of employees. But it is difficult to observe and dissemination. this paper is about the research of tacit knowledge process in knowledge services enterprises, considering its own characteristics in terms of tacit knowledge, the subject of knowledge, the object of knowledge and the external environment to fully tap the factors influencing the tacit knowledge. based on the development of tacit knowledge to explicit theoretical basis, building a conceptual model and theoretical analysis about tacit knowledge in knowledge service enterprise,on the basis of the previous article, the empirical research data obtained through questionnaires and using SPSS software for statistical analysis, correlation assumptions made before the test paper and discussed for the empirical results.

KEYWORDS

Knowledge services enterprises; Tacit knowledge; Externalization process.

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THE RAISING OF QUESTIONS

According to the difficulty of people to obtain knowledge andtheir structural propertiesit can be defined as the explicit knowledge and the tacit knowledge. Compared to explicit knowledge, tacit knowledge is difficult to be imitated or shared,and not easy to be steal or copy by a competitor or other person, therefore it constitute the core competitiveness of enterprises and the formation of the true source of sustainable competitive advantage of enterprises; In addition, tacit knowledge also has other relevant characteristics ofa hard coded and a strong monopoly so hindering their learning,transfer and exchange between employees[1]. Current social enterprise knowledge services (consulting) has been greatly developed, the most valuablecore competitiveness of such enterprises is the tacit knowledge which is inside the enterprises and the brain ofemployees[2]. But it is hard to heritage,because it is difficult to express, transfer, or diffusion problems. Therefore, how to effectively promote enterprise communication and sharing of tacit knowledge is the key to knowledge management, in order to maximize increasing the knowledge performance of theknowledge services enterprises, it is necessary for the enterprise to study the process of tacit knowledge.

Currently, many scholars have done a lot of research on the methods and evaluation of tacit knowledge, but the factors of tacit knowledge in the knowledge services business remains to be further studied. The root cause before obtaining the fruit, during the explicit process of tacit knowledge conduct research,it isalso the many other factors that affect its externalization process to proceed, establish a reasonable model for its comprehensive analysis.

RESEARCH METHODOLOGIES

Knowledge services enterprises tacit knowledge process

Knowledge connotation service enterprises

Knowledge Services (KSP) commonly referred to as consulting services to consulting services for the main business of the company is known as knowledge services company (known as the consulting company), which is called the consulting industry sectors[3]. As a decision-making and operational consulting individuals and organizations providing intellectual services industry,in modern society increasingly broad prospects for development consulting industry to achieve rapid expansion. Unlike industrial entities consulting industry output of material goods, nor to provide a simple alternative to conventional business services, as provided intelligence services to individuals, organizations, businesses and industries, and has its own characteristics. Its product is not visible intellectual product, a high degree of knowledge of the properties[4]. The advisory service itself also has a one-time, unique, binding, and other risks and interactivity distinctive characteristics distinguish it from other services.

The tacit knowledge forward to explicit knowledge

Mechanism of tacit knowledge

In the course of the study on the structure of knowledge, particularly in the process of tacit knowledge to explicit knowledge by gradually transformed into the most classic models --SECI model. Famous Japanese scholar Konno (Konno) and Nonaka (Nonaka) are considered new knowledge generated in the conversion process of tacit and explicit knowledge,they convert theprocess of tacit knowledge and explicit knowledge into four different type, and then proposed a different classification of SECI knowledge transformation model[5]. First, the process of socialization (socialization): refers to the process of knowledge from tacit to tacit conversion ; the second is an external process (externalization): refers to the process of knowledge from tacit to explicit conversion ; the third is the fusion process (combination): refers to the explicit knowledge from explicit conversion process ; four is internal process (internalization): refers to the process of knowledge from explicit to implicit conversion. In the course of these four, externalization process (from tacit knowledge to explicit knowledge) for profiling and transfer of tacit knowledge diffusion provides a way which is usually the enterprise needs special attention and enhanced. The concept is a transformation process of externalizing tacit knowledge through presentation and straightforward it is translated into a clear and easy to understand form of explicit knowledge. But the most important is how to find the right way to express effectively tacit knowledge with not to write it just feeling it.

Groups of Tacit Knowledge System. For employees, the business community has brought a sense of belonging,responsibility and identity having a help to carry out the process of tacit knowledge. However, business groups is not just throughout the enterprise within the meaning of this great organization, but also, or even mainly refers to internal staff spontaneously formed small groups[6]. Such small groups style is not mechanical divided by department or business,such a small group of self-organized community-stylestaff to tacit knowledge among employees dominance, such as exons, exchange, transfer, diffusion, etc. provide sufficient activity incentives. These knowledge community contains some of the main features, such as building more intimate and trusting environment and atmosphere. Trusts can promote the members of the group to formed the willing to share internal knowledge, and such willing continue to inspire and sustain knowledge sharing behavior, knowledge sharing members will spiral upward trend in favor of tacit knowledge explicit. And when trust within the group is more than insufficient competition, the externalization process of tacit knowledge may slow or even halt.

Market mechanisms Tacit Knowledge. Because of the characteristics of tacit knowledge itselfit is difficult to observe, and therefore it has a high degree of privacy, of course,it is hard to manage. Tacit knowledge is often present in the minds of the employees themselves, naturallyit can not avoid holders will have a " self-interest " idea that has its own unique technology, knowledge, up for grabs. Out of internal competition between companies or groups and protect their special status considerations, the owner of tacit knowledge is not easily shared with others, which is normal market mechanism, is reasonable. Therefore, companies should not and can not be forced to solicit or deprive them of tacit knowledge in the minds of employees, but only to motivate employees to consciously devote to the enterprise through the tacit knowledge management, rewards, recognition, support and other means, and ultimately turn into the company's core competitiveness. Tacit Knowledge is consistent with the use of market mechanisms and the interests of a social transformation mechanism requires knowledge of business development.

Factors made tacit knowledge explicit

Due to various causes originated from its nature and the outside world, we should clearly realize that tacit knowledge is hard to be made explicit to some extent, thus we need to insistently endeavor to seek methods to make it explicit. The followings are some factors that play a role in making tacit knowledge explicit.

The special features of tacit knowledge are major constraints that influence its explication level. The first is its hidden degree. Since it is difficult to describe tacit knowledge explicitly, the greater the hidden degree, the harder it is to be transferred. The second is its complexity. To express the ineffable tacit knowledge, we have to explain it in a large amount of coding knowledge and information. It has more trouble to make the tacit knowledge explicit as its complexity increases. The last one is the level of its systematization. As tacit knowledge usually roots in a greater knowledge system, it is necessary to integrate such tacit knowledge and other related knowledge so as to reach systematized knowledge and make it ordered. And then the systematized knowledge can be explained and described[7]. Generally, the more non-ordering the tacit knowledge system, the more difficult it can be made explicit.

The body of knowledge (the owner of knowledge). The majority of tacit knowledge is owned by individuals. Even the collective culture is always dependent on a single person. In other words, tacit knowledge has strong dependency on individuals[8]. Furthermore, the knowledge owner’s capability, knowledge spreading awareness and dissemination will are important factors that restrict tacit knowledge transfer.

The object of knowledge (the knowledge receiver). Seen from object’s influences, the tacit knowledge transfer is increasing function of the receiver’s willingness to absorb knowledge, the insight to search knowledge source, the sensitivity to foresee the market potential of intellectual products and the ability to receive tacit knowledge.

In addition, those abilities mentioned above are closely related to the knowledge receiver’s EQ and IQ such as mode of thinking, learning competence, savvy, ability of communication and decoding ability. In a word, comprehensive quality has a direct and remarkable impact on the process and pace of tacit knowledge transfer. To sum up, the rate of knowledge transfer has a positive relationship with the knowledge receiver’s level of knowledge and comprehensive quality.

The correlation between the body and the object of knowledge. The connected factors of the body and the object of knowledge dominate the number, extent, channel and mode through which the tacit knowledge transferred to explicit knowledge: The first is similarity. It refers to the likeness and relative approach degree between the owner and the receiver in linguistic background, knowledge background, cultural background, cognitive pattern and cultural deposit. Tacit knowledge transfers much more easily and substantially as the owner and the receiver share more similar or closer backgrounds. The second is diversity. Such differences between the owner and the receiver as profession, culture, cognitive ability, mode of thinking and knowledge structure are restriction factors affecting the efficiency and order of knowledge transference and knowledge diffusion. The third is overlap. When the owner and the receiver, acting as the supply and the demand side, reach an agreement, the partially overlapped or communicated cognitive pattern and knowledge structure will, on the condition that the two are willing to transfer and exchange their knowledge, facilitate the externalization of tacit knowledge. The forth is complementarity. If the knowledge structure and cognitive pattern are complementary, and the receiver is interested in such tacit knowledge at the same time, the progress of tacit knowledge transformation will be smooth.

The environment of the organization. In the environment of an organization, tacit knowledge transfer is measured by organizational culture, organization system, proposed system, technology system and social environment[9].

The conceptual model construction of the externalization of tacit knowledge in knowledge service project:

Model specification

Combining theoretical research with empirical study, this thesis constructs a conceptual model for the externalization of tacit knowledge in knowledge service project on the basis of the relationship between the independent and dependent variables, including all the factors that play a role in influencing the externalization of tacit knowledge as comprehensive as possible (See Figure 3-1 below). At the bottom of the overall framework of the model, it is the performance of the externalization of tacit knowledge, which is the dependent variable in this thesis and the goal in the course of the externalization of tacit knowledge. The performance will change as the three independent variables at the top of the framework change. The three independent variables are:

Factors related to the owner and receiver of knowledge transfer (the willingness to transfer knowledge, the capability of transfer knowledge, the willingness to accept knowledge, the ability of absorb knowledge, the level of mutual trust), Factors related to the knowledge transferred (expressiveness and embeddedness) and Factors related to the environment in which knowledge is transferred (incentive system, culture atmosphere, project team and Technical supply condition).

Those independent variables in Figure 3-1 are selected after an analysis of the object, research scope and research purpose in this thesis, with reference to a lot of recent related articles. The research scope of this thesis is the externalization of tacit knowledge in knowledge based service enterprises. Knowledge based service enterprises are commonly called consulting services in the light of the analysis above. As these Services are typical knowledge-intensive enterprises, knowledge play an important role in its management. The conceptual model, built on the theoretical analysis about the factors affecting the externalization of tacit knowledge mentioned above, is constructed through the combination of elements that influence the performance of the externalization of tacit knowledge in knowledge service projects. Relevant theoretical hypotheses are also presented in this thesis.

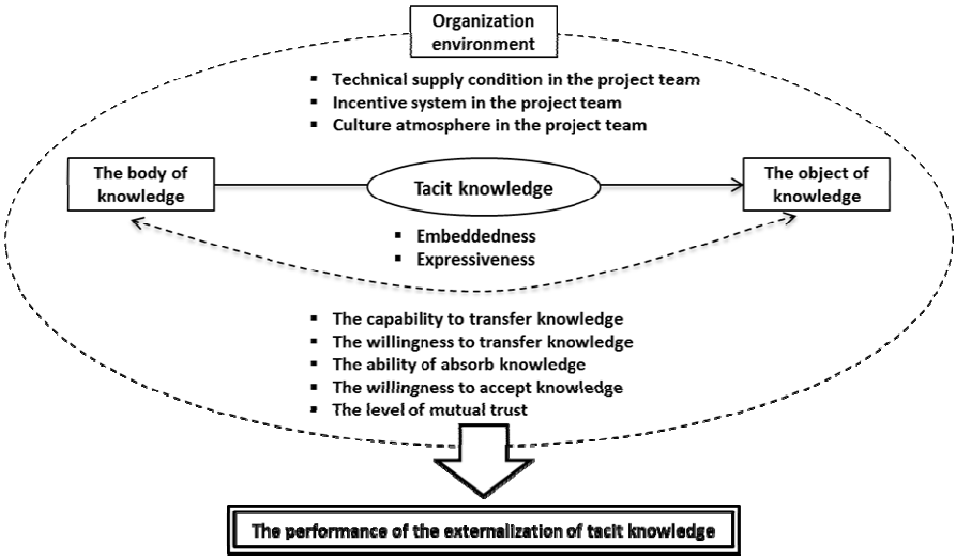

Figure 1 : The conceptual model of factors affecting the externalization of tacit knowledge in knowledge service project

The proposition of the hypothesis

This section proposes a hypothesis and analyzes the ten factors mentioned above in details. Relationships between these factors and the dependent variables (The performance of the externalization of tacit knowledge) are further analyzed by empirical study.

The relationship between the subject of transfer and the performance of the externalization of tacit knowledge

The relationship between the subject of transfer and the performance of the externalization of tacit knowledge can be further divided into questions on how the performance of the externalization of tacit knowledge responses to the transfer party, the receiver and the relation of the transfer party and the receiver.

The relationship between the knowledge transferred and the performance of the externalization of tacit knowledge

The relationship between the tacit knowledge of knowledge management projects transferred and the performance of the externalization of tacit knowledge are researched from the expressiveness and embeddedness of the tacit knowledge.

The relationship between the environment in which knowledge is transferred and the performance of the externalization of tacit knowledge

This thesis mainly studies the incentive system, technical supply condition and culture atmosphere in the project team to explore the relationship between the environment in which knowledge is transferred and the performance of the externalization of tacit knowledge. Figure 3-1 presents the theoretical hypotheses in this thesis.

TABLE 1 : The summary of theoretical hypotheses in this thesis

	project	relevant hypotheses
The subject	The transfer party	H1: the performance of the externalization of tacit knowledge is significantly

of transfer		and positively correlated with the consultant's knowledge transfer capacity
	The receiver	H2: the performance of the externalization of tacit knowledge is significantly and positively correlated with the consultant's willingness to transfer knowledge H3: the performance of the externalization of tacit knowledge is significantly and positively correlated with the consultant's knowledge absorptive capacity H4: the performance of the externalization of tacit knowledge is significantly and positively correlated with the consultant's willingness to accept knowledge
	the relation of the transfer party and the receiver	H5: the performance of the externalization of tacit knowledge is significantly and positively correlated with the level of mutual trust among consultants
Knowledge transferred		H6: the performance of the externalization of tacit knowledge is significantly and negatively correlated with the Embeddedness of tacit knowledge H7: the performance of the externalization of tacit knowledge is significantly and positively correlated with the expressiveness of tacit knowledge
The environment in which Knowledge is transferred		H8: the performance of the externalization of tacit knowledge is significantly and positively correlated with the incentive system in the project team H9: the performance of the externalization of tacit knowledge is significantlyandpositively correlated with the technical supply condition in the project team H10: the performance of the externalization of tacit knowledge is significantly and positively correlated with thelearning culture in the project team

RESULT AND DISSCUSS

Acquiring data and the analysis of it

This part, based on the theory analysis of the above, is to check the related hypothesis the above put forward by obtaining empirical study data and using SPSS to do statistical analysis through questionnaire.

Questionnaire design and investigation

These questionnaires are issued to 16 enterprises in Shanghai and Tianjin through friends and classmates by e-mail or questionnaire in writing. 160 questionnaires are issued and 148 received in the investigation. The recovering rate reaches 92.5%. In the recovering questionnaires, 146 copies are available, with the rate of availableness 98.65%. Through the descriptive statistical analysis of available ones, we know general characteristics of the respondents. As the investigation refers to people of different position, age and educational background and questionnaires are issued in shanghai, Tianjin and etc., the samples are general.

The index of questionnaires contains two parts: dependent variable and independent variable. Dependent variable is recessive knowledge and dominance performance. The independent variable includes knowledge transfer object, transfer knowledge and transfer circumstances with total indexes of 10.

Factor analysis

To analyze related relationship among variables and check the above-mentioned hypothesis, this chapter uses Enter in SPSS statistical software as regression analysis method, checking its related relationship and impact through multiple linear regression analysis of dominant performance of the regressive knowledge by factors. Before formal regression analysis, to avoid situation trouble caused by high dependency among independent variables, this paper, at first, makes pairwise analysis of Pearson correlation coefficient. The correlation coefficient analysis results among independent variables are present in 3-1. The results demonstrate that high dependency does not exist in independent variables.

Related analysis can only be taken as reference checking whether there exists collinearity among independent variables in regression analysis. Whether there is multicollinearity in variables can refer to the three standards: tolerance, VIF and CI (Wu Minglong, 2003). This paper chooses the first and second standards and one with high dependency among variables (>0.7)as diagnosis basis of collinearity. The value of tolerance is between 0 and 1, if the tolerance of an independent variable is too low, then collinearity exists in this independent variable and the other. VIF is reciprocal of tolerance. The higher the VIF is, the tolerance of an independent value is lower, and the more capable the collineatity exists. Generally, If VIF is lower than 10, multicollinearity does not exist in variables (Neteret a1,1985). Independent variable diagnosis results in regression analysis are shown in TABLE 4-2. From the results, the lowest VIF of all the variables is 1.126, the highest 2.659. And most of them are about 2, much more lowly than marginal value 10. Therefore, collineatity existing in variables can be rejected. From TABLE 3, general effect of regression in is shown. Dominance P=0.00, F value = 32.148. It can be acknowledged that the whole equation of linear regression is marked. In the regression analysis, transfer party's recessive knowledge transferring will, ability, receiving party's receiving will, recessive knowledge absorbing ability and expressiveness, tea, encouraging system and dominant performance of recessive knowledge are equipped with conspicuous relationship. Besides, in regression analysis, embeddedness of recessive knowledge and t value of team's

technology conditions is lower than 2, dominance higher than 0.05. In science of statistics, the two independent variables influence little to dependent variables. Relatively lower dominance and former hypothesis (H6, H9) are not null.

TABLE 2 : Dependency analysis among independent variables

	embeddedness degree	expressiveness	transferring ability	transferring will	absorption ability	receiving will	mutual trust	technology conditions	encouraging system	learning culture
embeddedness degree	1									
expressiveness	0.144	1								
transferring ability	-0.039	0.02	1							
transferring will	-0.407	-0.053	0.179	1						
absorption ability	-0.059	0.192	0.163	0.075	1					
receiving will	-0.332	-0.183	0.242	0.489	0.009	1				
mutual trust	-0.276	-0.015	0.183	0.417	-0.179	0.256	1			
technology conditions	-0.263	-0.228	0.041	0.389	-0.076	0.241	0.352	1		
encouraging system	-0.361	-0.192	0.115	0.573	0.078	0.331	0.542	0.611	1	
learning culture	-0.223	-0.076	0.065	0.553	0.005	0.279	0.407	0.417	0.58	1

TABLE 3 : Checking table of regression coefficient and dominance coefficient

model	non-standard coefficient		standard coefficient	t	significance	collinearity statistics	
	B	standard error	Beta			allowance	VIF
(constant)	-1.151	0.385		-2.989	0.004		
L1 embeddedness degree	-0.019	0.48	-0.021	-0.411	0.681	0749	1.331
L2 expressiveness	0.112	0.035	0.165	3.158	0.002	0.813	1.229
L7 transferring ability	0.119	0.046	0.131	2.517	0.012	0.886	1.126
L3 transferring will	0.349	0.059	0.359	5.843	0.000	0.586	1.658
L8 absorption ability	0.179	0.052	0.171	2.627	0.01	0.733	1.356
L6 receiving will	0.168	0.054	0.169	3.078	0.003	0.719	1.386
L5 mutual trust	0.103	0.047	0.125	2.142	0.032	0.645	1.541
L11 technology conditions	0.089	0.063	0.086	1.425	0.153	0.611	1.663
L9 encouraging system	0.175	0.067	0.198	2.593	0.011	0.371	2.659
L10 learning culture	0.148	0.051	0.12	2.038	0.45	0.572	1.739

CONCLUSION

Based on literature and live interview, this chapter uses questionnaires to do empirical analysis of factors of dominance process of recessive knowledge in service enterprises and check hypothesis put forward in chapter 3. Starting from basic factors related to transferring knowledge, we seek main factors and their influence in dominance process of recessive knowledge. The result shows that transferring will, absorption ability, transferring ability, expressiveness and receiving will have an important impact on dominance process of recessive knowledge. Encouraging system and learning culture influence expanding and transferring of recessive knowledge to some extent. Embeddedness and technology have no

significant influence on dominance of recessive knowledge. All in all, all the checking results of hypothesis in this paper are shown in TABLE 5-1. Most of then are supported, but some hypothesis are not supported, such as hypothesis H7, H9.

TABLE 4 : Summery of empirical research results

project		related hypothesis	with the former hypothesis
transferring subject	transferring party	H1: consultant's knowledge transferring ability is positive correlation with significant performance of recessive knowledge.	T
		H2: consultant's knowledge transferring will is positive correlation with significant performance of recessive knowledge.	T
	receiving party	H3: consultant's knowledge absorbing ability is positive correlation with significant performance of recessive knowledge.	T
		H4: consultant's receiving will is positive correlation with significant performance of recessive knowledge.	T
	transferring mutual relationship	H5: consultant's mutual trust is positive correlation with significant performance of recessive knowledge.	T
transferring contents		H6: embededness of recessive knowledge is negative correlation with significant performance of recessive knowledge.	F
		H7: expressiveness of recessive knowledge is positive correlation with significant performance of recessive knowledge.	T
		H8: encouraging system of program team is positive correlation with significant performance of recessive knowledge.	T
transferring circumstance		H9: supporting technology conditions of program team is positive correlation with significant performance of recessive knowledge.	F
		H10: learning culture of program team is positive correlation with significant performance of recessive knowledge.	T

According to the above analysis, this paper holds that in factors effecting recessive knowledge, many can be regulated and controlled by enterprises. Therefore, in practice, if dominance of recessive knowledge of knowledge serving enterprises, the following should be met: (1) paying much attention to cultivating knowledge transferring and absorbing ability of the team members. Knowledge-serving enterprises may enroll professional counsel with experience and knowledge to contribute to sharing and expanding of recessive knowledge in enterprises, enhancing volume, depth and breadth of recessive knowledge in enterprises through strengthening training. (2)enhancing transferring will of knowledge-serving subject to recessive knowledge continuously. Research results show that knowledge transferring party' transferring will is the biggest factor influencing dominance of recessive knowledge. Recessive knowledge transfer in enterprises and groups mainly lies in whether the member mastering recessive knowledge is willing to share it with others and transform individual knowledge to group knowledge.(3)creating learning culture atmosphere of recessive knowledge. Program team's cultural atmosphere reflects its attention to knowledge transferring. Besides, team learning cultural atmosphere should be established based on relationship trust.

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