

The Impact of Knowledge Absorptive Capacity on Service Innovation Performance of Service Outsourcing Enterprises

Zhixiong Xiao^{1, 2}

¹*School of Management, Wuhan Technology and Business University, Wuhan 430065, China*

²*Development Research Center for Business Services of Hubei, Wuhan 430065, China*

Abstract: Knowledge absorptive capacity has an important impact on the service innovation performance of the service-based enterprise. This paper chooses the competitive advantage and customer satisfaction to measure the service innovation performance, analyzes the impact of knowledge absorptive capacity on the competitive advantage and customer satisfaction, and does an empirical research as the example of service outsourcing enterprises by using the structural equation model. The conclusion is that the improvement of knowledge absorptive capacity is conducive to improving the competitive advantage and customer satisfaction of service outsourcing enterprises, then improving the service innovation performance.

Keywords: Knowledge absorptive capacity, service innovation performance, service outsourcing enterprise

I. INTRODUCTION

Knowledge has become the most important resource of enterprise in the era of knowledge economy. The improvement of knowledge absorptive capacity will increase knowledge stock, enhance service innovation ability and increase service innovation performance. If the enterprise has the good knowledge absorption ability, it will have more flexible resource configuration, speed up the innovation process of products and services, and form the competitive advantage.

Many scholars have studied the knowledge absorptive capacity. The most famous scholars in the field are Cohen and Levinthal, Zahra and George. Cohen and Levinthal considered that knowledge absorptive capacity is the ability of an enterprise evaluating, absorbing and using external new knowledge in order to achieve specific enterprise objective, is one of the key elements of organization innovation, is conducive to external new knowledge smoothly into the enterprise and realizes the innovation goals of enterprise [1]. Zahra and George considered that the absorptive capacity is a series of organizational routines and the process of enterprises acquiring, digesting, transforming and utilizing knowledge, is a kind of dynamic capability that creates and uses knowledge and makes enterprises to obtain and maintain competitive advantage [2]. In addition, Lyles and Salk considered that the factors of knowledge absorptive capacity include understanding, digestion, organization, application of external knowledge [3]. Brown et al proposed the absorptive

capacity is composed of the prior knowledge, communication network, communication atmosphere from the views of internal characteristic of absorptive capacity [4]. Although the academic definition of knowledge absorptive capacity still exist a lot of differences, but the definition of Zahra and George can reflect the process of knowledge absorption.

There is no uniform definition of service innovation performance at present. Researchers often put forward some evaluation indexes from their research situation and experience. The effect of service innovation to the enterprise is in many aspects, so researchers generally adopt multi dimension index in the measure of service innovation performance. Cooper and Kleinschmidt drew three interactional performance indexes of financial performance, window of opportunity and market impact through factor analysis [5]. De Brentani put forward four independent indexes of market share, competition, cost and other driving factors [6]. Kaplan Norton pointed out that the service innovation performance should be measured from the financial, customer, internal processes, learning and growth [7]. Griffin and Page put forward the performance indexes of the overall interests of enterprise, project interest, product interest, financial benefits and customer benefits through the systematic taxonomy of early indexes [8]. Bilderbeek thought that service innovation is the result of interaction of various factors, put forward the four dimensional model of service innovation, including service concept, new customer interface, new service delivery system and selection of technology [9].

Storey and Kelly used financial measure, customer-based measure, internal measure and action plan measure as the indexes of new service performance [10]. In fact, the impact of service enterprise's innovation activities to the enterprise is in many ways. In addition to the above measures, service innovation can also play an important role in the intangible value, such as the improvement of corporate image, the enhancement of the ability of enterprises to develop new markets and the achievement of enterprise's diversified development.

Although scholars have carried out some research, there are still many problems. For example, in the service outsourcing enterprises, the dimension of knowledge absorptive capacity, the measure index of service innovation performance, and the impact of knowledge absorptive capacity on service innovation performance is not clear. This paper has some research on these aspects. In this paper, we investigate the service outsourcing by questionnaire survey, and analyze and deal with the data using statistical software and structural equation model. The findings suggest that knowledge absorptive capacity includes knowledge acquisition capacity, knowledge digestion capacity, knowledge transformation capacity, knowledge utilization capacity, the service innovation performance of service outsourcing enterprise can be measured by the enterprise competitive advantage and customer satisfaction, knowledge absorptive capability and enterprise competitive advantage was positively correlated, knowledge absorption ability and customer satisfaction was positively correlated.

II. THE THEORY AND HYPOTHESIS

A. *The Dimensions of Knowledge Absorptive Capacity of Service Outsourcing Enterprise*

Based on the process of knowledge absorption, the knowledge absorptive capacity of enterprises can be divided into knowledge acquisition capacity, knowledge digestion capacity, knowledge transformation capacity and knowledge utilization capacity. Knowledge acquisition capability refers to the capability of judging and obtaining external key knowledge. Knowledge digestion capability emphasizes that the external knowledge is effectively interpreted and understood by the enterprise. Knowledge transformation capacity can effectively integrate external new knowledge and internal existing knowledge. Knowledge utilization capacity can develop the new knowledge by using internal knowledge and external knowledge.

From the process of knowledge absorption, the improvement of knowledge absorptive capacity make service outsourcing enterprise have stronger judgment ability and more efficient in acquiring external

knowledge from entrust enterprises. In the stage of digestion and transformation of knowledge, because there are more knowledge stock and more perfect knowledge structure, knowledge innovation are also more likely to be produced. The accumulation of knowledge will become service innovation performance of enterprises through the commercialization of knowledge utilization stage.

B. *The Measure Index of Service Innovation Performance of Service Outsourcing Enterprises*

The service innovation performance of service outsourcing enterprises is mainly reflected in the competitive advantage of enterprises and customer satisfaction. In the highly competitive market, the competitive advantage is an important guarantee for the development of enterprise. In the traditional manufacturing outsourcing, our country achieves low cost competitive advantage because of low labor costs. But, with the country increasingly pay attention to the protection of labor rights, the low cost advantage is gradually weakened. The enterprise competitive advantage brought by the knowledge innovation is the main source of the performance increase of service outsourcing enterprise.

Another measure index of service innovation performance of service outsourcing enterprises is the satisfaction degree of customer. For the service outsourcing enterprises, if the performance of the outsourcing contract can't let customer satisfaction, they may lose a customer, even be in legal disputes because they is unable to perform the contract. The immeasurable negative effects will be brought to the benefits and image of enterprises.

C. *The Impact of Knowledge Absorptive Capacity on Service Innovation Performance of Service Outsourcing Enterprises*

1) *The impact of knowledge absorptive capacity on competitive advantage of service outsourcing enterprises*

Nonaka put forward the knowledge is the source of enterprise competitive advantage. The efficiency difference of a variety of resources is decided by the knowledge stock and the knowledge structure of enterprise [11]. If the enterprises have the good knowledge absorptive capacity, they gain stronger ability with lower cost, and form the competitive advantage of enterprises. Specifically, the good knowledge acquisition capacity can make the service outsourcing enterprises rapidly and accurately identify the value of knowledge and effectively and timely collect the knowledge in the rapidly changing external environment. The good knowledge digestion capacity helps enterprises to continuously improve the quantity and structure of knowledge to get more resource

flexibility. Resource flexibility enhances the difficulty of competitors to imitate, also helps enterprise more scientifically and more reasonably configure resources to overcome the rigidity difficulties of enterprise capability. The good knowledge transformation capacity integrates different sources, different structure and content, different levels of knowledge to achieve the reconstruction of knowledge, makes scattered knowledge, single knowledge, old and new knowledge form a new knowledge system to help the enterprise to grasp the opportunity. Knowledge utilization capacity applies integrate knowledge into enterprise service providing system to form a new organization capacity, effectively converts the knowledge of enterprises into the competitive advantage of enterprises, and ultimately promotes the improvement of enterprise performance.

Based on the above analysis, this paper puts forward the hypothesis H1: knowledge absorptive capability and enterprise competitive advantage was positively correlated.

2) *The impact of knowledge absorptive capacity on customer satisfaction of service outsourcing enterprises*

In the current fierce market competition, who can win the customer satisfaction will be able to occupy the market. Service is of intangibility, difference, inseparability and perishability. The intangibility of services requires the service outsourcing enterprises can quickly master the related knowledge. The good knowledge acquisition capacity is helpful to improve the efficiency of knowledge absorption and rapidly increase the accurate understanding of customer service requirements. The difference of service provides the opportunities for the talent of service outsourcing enterprise showing itself. If service outsourcing enterprises can give some reasonable suggestions with their own speciality when they provides outsourcing services for the entrust enterprise, the satisfaction of entrust enterprise will greatly be improved. The inseparability of service requires that service providers and consumers must communicate face to face at the same time. The good knowledge absorptive capacity of outsourcing enterprises enables them to effectively absorb all kinds of knowledge and skills in communication and improve the effectiveness and pleasure of communication. The perishability of service requires service providers must be timely response to customer needs. The good knowledge absorptive capacity can help outsourcing enterprises own more knowledge stock and acquire more perfect knowledge structure to improve the ability of timely response.

In a word, knowledge absorptive capacity can improve the speed and effectiveness of knowledge absorption, accelerate the innovation of knowledge,

enhance the overall image of the enterprise, make enterprises have a timely response to the changing needs of the market, and ultimately improve customer satisfaction. Therefore, this paper puts forward the hypothesis H2: knowledge absorption ability and customer satisfaction was positively correlated.

III. STUDY DESIGN

The design of the questionnaire in this study refers to a number of research results, especially the results of empirical testing. In this study, there are two level-one variables, those are knowledge absorptive capacity and service innovation performance. There are six level-two variables. The level-one variable of knowledge absorptive capacity consist of four level-two variables: knowledge acquisition capacity, knowledge digestion capacity, knowledge transformation capacity, knowledge utilization capacity. The level-one variable of service innovation performance contain two level-two variables: competitive advantage and customer satisfaction. Each of the level-two variables sets the number of observed variables based on the above theoretical analysis. All is 16 observed variables.

This study selects as much as possible some of the service outsourcing enterprises with obvious characteristics in making the selection of the sample because these outsourcing enterprises have a higher demand for knowledge and the knowledge absorptive capacity is more important for the development of enterprises. This study selected 16 service outsourcing enterprises. 220 questionnaires were issued by field interviews, e-mail, letters, and finally 192 questionnaires recovered. Recovery rate is 87%. The valid questionnaires are 168 and account for 88% of the questionnaire recovered.

IV. DATA ANALYSIS AND RESULTS

A. *The Reliability Analysis of the Data*

Reliability is used to test the correctness and accuracy of the measurement. This study uses the Cronbach alpha values as reliability criteria. Generally Cronbach alpha value greater than 0.7 indicates that the scale has a relatively high reliability.

1) *The reliability analysis of knowledge absorptive capacity*

The CITC index of the twelve questions of knowledge absorptive capacity is greater than 0.3 that is the minimum standard. The maximum value is 0.871 and the smallest value is 0.521. Total reliability coefficient of all questions of knowledge absorptive capacity is 0.939. As shows that the survey data is reliable and meets the requirement of research.

2) *The reliability analysis of service innovation performance*

The CITC index of the four questions of service innovation performance is greater than 0.3 that is the minimum standard. The maximum value is 0.851 and the smallest value is 0.747. Total reliability coefficient of all questions of service innovation performance is 0.903. As shows that the survey data is reliable and meets the requirement of research.

B. *The Validity Analysis of Data*

In order to verify whether the variables designed suit the structural equation model, this study will further analyze the scale by the convergent validity and the discriminant validity. The convergent validity tests the measure results of significant variables on the latent variable, discriminant validity tests the difference between significantly variables, the difference between the latent variables

1) *The validity analysis of knowledge absorptive capacity*

The Goodness of fit statistics of confirmatory factor analysis of knowledge absorptive capacity show χ^2/df equals 4.595, RMSEA equals 0.16. As shows that the survey data is valid and basically meets the requirements of research.

2) *The validity analysis of service innovation performance*

The Goodness of fit statistics of confirmatory factor analysis of service innovation performance show χ^2/df equals 15.23, RMSEA equals 0.28. As shows that the survey data is valid and meets the requirements of research.

C. *LISREL Model and Hypothesis Testing*

1) *The checking results of LISREL model*

The results of model testing of knowledge absorptive capacity impacting on service innovation performance are shown in Figure 1.

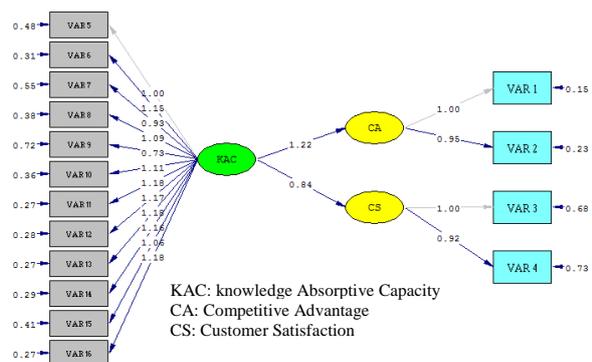


Figure 1. The impact of knowledge absorptive capacity on service innovation performance.

2) *The results of hypothesis testing*

The results of hypothesis testing show that all assumptions are true.

V. CONCLUSIONS AND ENLIGHTENMENTS

A. *Conclusions*

From the results of structural equation analysis, the positive relationships between knowledge absorptive capacity and enterprise competitive advantage, customer satisfaction are verified. The knowledge absorptive capacity plays a role on innovation performance of enterprises mainly through knowledge utilization capacity. The knowledge acquisition capacity is to acquire external knowledge sources, knowledge digestion capacity and knowledge transformation capacity mainly emphasizes the communication, sharing, internalization and sublimation of knowledge within the enterprise, finally knowledge is applied to the market in the stage of knowledge utilization capacity. By improving the enterprise competitive advantage and customer satisfaction, the knowledge makes a contribution to the service innovation performance of enterprise.

B. *Enlightenments*

Enterprises should strengthen the cultivation of knowledge absorptive capacity. Although knowledge absorptive capacity is divided into knowledge acquisition capacity, knowledge digestion capacity, knowledge transformation capacity and knowledge utilization capacity based on the process of knowledge absorption, but the knowledge from acquisition to utilization is not a one-way process, but a circular and spiral process. In the stage of knowledge acquisition, assessing external knowledge cannot do without prior knowledge. Knowledge is an objective existence, but the understanding of knowledge value are different from person to person. It is because the prior knowledge affect the ability of people to judge things. The prior knowledge is not innate, but is gradual accumulation of knowledge from the learning of theoretical knowledge and practical work. Therefore, enterprises should establish a knowledge management system to create a strong learning atmosphere in the enterprise, encourage employees to enhance learning and absorption, and ultimately form the knowledge absorptive capacity of enterprise. Enterprises should attach great importance to customer satisfaction, take customer satisfaction as an important standard to measure the enterprise service capabilities, and provide high quality service with high quality staff for customers. According to the ideas of comprehensive quality evaluation, customer satisfaction is one of the important criteria to measure the quality of products. Enterprises should strengthen the cultivation of

knowledge absorptive capacity of employees, so that employees can understand the customer demand with the fastest speed and provide with timely and thoughtful service with the professional skills for customers.

Enterprises should strengthen the knowledge management to build the core competitiveness of enterprises. To gain the competitive advantage from the knowledge management has become a global consensus. Enterprises should be fully aware of the value of knowledge management and build flat, flexible, flexible, network, virtualization organization structure from the reality of the enterprise. The enterprises should choose the appropriate technology of knowledge management, build the knowledge management system to adapt the development of enterprises, perfect the effect evaluation and incentive mechanism of knowledge management, improve the knowledge absorptive capacity and competitive advantage of enterprises.

ACKNOWLEDGMENT

This research is supported by the National Social Science Fund of China (NO. 12CTQ033) and Doctoral Fund Project of Wuhan Technology and Business University (NO. D2015002).

REFERENCES

[1] W. M. Cohen and D. A. Levinthal, "Absorptive

capacity: A new perspective on learning and innovation," *Administrative Science Quarterly*, vol. 35, no. 1, pp.128-152, 1990.

- [2] S. A. Zahra and G. George, "Absorptive Capacity: A Review, Reconceptualization, and Extension," *Academy of Management Review*, vol. 27, no. 2, pp. 185-203, 2002.
- [3] G. P. Huber, "Organizational Learning: the Contributing Process and the Literature," *Organization*, vol. 2, no. 1, pp. 88-115, 1991.
- [4] K. A. Smith, D. D. Degregorio, "Bisociation, Discovery, and Entrepreneurial Action, strategic Entrepreneurship: Creating an Integrated Mindset," *Oxford*, UK: Blackwell, 2002.
- [5] R. G. Cooper and E. J. Kleinschmidt, "What Makes a New Product a Winner:Success Factor at the Project Level," *R&D Management*, no. 17,pp. 175-190, 1987.
- [6] U. DE Brentani, "Success and Failure in New Industrial Services," *Journal of Product Innovation Management*, no. 6, pp. 239-258, 1989.
- [7] R. Kaplan and D. Norton, "The Balance Scorecard: Measure that Drive Performance," *Harvard Business Review*, no. 1-2, pp. 71-79, 1992.
- [8] A. Griffm and A. L. Page, "An Interim Report on Measuring Product Development," *Journal of Product Innovation Management*, vol. 10, no. 4, pp. 291-308, 1993.
- [9] R. Bilderbeek, P. Hertog, "Conceptualizing (service) Innovation and The Knowledge Flow Between and Their client," The results of SI4S Topic Paper 11, SI4S project,1998.
- [10] C. Storey and D. Kelly, "Measuring the Performance of New Service Development Activities," *Journal of Service Industries*, vol. 21, no. 2, pp. 71-90, 2001.
- [11] I. Nonaka, "The Knowledge-Creating Company," *Harvard Business Review*, no. 11-12, pp. 96-104, 1991.