

Research Article

The Methodology of Exploring the Impact of Organizational Service Quality Systems on Transformation and Upgrading of Traditional Industries

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Abstract: The aim of this study is to argue that the method of agent-based modeling and simulation can be used to explore the relationship between enterprise service quality systems and transformation or upgrading of traditional industries. Enterprises in traditional industries should improve the quality of service for the transformation and upgrading of their own enterprises. The establishment, improvement and implementation of the service quality systems are very effective ways to improve the quality of service. The culture and climate of the quality of service, which are the soul of the service quality system, determine the performance of service quality systems. The service quality systems can be evaluated and diagnosed by service quality climate survey. Customer service satisfaction survey can be used to measure the quality of service of an enterprise, because the ultimate effect of the quality of service is evaluated by customers. Compared to the conception of service quality management, the conception of transformation and upgrading of traditional industries is a more macro one. It is suggested that agent-based modeling and simulation can be used to explore the cross-scale relationship between enterprise service quality systems and industrial transformation or upgrading.

Keywords: Industrial transformation and upgrading, methodology, service quality systems

INTRODUCTION

Traditional industries generally refer to a range of industries retained through the rapid growth of the previous stage in the industrialization process. In different stages of economic development, the connotation of the traditional industries is different. Most of them belong to the raw material industry in the secondary industry and the light processing industry in the processing industry on the statistical classification, including textiles, light industry and partly mechanical, chemical and building materials and so on. From the view of factors of production intensity, most of the leading products of traditional industries show that the state of oversupply and production capacity is idle. Manufacturing industry is one of the most important industrial sectors in China. In the process of global value chains, China's manufacturing industry cluster met a lot of practical problems. "Economic and Social Development The 12th Five-Year Plan" pointed out that we should optimize the structure, improve the variety and quality, enhance the industrial supporting capacity, eliminate backward production capacity, develop advanced equipment manufacturing industry, adjust and optimize the raw material industry, transform and elevate the consumer goods industry, and also promote

the manufacturing sector to grow stronger. Enterprises in traditional industries should improve the quality of service for the transformation and upgrading of their own enterprises. The establishment, improvement and implementation of the service quality systems (ISO9000, 2000; Ehlers, 2009) are very effective ways to improve the quality of service.

The industrial transformation and upgrading refer to the process of the improvement of science and technology and socialization of production, elimination the backward industries, support and guide the emerging industries, strengthening the high technological transformation of traditional industries, improving the efficiency and effectiveness of the industrial structure. Industrial transformation and upgrading at least include:

- The upgrade from low value-added to high value-added
- The upgrade from the high energy consumption and high pollution to low-power low-pollution upgrades
- The upgrade from extensive to intensive

Then, transformation and upgrading of traditional industries refer to the study and process of the high

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technological transformation of traditional industries and improve the efficiency and effectiveness of the traditional industrial structure. Mei (2005) suggests that:

- Industrial upgrading includes four modes: process upgrade, product upgrade, functionality upgrade and cross-industrial upgrade.
- Five aspects of upgrading of the technical capabilities, innovation, the external associated, social capital and regional innovation system are included in the connotation of the cluster upgrade.

For manufacturing enterprise service-oriented, Hu (2011) finds that:

- Many traditional manufacturing companies integrated existing business through the development of producer services, forming of a new growth point, enhancing the overall competitiveness of enterprises through the development of integration between the industries.
- Today, consumers pay more attention to product personalization and the convenience of using products and the increase of the added value of services.

Objective of the study is the methodology of exploring the impact of organizational service quality systems on transformation and upgrading of traditional industries. The aim of this study is to argue that the method of agent-based modeling and simulation can be used to explore the relationship between enterprise service quality systems and transformation or upgrading of traditional industries.

THE CONCEPTS OF SERVICE AND QUALITY

In the meaning of words, service is to perform a particular task or as a business. Different from the physical products, services production and consumption are often simultaneously. Multi-level, multi-dimensional interactions will take place between service consumers and enterprises.

The concept of quality: Many people and institutions define the concept of quality. ISO 9000 defined quality as “the extent of a set of inherent characteristics (characteristics in the product or service itself has) to meet the needs” (ISO9000, 2000). Six Sigma defines quality as “the number of errors in the millions of tests” (Pande and Holpp, 2002). Crosby (1979) thought quality is “meeting the needs”. Juran and Ebrary (1999) thought quality is “suitable”. Kano *et al.* (1984) saw quality as a two-dimensional system; two-dimensional coordinates are the “basic quality” and “attractive quality”. Pirsig (2005) thought quality is “results of the intentions”.

The concept of the service quality: Service Quality (referred to SERVQUAL) is a difficult concept to define (Cronin and Taylor, 1992). Service quality is a business management term, describing the extent to reach the reservation service objectives (Edvardsson, 1988; Gustavsson *et al.*, 1991; Rapert and Wren, 1998; Landrum and Prybutok, 2004; Akbaba, 2006; Ramsaran-Fowdar, 2007). Domestic study of service quality mostly concentrated in the quality of library services, logistics service quality. As for the role and impact of service quality system on transformation and upgrading of traditional manufacturing industries, there is no study which can be directly referenced. Services are often provided to customers with the product in traditional manufacturing industries. Then, for the service quality of traditional industries, especially traditional manufacturing industries, we should not only pay attention to improve the quality of the service itself, but also pay attention to the influence of the ergonomic design of products and the environment on customer experience. Karapetrovic (1999) believes that the quality of service is closely related to human factors engineering. It suggests paying attention to the ergonomic design of products and the environment to improve the service quality. And it also suggests that service quality systems consist of three parts: service, quality cycle processes and resources.

The concept of the service equality systems: The culture and climate of quality of service are the soul of the service quality system (Saraph and Sebastian, 1993; Sinclair and Collins, 1994; Kanji and Wong, 1998; Cameron and Sine, 1999; Dellana and Hauser, 1999; Yorke, 2000; Harvey and Stensaker, 2008; Berings *et al.*, 2011). The service quality organizational structure is the protection of the quality of service system. Service quality methods are specific methods to guide daily quality of service. Service quality system documents can be classified into four categories: manual, procedures, job files and operating records (ISO9000, 2000). In general, the culture and climate and organizational structure of service quality are written in the manual of service quality system documentation (ISO9000, 2000). Service quality method is generally written in the program files, job files and operating records.

RESEARCH METHODS ON THE ROLE OF SERVICE QUALITY SYSTEM FOR THE TRANSFORMATION OF RADITIONAL INDUSTRIES TO UPGRADE

The research methods on the role of service quality system for the transformation of traditional industries to upgrade include survey methods and agent-based simulation methods.

Questionnaire survey: The culture and climate of service quality, determining the actual operating results

of the quality of service system, are the heart and soul of the service quality management system (ISO9000, 2000). Therefore, a service quality climate survey can be used to evaluate and diagnose a service quality system (Adebanjo and Kehoe, 1998, 1999; Loukkola and Zhang, 2010). Actually, the effect of service quality is ultimately made by the company's customers to judge, therefore, the survey for enterprise customer service satisfaction is needed to understand the quality of service of an enterprise. Satisfaction surveys are generally in the form of the questionnaire; thus development of service quality of the traditional industrial enterprises satisfaction questionnaire is needed (Lewis and Booms, 1983; Edvardsson, 1988; Gustavsson *et al.*, 1991; Cronin and Taylor, 1992; Rapert and Wren, 1998; Karapetrovic, 1999; Landrum and Prybutok, 2004; Akbaba, 2006; Ramsaran-Fowdar, 2007). In order to understand the transformation and upgrading of traditional industries, it is needed to understand the situation of transformation and upgrading and the service quality system of traditional industries. Therefore, we also need to develop a set of questionnaires for the entrepreneur's of the traditional industries, using Likert scale. At the same time, in order to supplement the inadequacies of questionnaire, researchers should select several of good-understanding in traditional industries experts, scholars and famous entrepreneurs to interview thus understanding the transformation and upgrading and the service quality management of traditional industries more comprehensive.

Agent-based modeling and simulation methods: The transformation and upgrading of traditional industries, a more macro concept compared with their service quality management, is industry economics phenomena and Correspondingly, the service quality system is the concept of a corporate management level, compared with which the concept the transformation and upgrading of traditional industries is more micro. Research on the implementation service quality system made on the transformation and upgrading of traditional industries, covers the whole traditional industries. And behavioural experiments in the complex socio-economic system will not be only costly, but also the independent and dependent variables and the confounding factors of it are too difficult to control, so that the credibility of behavioural experiments is difficult to guarantee. Therefore, making actual behavioural experiments of the whole industry is not feasible at present. In fact, in management science and sociology, the relationship and mechanism of action between the concepts of this cross-scale are difficult problems. Fortunately, agent-based modeling and simulation are gradually to be considered as an effective method that can solve complex socio-economic system management and control issues in cross-scale (Gilbert and Conte, 1995; Epstein and Axtell, 1996; Doran, 1997). In other words, researchers

can take advantage of advanced computer and social simulation techniques and conduct artificial-social behaviour experiments in the computer to study the problem of the relationship and interaction mechanism of cross-scale concept in the complex socio-economic system.

CONCLUSION AND LIMITATIONS

The Lee Scott scale form is generally used in the surveys of the climate and customer satisfaction of service quality (Adebanjo and Kehoe, 1998, 1999; Loukkola and Zhang, 2010; Lewis and Booms, 1983; Edvardsson, 1988; Gustavsson *et al.*, 1991; Cronin and Taylor, 1992; Rapert and Wren, 1998; Karapetrovic, 1999; Landrum and Prybutok, 2004; Akbaba, 2006; Ramsaran-Fowdar, 2007). Developing the questionnaire of the climate and customer satisfaction on service quality is the first work that researchers need to complete. Researchers should select some typical enterprises, carry out comprehensive, in-depth the climate questionnaire, the satisfaction surveys of service quality and explore the dimensions of the structure and the relationship between them. Service quality system is a strategy for enterprises themselves to strengthen the service quality management. Thus, we need to study the impact of its traditional industries transformation and upgrading. The transformation and upgrading of traditional industries are industry economics phenomena. Sampling and questionnaire should be carried out within entrepreneurs and management in various development levels enterprises in the industry as a whole investigation to understand the transformation and upgrading of traditional industries.

We can build a calculation experimental platform about the complex socio-economic system with the help of Java and Swarm (Terna, 1998; Minar and Institute, 1996) to research the influence and mechanism conducting service quality system by enterprises themselves made on the transformation and upgrading of traditional industries. The service quality system in enterprises themselves and the transformation and upgrading of the whole traditional industries are considered in the experimental platform (Nikolai and Madey, 2009). A variety of behavioural experiments can be carried out on this calculation experimental platform to explore the relationship between the cross-scale service quality system in enterprise and the transformation and upgrading of traditional industries.

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