RESEARCH ON INFLUENCING FACTORS OF SERVICE INNOVATION MANAGEMENT IN E-BUSINESS ENTERPRISES

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Abstract

Title: Research on Influencing Factors of Service Innovation Management in E-business Enterprises

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With the increasing of information resources on Internet, More and more companies with same or similar type of products are shifting their focuses to services due to obvious homogenization in technologies, quality and styles. Only through continuous service innovation can meet the ever-changing customer needs.

In the paper, based on the research objective, corresponding research model and assumptions are proposed based on professional theories, and correlated variables are defined reasonably; questionnaires are distributed to objects of study and collected to make clear survey design and analysis method and build and count model further according to variables. According to hypothesis test and collected survey data, the validity of assumptions are analyzed using tools like SPSS to form research model to research the path of influence of E-business customer services to customers' satisfaction and loyalty. Relevant suggestions for development strategies are made for the innovative management of E-business enterprises, including enhancing their strength, improving service level. In the last part, the future research direction is put forward according to the limitation and deficiency of the research.

Key words: E-business enterprises; Service innovation management; Customer service satisfaction

摘 要

题目: 电子商务企业服务创新管理的影响因素研究

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当今世界，网络的发展引发了各个行业的巨大变化，处于市场当中的各个企业之间的竞争愈发激烈，对于同类型产品来讲，由于技术、质量以及样式等方面的同质化现象明显，越来越多的企业将对于产品的侧重转移到服务当中来。而针对电子商务企业来讲，服务创新是其突破市场的重要武器。只有通过不断的进行服务创新促，才能够满足不断变化的客户需求。

本文根据研究目的提出相应地研究模型和假设，依托专业理论知识，对相关变量进行合理化定义，针对研究对象发放和回收调查问卷。明确调查设计和分析方法，进一步根据变量进行模型的构建和推演。根据假设检验以及回收数据，利用 SPSS 等工具分析研究假设的有效性，形成研究模型，研究电商客户服务对消费者满意度及忠诚度的影响路径，根据模型对电商客户服务的未来发展提出具体建议。并对电子商务企业服务创新管理的发展策略提出相关的建议，应当增强自身实力，提高服务水平，灵活响应需求，服务标准透明，形成良好的服务态度，构建服务创新策略实施的支撑和保障体系。最后根据本文的研究情况提出本研究的局限和不足之处，说明今后的研究方向。

关键词：电子商务企业；服务创新管理；客户服务满意度

Content

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CHAPTER 1

INTRODUCTION

1.1 Background

With the accelerated economy development in the world, the growth of service industry is playing a more and more prominent role in economic growth. In the worldwide, the service value added takes up above 60% of the total production and up to 70% in developed countries. From this, we can see that service industry plays an important role in national economy and become a pillar industry. With the deepening of division of social labor, the demands on professional services increases obviously, and this makes competition in service industry fiercer and reduces market entry barrier and thus promotes rapid growth and development of service industry. The development of service industry not only promoted technical innovation, but also accelerated the development of social economy.

From the 1990's, thanks to the rapid growth of internet global wide, the modern business presents three features: ever-increasing goods supply capacity, continuously-increasing demand and intensifying global competition. In the modern business and trade, information technology plays an important role. It can accelerate the spreading of business information and enable in-time access to market information. Under the background of deepening of internationalization, independent E-business enterprises take shape. They mainly specialized in various commercial activities and trade activities. Following 1980's, China witnessed high speed economic development. However, such rapid development was extensive development, and generated a series of problems. How to improve the development efficiency of enterprises and make more contributions to sustainable development are the keys to research of enterprise development. E-business, the emerging internet-based business mode has such advantages as low cost, high efficiency and more chances; the research on E-business development has been the hot topic in economic research in China. In 2015, Premier Li Keqiang proposed 'Internet Plus' action plan in Report on the Work of the

Government on the National People's Congress and the Chinese Political Consultative Conference and emphasized the development of E- business. In recent years, E-business in China has gain significant development; however, a series of problems still exist, for example, backward institutional improvement.

Currently, E-business economy scale in China has seen continuous growth with decreasing growth speed. In the future, the E-business growth will slow down gradually. only through continuous innovation and finding the difference between E-business enterprises and traditional enterprises to create value and seek development and growth. This requires E-business enterprises to make innovations in service and management under the tendency towards homogenization. Under the complex market environment, E-business enterprises are facing the challenge of homogenization of products and services, if they want to seek survival and development, they shall make service innovation based on the advanced practical international experiences and theoretical researches as well as E-business market conditions to meet the improved service expectation of customers, and form inimitable core competence and realize reliable and sustainable development of the enterprise. With the ever-changing economic and internet environment, effective management of service innovation activities is not only E-business enterprises' internal needs, but also the inevitable requirement for the E-business enterprises by the economic society.

Bilderbeek et al. (1998) proposed service innovation four-dimensional model, and the four-dimensions cover service concept innovation, customer contact innovation, service value delivery innovation and technical innovation. Enterprises shall pay attention to the identification and management of the four dimensions during service innovation. Jaw et al. (2010) researched the influence factor, new service features and market demand of service innovation and its relation with enterprise innovation performance. Among the results of above-mentioned researches of service innovation, "reverse product cycle" and "four dimension theory" are more recognized theories, and are of practical guiding significance. However, there is few research on the generation process and development track of service innovation, as well as its

operation principle, innovation model, systematic innovation theories and methods, and enterprises lack of theories to guide practices. In addition, E-business enterprises are different from traditional service industry and manufacturing industry, and the relatively mature service innovation theories developed in traditional service industry and manufacturing industry are not that suitable for E-business enterprises. Therefore, while utilizing the existing innovation theories, E-business enterprises shall explore service innovation management mechanism for E-business based on the actual conditions to help E-business enterprise to integrate the E-business's development strategy and unique development track into the service innovation model and management mechanism to improve the comprehensive competitiveness of E-business enterprises. Meanwhile, the improvement of the service innovation management mechanism for E-business enterprises shall also be paid attention to, so as to integrate the unique features of E-business enterprises into the service innovation management mechanism and compare the expected effect to the actual role of management mechanism in service innovation and establish special service innovation department to organize innovation resources and improve the enterprise competitiveness.

1.2 Research Significance

In China, there are more and more researches on service innovation ability of E-business enterprises. However, through reference made to relevant literatures, it is found than few researches on evaluation of service innovation ability is made. Evaluation on service innovation ability cam helps E-business enterprises know their service innovation ability and take targeted measures to improve their innovation abilities. Therefore, the evaluation of service innovation abilities of E-business enterprise is of great theoretical and practical significances.

1.2.1 Theoretical Significance

There are not many researches on service innovation ability of E-business enterprise, and researches are mainly qualitative researches, quantitative researches are very few. In this paper, based on service innovation theories, service innovation

ability evaluation index system tailored to E-business enterprises' service innovation features is established through both quantitative and qualitative method to find the factors influencing E-business enterprises' service innovation, and build service innovation ability evaluation model for E-business enterprises based on the system; this can not only supplement innovation ability evaluation contents, but also provide guidance and reference for both E-business and other enterprises in research of service innovation ability evaluation method and idea.

1.2.2 Practical Significance

Service innovation ability evaluation of E-business enterprises is the basis for service innovation of E-business enterprises; it can not only help the E-business enterprises in improving innovative ability, but also help those organizing more effective service innovation activities to improve the E-commerce service level and win the market and competitive edge. In addition, the innovation ability evaluation can provide directive guidance for E-business enterprises in improving service mode and broadening interaction channel with customers to enhance the enterprise's competitiveness and interaction between the enterprise and customers, and improve customer satisfaction to some extent. Thus, help E-business enterprises to gain more market shares and improve their core competitiveness.

1.3 Research Objectives

With the rapid development of E-business industry, service innovations of E-business enterprises are attracting more and more attentions. Under the increasing competitions among E-business enterprises, to gain and maintain dominant position in the market competition, an E-business enterprise must innovate services continuously to realize the E-commerce service value enhancing. Nowadays, the commercial system of E-business enterprises is complicated and full of uncertainties, and only through continuous service innovation can the enterprises adapt to the complex and ever-changing competition environment and achieve sustainable development. Service innovation ability is the basis for innovation activities, and a reasonable and fair evaluation of service innovation abilities play a significant role in helping E-business enterprises in service innovation.

In this paper, based on researches in relevant literatures and service innovation theories, service innovation ability evaluation index system tailored to E-business enterprises' service innovation features is established through both quantitative and qualitative method, to build service innovation ability evaluation model for E-business enterprises based on the system; factors influencing E-business enterprises' service innovation are analyzed to make improvements; This can not only help E-business enterprises in knowing their service innovation abilities, but also indicate direction for the enterprises to improve their innovation abilities in service.

1.4 Research Theoretical Framework

The definition of customer satisfaction used in this paper is given by Professor Hunt: the connotation of E-business enterprises' customer is the satisfaction of customers' needs, including whether it is a happy purchasing, the comparison between actual effect and expected effect as well as purchasing process, consuming experience, benefits and sense of satisfaction.

As for loyalty of customers of E-business enterprises, based on relevant researches by Anderson, Parasuraman, Stum and Thiry, it is defined in this paper that the customer loyalty is the synthesis of continuous purchasing on internet, recommending to other and the satisfaction towards other competitors.

The theme of this paper is the research on the influence factor of service innovation management of E-business enterprises; SERVQUAL Scale is used for investigation, which is studied and verified for many times in international researches. Scale designed by Wan Jun and Li Jing for E-business customer service quality evaluation is also used in the preparation of questionnaire according to actual conditions.

In this paper, five specific influence factors are researched based on existing researches, namely people interaction, reliability, convenience, problem solving and appearance. The customer satisfaction is measured in the following four aspects: the comparison between expectation and actual condition, purchasing and consuming experience, consumption benefits and emotional satisfaction.

To measure customer loyalty, four pattern models researched by Stum and Thiry are

used for research and analysis is carried out from the following four aspects: repeat purchase, purchasing of other products from one company, recommending to others and saying no to competitors. In addition to Gillespie factors, the paper also measures the E-loyalty, i.e. the visit times of site and staying-on-site time and relevant information. All the items in this paper are measured using Likert Scale, from A to E represent" from totally disagree to totally agree".

Based on this, the main objective of this paper is to research the influence of such factors as E-business service staff interaction, appearance, reliability, problem solving and convenience on customer satisfaction and loyalty; see Figure 1-1 for detailed research theoretical model framework.

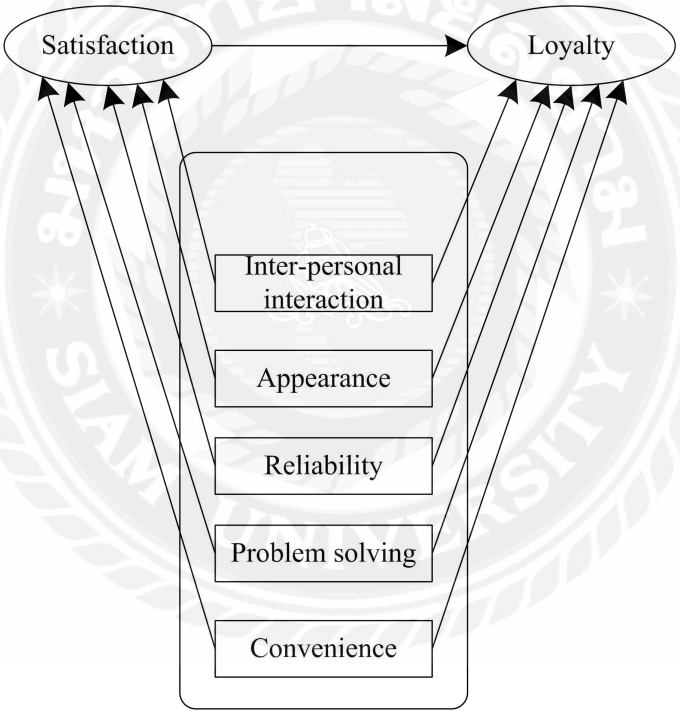

Figure 1-1 Theoretical Model for Research

CHAPTER 2

LITERATURE REVIEW

2.1 Structure

This chapter is the literature review on researches on service innovation management at home and abroad.

2.2 Foreign Literatures

2.2.1. Definition and Classification of Service Innovation

In 1995, it is shown from empirical research of EU SI4S project that the universal innovation concept proposed by Schumpeter can be used in the innovation in service industry. However, service industry has unique features that are different from other industries: it is interactive with its customers, which determines the particularity of service innovation. Therefore, after in-depth research on the service enterprises in Europe, SI4S deems that service innovation is the process of providing innovative products or upgrading the existing products or improving existing service delivery mode using new technology or integrating new technologies in the original services.

Gadrey (1995) deemed that the differences among services make essential differences between different service innovations. Therefore, service innovation is the re-integration of resources, technologies and teams through a new method or thinking mode. It meets the existing customers' demand or attracts potential customers through new service modes. Sundbo (1997) proposed that service innovation is the improvement of services through various means to enhance customer value and promote enterprises' competitiveness ultimately. Alam (2002) highlighted the importance of customer-oriented service innovation, so as to provide customers with new products or services and brand new service innovation process. Service innovations are not only emerged in service industry, they are present in large numbers also in manufacturing industry and some public service industries. Therefore, service innovation is defined, in broad sense: innovation relevant to services, and in

narrow sense: innovation made by service enterprises in service industry to improve service quality or create more economic benefit and provide more efficient service with higher quality to customers and the market.

Djellal and Gallouj (2005) proposed service innovation classification methods for medical industry according to their researches and investigations in medical industry. Tether (2007) classified innovations into four different types: product innovation, production process innovation and delivery process innovation based on investigation of innovation in different four service industries. Sundbo and Gallouj (1998) performed SI4S (Services in Innovation, Innovation in Services) innovation investigation covering all the service trades, and they classified the innovation into the following five types, i.e. product innovation, process innovation, organization innovation, market innovation and structure innovation.

Among service innovation classification researches, four-dimensional model proposed by Den Hertog (2000) is the most representative one, the model classified service innovation into four types: new service concept, new customer interface, new delivery system and new system selection. There are some scholars classify service innovation through different modes and methods, see details in Table 2-1.

Table 2-1 Research on Classification of Foreign Service Innovations

Author	Service Innovation Classification	Industry	Research Type

Barras (1986, 1990)	Production innovation and process innovation		
Gadrey, Gallouj (1995)	In consultation industry: product innovation, process innovation, organization innovation In insurance industry: service product innovation, structure innovation, spontaneous innovation and process organization innovation Electronic information service industry: new product or service creation, product or service improvement, process innovation	consultation, insurance and electronic information service industry	Interview
Gallouj, Weinstein (1997)	Radical innovation, gradual innovation, spontaneous innovation, combined innovation and ad ho innovation		Concept research
Miles (1994)	Product innovation, process innovation (background innovation), Delivery innovation (foreground innovation)		Concept research
Den Hertog (2000)	New service concept, new customer interface, new delivery system and new system selection		Concept research

Avlonitis (2001)	New services in market, new services in enterprise, new delivery process, service line extension, service improvement and service repositioning	Financial Industry	Questionnaire survey
Vander Aa, Elfring（2002）	Innovation organized by several units jointly, new service combination, customers as innovation participants and technical innovation	Telemarketing, haircut, car renting, furniture sales, professional cleaning, medicine sales, engineering and logistics service industry	Case study
Sundbo (2003)	Product innovation, process innovation, organization innovation and market innovation	Insurance company, bank, credit and credit card company, law firm, cleaning and labor service company	Case study
Drejer (2004)	External relation innovation and professional field innovation, integrated innovation and ad hoc innovation		Concept research

Djellal, Gallouj (2005)	Open innovation, retrospective innovation, concentrated innovation and combined innovation	Hospital	Concept research
De Vries (2006)	Radical innovation, gradual innovation, compound innovation and Ad Hoc innovation	Insurance and social security administrative organ, information technology service providing industry, public and enterprise internal education serves provider and telecommunication industry	Case study
Sundbo (2007)	Product innovation, process innovation, market innovation, organization innovation, technical innovation and service extension	Hospital, hotel, travel agency and transportation industry etc.	Questionnaire survey and qualitative interview

2.2.2. Service Innovation Theory and Application Research

Foreign scholars started service innovation researches in the last century and have made some representative achievements. Barras (1990) researched the service innovation using innovation research methods used in manufacturing industry, and proposed the "Reverse Product Cycle" theory based on similar research perspective.

Djellal (2005) made efforts to find the unique features of service innovation to distinguish service innovation with manufacturing innovation, and proposed differentiated research theories such as "ad hoc innovation mode" and "service professional path". Gallouj (1997) tended to have more comprehensive research perspective, and made research with "integration method" and combined technical innovation in industry and non-technical innovation in service industry.

2.2.3. Research on Service Innovation of E-business Enterprises

Foreign scholars' researches are focused on the research of service innovation in E-business enterprises of certain industry, generally are tourism e-business enterprises and B2B service innovation case study. Howells (2006) took Megabus in British as example; the company mainly provides services in buses and trains with very competitive price in British. The main reason of its success is continuous innovation in service. It has no physical ticket company, and the customers buy ticket and make payment on line; Megabus will send the ticket to the customers through E-mail and short message, and the customers can get on the bus by showing the message. This kind of service mode not only improves customers' satisfaction, but also lowers the service price significantly.

Due to lake of theoretic annotations in innovation activities currently and no agreement has been made in key factors of service innovation, and most scholars make researches from perspective of technical innovation. Driessen and Ende (2006) continued the research from the perspective of technical innovation, and validated 14 key factors in work plan, team, officer, executives participation, external organization and project implementation, and a conclusion similar to Cooper technological renovation influencing factors was made - the technical innovation -based research has key factors similar to that of service innovation.

As the service industry is receiving more attention of scholars as independent industry, scholars are paying more attention to research of key influence factors of service industry under certain circumstances. In early days, a large amount of researches deem that service industry has similar innovation influence factor with that of manufacturing industry. Johne and Snelson (1988) found in their research that

organizational factors play an important role in both manufacturing industry and service industry. The inseparability and perishability of service products require all the organization internal members to participate in innovation more. On the other hand, some scholars think that the key factors of service innovation are greatly different from that of technical innovation; although with relatively similar factors, but the importance of those factors have obvious differences. Cooper (1991) deemed that, services are invisible, cannot be stored and are used at the time of being produced, which constitutes the key factors making service innovation different from that of manufacturing enterprises. Some key factors influencing the development of new products cannot be used to develop new services, the most obvious example is product edges, and the reason is that the easy imitation feature is not obvious in service industry. Poppelbuss et al. (2011) carried out comparison study on 10 projects in 5 companies from the perspective of creating superiorities in product competition. Two failed and successful cases are studied respectively for each company. The four categories and 25 factors influencing innovation were researched, and 11 key factors were found, and the conclusions were quite different.

On measurement of service innovation performances, many scholars made detailed performance indicators based on their research fields and provided necessary judging criteria. Voss (2002) used direct measurement method to measure the innovation performance of services, and pointed out that the performance of service development is the measure for successful service innovation. Therefore, measurement indicators include business finance indicator, service quality, competitiveness and enterprise resources allocation. Miles (2008) classified service innovations into product innovation, business mode innovation, business process innovation to choose measurement indicators according to different types of features.

Vida Dacidaciciene, Jonas Tolcaisas (2011) summarized the evaluation standards for e-commerce site and conducted questionnaire survey on 81 persons in Lithuania and compared with users in China; it was summarized that the main standards for E-business site evaluation are: user-friendliness, user navigation, security assurance, real-time help and site contents. Other standards (e.g.: web page

design, memo finding and innovativeness etc.) are determined according to macro-environment and customer behaviors.

Layla Hasan, Emad Abuelrub (2011) evaluated the service standards of E-business through different methods, and proposed evaluation methods for enterprises in different service types under general condition based on these researches. The detailed evaluation dimension covers organization quality, design quality, user-friendliness quality and content service. Through detailed researches, it was found that among other influencing factors, customers' loyalty is the most important variables in retail E-commerce. He also proposed that customers' privacies, customer satisfaction and service efficiency are effective factors influencing service quality.

Ehsan Sadeh, Dr Leila Mousaci et al. (2011) evaluated the causal relationship among E-service quality, customer satisfaction, reliability and customers perceived value, and summarized the structure model of these factors. It was found that customer loyalty is the most important variable and the most susceptible variable to other factors in retail e-commerce, and also the valid dimension in E-business system.

2.3 Domestic Literatures

2.3.1 .Definition and Classification of Service Innovation

There are also many scholars have researched the definition of service innovation, for example, the broadly and narrowly-defined service innovation proposed by Wu Guisheng and Lin Lei from Tsinghua University (2004) are similar to the ones proposed by foreign scholar mentioned above. Xu Qingrui et al. in Zhejiang University (2003) deemed that the service innovation is the improvement of the original services. New services and products are not mentioned in their article. It indicates that the definition of service innovation is the base for the research of service innovation. Wang Lin (2009) focused on the narrowly-defined innovation; he deemed the object of service innovation is the service itself, and the innovations on

organization and operation process are not covered in the definition of service innovation.

Some domestic scholars have also researched service innovation, but not many research achievements have been made. In current domestic researches, the most mentioned one is the classification method proposed by Wei Jiang (2008, 2009). Based on research of case study, he divided service innovation into concept innovation and delivery innovation. Zhang Yu (2005), Dai Yanshou (2003) and Zhang Qiuli (2005) classified service innovation as follows. See details in Table 2-2.

Table 2-2 Classification Research of Service Innovation in China

Author	Service Innovation Classification	Industry	Research Type
Dai Yanshou (2003)	From perspective of service operation process, enterprise service innovations are classified into design innovation, operation innovation and marketing innovation etc.; From perspective of service system, the service innovation of enterprises mainly includes organization structure innovation, delivery mode innovation and process innovation etc.; From perspective of service management function division, enterprise service innovations cover core service innovation and additional services innovation etc.; From perspective of implementation, enterprise service innovations are classified into facility innovation and personnel skill innovation etc.		Concept research

Zhang Yu, Lin Lei (2005)	Process innovation, organization innovation, market innovation, technical innovation, delivery innovation, re-organization innovation, formalized innovation and ad hoc innovation.		Concept research
Zhang Qiuli, Sheng Ya (2005)	Service innovation can be divided into radical service innovation (creation of new core services) and derivative service innovation		Concept research
Wei Jiang, Wang Lin (2008, 2009)	Concept innovation and delivery innovation	Financial service industry, information and communication service industry and commercial service	Case study
Xu Ming (2011)	Service innovation five-category classification: micro-service innovation, simulation-type service innovation, extended service innovation, offside service innovation and large service innovation.		Concept research

Gao Shuncheng (2013)	Three dimensional and five grade evaluation innovations, the three dimensions are respectively innovation innovativeness, degree of dependence on technology and the difficulty of resources access required for innovation.		Concept research

From the table, it can be seen that innovation classification by domestic scholars and classification by foreign scholars can be traced to the same origin, and they are all based on the research of Gallouj et al. Domestic researches are based on the in-depth interpretation of the existing literatures without creative research.

2.3.2. Service Innovation Theory and Application Research

Domestic researches on service innovation are slightly later than foreign researches, and mainly focus on the innovations in enterprises and department. Lin Lei and Wu Guisheng (2005) deemed that service innovation is intangible. The idea is proposed from the perspective of enterprises for innovation is made to serve customers, and the customers' needs change with time; therefore, the innovation degree varies from person to person. These are the basic features of service innovation. Many scholars have researched service innovation model from different perspectives, e.g. Wang Tian and Zhong Xianwen (2005) built correlation model from a dynamic perspective; Lv Yan et al. (2006) analyzed service innovation modes based on the functional characteristics of innovation system; Ren Licheng (2007) found the significance of alliance network and researched service innovation model based on this. Such research achievements enriched research achievements on service innovation. Zhang Yu et al. (2005) classified the service innovation in detailed, and they deemed that service innovation not only includes such tangible innovation as product innovation and technical innovation, but also include intangible innovations like organization innovation, market innovation and process innovation and other modes such as deliver innovation, re-organization innovation, ad hoc innovation and

formalized innovation.

Most of empirical researches on service innovation carried out by domestic scholars are based on producer services from micro-view; especially, financial enterprises and library service innovation have the most achievements. Wang Dehe (2005) proposed some countermeasures and guidance for improvement of present situation and enhancing financial service innovation. He deemed that the derivate financial instrument must be developed to achieve rapid development of financial industry, meanwhile, financial supervision must be enhanced and more financial talents shall be cultivated to accelerate reform of financial system. Chen Yongling (2009) analyzed new challenges the libraries are facing in the digital era, and she thought that new service innovation ideas shall be find actively using the advantages of traditional libraries. Meanwhile, many scholars have made relevant researches on commercial bank service innovation (Fan Chunhui, 2008), tourism service innovation (Guo Jianying, 2008) and insurance service innovation (Song Zhijie, 2009) etc.

2.3.3. Research on Service Innovation of E-business Enterprises

The development of E-commerce provides a chance for innovation of enterprise service, and there are many researches on service innovation of E-business enterprises at home and abroad. Li Zhendong (2000) pointed out that early E-business service innovation researches are used to discover the functions of E-business platform rather than only building online display platform. Many enterprises think that establishing an E-business site can achieve E-business without considering service innovation to achieve E-business. Enterprise service innovation is firstly the service innovation for suppliers including online bidding and information sharing, and secondly, the service innovation for customers. Content mainly are: unique site design, individual customization and full utilizing of various customer communication channel etc. After that, scholars noticed that E-business provides a new platform for enterprise service innovation, and the rapid development of internet promoted the rapid development of commercial activities on internet. Wu Yingliang (2003) proposed that modern information technologies led by computer network have great information collection, storage, analysis and spreading capacity, and their application

in commercial activities makes E-commerce open and global with low cost and high efficiency. At present, many enterprises have built E-business sites, which supplement traditional commercial models and realize many enterprise services those are only theory in traditional model. In other words, E-business provides a new platform for enterprises' service innovation.

E-business for suppliers (B2B model) is an on-line business among upstream and downstream firms. Li Yancheng (2003) proposed B2B mode based on supply chain management concept, according to which, the center manufacturer is the core that connects upstream suppliers and downstream franchisers as well as logistic & transportation providers, servicers and dealers and correspondence banks vertically, and unnecessary operation and consumption are eliminated from the whole chain through electronic means. Thus, purchase and logistic costs of enterprises are reduced to improve respond speed and improve market competitiveness of E-business enterprises.

Service innovation for customers. Du Rongbao (2006) proposed the following interaction modes between enterprises and customers under E-business environment: electronic bulletin board BBS, which enables direct interaction with customers for concentrated solution for problems and in-time and public feedback to customers; E-mail, which has lower efficiency, is generally used to solve problems that are not so urgent and takes longer time to solve problems; other modes like QQ and telephone. Such methods enable real-time feedback from customers to enterprise personnel, which helps to solve problems in a rapid and efficient way. In addition, traditional communication channel shall be combined with internet to get feedback from customers and store customer information in customer database to manage customer relations and realize self-service and positive customer service. This can not only reduce the customer service cost, but also win customers' trust and improve customers loyalty.

Xie Peihong, Xi Hongmei (2011) et al. researched key variables having great influence on E-business customers' satisfaction in China. They innovatively introduced three important dimensions, i.e. logistics distribution, price level and

payment mode, and it was found through research that the trading capacity has the greatest impact to customers' satisfaction, and followed by logistics distribution and payment mode, and customers' service on line. Other factors having positive influence on satisfaction are security and privacy, product features, information quality and web design, and response time and customer experiences of site have no obvious impact to customers' satisfaction.

Fu Yuan et al. (2012) built multi-dimension service quality evaluation system and proposed frame theory distinguishing on-line trading service quality evaluation systems for experience products and non-experience products respectively.

Although the performance of service innovation can be measured directly, it is hard to distinguish sources of performance during measurement. Some domestic scholars tried to predict service innovation performance through researching the E-business enterprises' service innovation. Gao Qiang and Wu Guisheng (2008) researched B2C E-business enterprises to study the influencing path and strength of innovation to performances using structural equation. It is found that the influence path of innovation to performance include direct impact and indirect impact through service quality. Wang Xiaojuan and Li Hongxia (2014) built E-business performance evaluation system, and stressed the impact of internal and external collaborative innovation capacity to the performance of enterprises. The measurement of innovation performance are also covered in the service innovation research of E-business enterprises; based on the achievements of previous researches, measurement methods of innovation performance are supplemented in this paper according to empirical researches on E-business enterprises.

E-business has disruptive impact to traditional industry since its arising; for the definition of E-business enterprise, domestic scholars give different definitions without a unanimously recognized being made. For the research of E-business enterprise, scholars attach more attention to features and categories of E-business enterprises as well as the operation mechanism of E-business enterprises in certain industry. Most scholars classify E-businesses according to different features of E-business, and the classification standard determined according to E-business

transaction subjects are accepted by most scholars. Although no specific classification of E-business enterprises has been proposed, scholars classified E-business enterprises according to the generally accepted classification standard (i.e. classify according transaction subjects).

Service innovation of E-business enterprises is the key research direction of enterprise service innovation, and the differences among different industries make E-business enterprise special in terms of nature and type. Domestic scholars research service innovation of E-business enterprises mainly from the perspective of E-business platform, computer technology and subject participation etc. The particularity of service activities make the measure of output of service innovation hard, therefore, there is no unified standard for measurement of output of service innovation by scholars. The domestic and foreign researches on E-business service innovations have great difference in terms of research stages, content and methods. From perspective of research contents, foreign scholars mainly focus on certain industry with more concrete research contents; in terms of research technology, foreign scholars mainly use database to measure the complexity and particularity of service innovation of E-business enterprises.

Through study on literatures of E-business enterprise service innovation, it is found that: (1) No research system is formed for research of E-business enterprise service innovation. (2) Through building and application of innovation database during the survey and study of service innovation, change characteristics of service innovation of E-business enterprises can be revealed in depth. (3) E-business enterprise service innovation system is a research hotspot, and in-depth researches have been carried out on its constitution, systematic form, basic features and its difference from the innovation system of other industries.

The research on E-business enterprise service innovation is a long-term and gradual process. Under the interaction and global competition among E-business enterprises, the researches on the changes of service innovation modes and competition means as well as service differentiation of E-business enterprises are challenging, and yet, of potential research value.

CHAPTER 3

RESEARCH METHODS

3.1 Research Design

In order to summarize meanings of variables researched, this article is to determine, define and analyze the variables in the model based on the analysis of variables in existing literatures and following the requirements on research methods.

E-business customer service is an important way to manage customer relations. Through pre-sale, in-sale and after-sale services, we can establish long-term, reliable and trustful relation with our customers. This article also offers more demands and satisfactory services for customers based on the product types and functions on which they have abundant feedbacks. Meanwhile, this article will define the five different dimensions, i.e. interaction of consumer-service staffs, appearance, reliability, problem solving and convenience. The interaction between persons is the interaction between customers and clients during the whole communication, including effective communication.

The two main research objects of this article are to study whether the inter-personal, appearance, reliability, problem solving and convenience will significantly influence the user satisfaction and the impact of those five aspects to user loyalty.

3.2 Interview Research

Personnel having used E-commerce customer services received the interview; 236 questionnaires are issued through internet and 201 were collected with valid questionnaire rate of 85%.

3.3 Research Hypothesis

It can be seen from literature review that, for E-business enterprises, the relation between customer satisfaction and customer loyalty is not just simply positive

correlation for both of them are influenced by various factors. In this paper, the five factors of customer service, i.e. personnel interaction, appearance, reliability, convenience and problem solving are studied as independent variables to find their influence path to dependent variables: satisfaction and loyalty. The following assumptions are made according to the research objective:

H1. Interaction with E-business customer service personnel influences customer satisfaction significantly. i.e. the more smooth interactions are between customer service staff and customers, the more satisfied customers will be.

H2. Interface appearance of E-business customer service influences customers' satisfaction significantly. i.e. the better the appearance design, the more satisfied the customers will be.

H3. The reliability of E-business customer service significantly influences the satisfaction of customers. The safer and more reliable the customers feel for customer service, the more satisfied they will be.

H4. The convenience of E-business customer service significantly influences the satisfaction of customers. i.e. the simpler the service process, the more satisfied the customers will be.

H5. The problem solving efficiency of E-business customer service significantly influences the satisfaction of customers. i.e. the more efficiently the customers' problem solved, the more satisfied they will be.

H6. Interaction with E-business customer service personnel influences customer loyalty significantly. i.e. the more smooth interactions are between customer service staff and customers, the more loyal customers will be.

H7. Interface appearance of E-business customer service influences customers' loyalty significantly. The safer and more reliable the customers feel for customer service, the more satisfied they will be.

H8. The reliability of E-business customer service significantly influences the loyalty of customers. The safer and more reliable the customers feel for customer service, the more loyal they will be.

H9. The safer and more reliable the customers feel for customer service, the

more loyal they will be. i.e. the more efficiently the customers' problem solved, the more loyal they will be.

H10. The problem solving efficiency of E-business customer service significantly influences the loyalty of customers. i.e. the more efficiently the customers' problem solved, the more loyal they will be.

H11. The satisfaction of customers towards E-business service significantly influences the loyalty of customers.

3.4 Questionnaire Design

The design of questionnaires is shown in Figure 3-1.

Table 3-1 Questionnaire Design

Investigation content	variable, variant		Item No.	Scale
Part 1 Customer service quality perception	Interpersonal interaction	1. Customer service personnel are knowledgeable enough to answer the questions of the customers. 2. Customer service personnel are willing to help customers. 3. Customer service personnel give quick response to customers' needs. 4. Customer service personnel always answer customers' questions no matter how busy they are. 5. Customer service personnel are polite to and patient with customers. 6. Customer service personnel pay attention to individual needs of customers. 7. Customer service personnel are compassionate to troubled customers. 8. Pay regular return visit to customers	8	5-Level Likert Scale

	Appearance	9. Suitable customer service staff (e.g. Head portrait and nickname) image 10. Customer service personnel use amiable network emotions when communicating with customers. 11. Customer service personnel use suitable fonts and colors. 12. Customer service personnel use suitable language and tones.	4	
	Reliability	13. Customer service personnel are reliable (e.g. Customers are willing to tell their contact information to the service personnel and believe in the products recommended by the service personnel.) 14. Customer service personnel can provide right and good services. 15. Customer service personnel never makes error in bargaining transaction and document record. (e.g. Postage and goods etc.) 16. Customer service personnel keep their words (in giving away goods etc.)	4	
	Problem solving	17. Customer service personnel always try their best to solve any problem customers encountered (e.g. order inquiry and sales return). 18. Customer service personnel handle customer complaints in an efficient and direct way. 19. Customer service personnel handle consumer problems smoothly.	3	

	Convenience	20. The one-line service availability give convenience to customers. 21. Auto-answers set by customer service personnel meet customers' general needs.	2	
Investigation content		Variable	Item Number	Scale
Part 2 Customer satisfaction		1. The site provides abundant commodities. 2. The site meets all my shopping needs. 3. My shopping experience on the site is quite enjoyable. 4. Shopping on the site save my money, time and effort. 5. The site meets my expectation. 6. When there are quality issues, the site will make it up to me. 7. The site always tries its best to meet my needs. 8. All my shopping needs can be met through the site 9. The site makes me feel I am valued customer. 10. I'm upset with the upset.	10	5-Level Likert Scale
Part 3 Loyalty		1. The site will be my first choice when I need to buy products. 2. I often participate in comments and surveys etc. on site. 3. I'm willing to pay attention to the site information and updates. 4. I'll still use the site even though the product price is higher than that in other sites. 5. I'll choose the site even though there are sales promotions on other sites. 6. I'll choose the site even though there are many similar sites. 7. I have confidence in the future development of the sites.	7	

Part 4 Demographic variables	*Gender*age*occupation*education background*income*online shopping expenditure	6	Project selection

3.5 Data Analysis Method

SPSS is mainly used in this paper for data consolidation and analysis. Reliability and validity analyses carried out using SPSS.

3.6 Data Collection and Sample

The author distributed questionnaires from January 2016 to May 2017, during the survey; it is firstly made sure that the respondents have used E-business customer service to ensure the accuracy of questionnaire data. The respondents of this survey are mainly aged from 18 to 35, who are exposed to E-commerce frequently. They are the main respondents in this research. On-line survey is also carried out using SO JUMP. To minimize error, the respondents are told that the sole purpose of the survey is to make academic research, during the process, the author answered all the questions and doubts of the respondents to ensure the reliability of the data.

CHAPTER 4

RESULTS

4.1 Descriptive Statistics of Questionnaire

Firstly, the basic information of the samples are collated, the results are shown in Table 4-1. The demographic characteristics are described as follows:

(1) Gender: totally 201 valid questionnaires, including 88 questionnaires from female respondents (43. 78%) and 113 questionnaires from male respondents (56. 22%).

(2) Age: the respondents are mainly aged from 18 to 39, who like online shopping and are used to buy products on E-business sites.

(3) Education background: 87. 56% of the respondents have bachelor, master and above degrees. They received higher education and are likely to accept new things, and most of them have research experiences and sample reliability is relatively high.

(4) Occupation: respondents mainly are students and enterprise and public institution workers. They fit the characteristics of main consumer groups of E-business, thus ensures the good representativeness of the samples.

(5) Disposable income in each month (RMB): some respondents are students, who have relatively low incomes. The remaining respondents are white-collar workers, with monthly income about RMB 5000.

Table 4-1 Descriptive Statistics Characteristics of Samples

Statistical Variables		Sample Size (persons)	Percentage (%)
Gender	Female	88	43.78
	Male	113	56.22
Age	18~29	144	71.64
	30~39	47	23.38
	40~49	7	3.48
	Above 50	3	1.49
Occupation	Civil servants and institution personnel	12	5.97

	Self-employed	14	6.97
	Student	1 04	51.74
	Employee	60	29.85
	Others	11	5.47
Education background	High school and below	1	0.5
	Vocational school or junior college	24	11.94
	Bachelor	68	33.83
	Master or above	108	53.73
Average monthly income	Below 1500	61	30.35
	RMB 1500-3500	52	25.87
	RMB 3500-5000	42	9.45
	RMB 7000-8000	19	9.45
	RMB 8000-10000	12	5.97
	RMB 10000 and above	15	7.46
Annual expenditure of annual shopping	Below 1000	24	11.94
	1001-3000	81	40.3
	3001-5000	60	29.85
	5001~10000	27	13.43
	Above 10000	9	4.48

4.2 Mean Value and Variance Analysis

Sample average is also called sample mean. i.e. the average value of samples. Mean value is the value obtained from dividing sum of a set of data by the number of data. It is the indicator of average data. Variance indicates the degree of dispersion of the data, i.e. the greater the variance, the greater variations of the samples. In the researches of this article, the mean value and variance of samples are evaluated through questionnaire survey.

The followings are descriptive analyses of sample mean value, and preliminary explanations on the data reflected problems.

Table 4-2 Sample Mean of Inter-personal Interaction

	N	Minimum	Maximum	Mean	Variance
HUDONGI	201	1	5	3.38	.598

HUDONG2	201	1	5	3.49	.701
HUDONG3	201	1	5	3.36	.701
HUDONG4	201	1	5	3.25	.720
HUDONG5	201	1	5	3.55	.619
HUDONG6	201	1	5	2.95	.678
HUDONG7	201	1	5	3.06	.736
HUDONG8	201	1	5	2.84	928
Valid N (listwise)	201				

In terms of inter-personal interaction, the sample mean value is lower than overall level, and this indicates that the E-business customer service, customer sales and after-sale services failed to meet customers' expectations. Especially, the indicators of Item 6, 7 and 8 are less than or equal to 3, this shows that there is still room for improvement in individual needs meeting and return visit; meanwhile, in serving customers, customer service staff shall think things from the perspective of the consumer and be compassionate to customers to make customers feel being cared and increase their trust on E-business. Variances of Item 7 and 8 are higher; this indicates that customers have quite different feedbacks on compassion, customer return visit and customer perceptions, and E-business enterprise fails to provide good services for customers; Service quality in these two items need to be improved.

Table 4-3 Mean Values of Appearance Samples

	N	Minimum	Maximum	Mean	Variance
WAIGUAN1	201	2	5	3.69	.374
WAIGUAN2	201	1	5	3.60	.582
WAIGUAN3	201	1	5	3.71	.478
WAIGUAN4	201	2	5	3.83	.435
Valid N (listwise)	201				

In terms of appearance of customer service interface, the sample results show smaller variances and greater mean values (greater than 3. 5). This indicates that the images, emotions, fonts, colors and tones used for customer service are quite satisfying for users, with users' satisfaction level having little difference. However, from sample data, we can see that the mean value has not reaches 4; this indicates that there is still room for improvement.

Table 4-4 Reliability Sample Mean Value

	N	Minimum	Maximum	Mean	Variance
KEKAO 1	201	1	5	3.33	.602
KEKAO 2	201	1	5	3.31	.666
KEKAO 3	201	1	5	3.42	.665
KEKAO 4	201	1	5	3.65	.538
Valid N （listwise）	201				

In terms of customer service reliability, the user survey shows a relatively low cognitive level; and all the values except for that in Item 4 are not higher than 3. 5, and the variances have no big difference. This indicates that during the customer service, the specifications for customer data and transaction detail recording are followed, but there is still room for improvement in terms of wining universal trust from customers.

Table 4-5 Satisfaction Sample Mean Value

	N	Minimum	Maximum	Mean	Variance
MANYI1	201	1	5	3.72	.594
MANYI2	201	2	5	3.08	.668
MANYI3	201	1	5	3.70	.472
MANYI4	201	1	5	3.73	.620
MANYI5	201	1	5	3.58	.515
MANYI6	201	1	5	3.21	.609
MANYI7	201	1	5	3.34	.617
MANYI8	201	1	5	3.26	.763
MANYI9	201	1	5	2.71	.756
MANYI10	201	1	4	2.53	.480
Valid N （listwise）	201				

From the analysis of satisfaction mean value, it can be seen that: firstly, item 10 is a negatively worded item, and it has relatively low value. This, to a certain extent, verified the reliability of this questionnaire. Both the mean values of Item 2 and Item 3 are lower than 3. 5, this indicates that the site has less product variety and cannot meet all the shopping needs of potential customers. Products manager shall attach enough importance to this issue and enhance market prediction to find customers' demand point accurately. The mean value of Item 8 is relatively low, and

this indicates that the after-sale compensation mechanism when problems occurred during the shopping process fails to meet customers' demands. Notably, the mean value of Item 9 is only 2.71 with high variance; this indicates that customers don't think they are valued and have great differences in perception of individuation, and this also shows poor individuation in inter-personal interaction.

Table 4-6 Loyalty Sample Mean Value

	N	Minimum	Maximum	Mean	Variance
ZHONGCHENG1	201	1	5	3.44	.638
ZHONGCHENG2	201	1	5	2.70	.770
ZHONGCHENG3	201	1	5	3.04	.838
ZHONGCHENG4	201	1	5	2.66	.817
ZHONGCHENG5	201	1	5	2.54	.719
ZHONGCHENG6	201	1	5	2.89	.932
Valid N (listwise)	201				

The result of loyalty analysis is found that the E-business customers are not so loyal. Except for Item 1, the loyalty of other items are less or equal to 3, with relatively high variances. On-line customers have little resistance to the lower prices and sales promotions of competitors; From this, it can be seen that improving customers' loyalty is the problem to be solved, and E-business enterprises shall improve their products from perspective of diversity and individuation to enhance customers' loyalty.

4.3 Reliability and Validity Analysis

Reliability is the index that can measure the internal consistency of items and the real value of variables (Song Jijun, 2011). Reliability is the Cronbach's A-standard showing the stability and consistency of measurement. Reliability, including internal reliability and coefficient, is the most commonly used in 5-Level Likert Scale; according to the features of this research, internal reliability is adopted. Different researches have different requirements on a coefficient; it is generally acknowledged that a coefficient value larger than 0. 7 is a high reliability value. In actual survey, a coefficient higher than 0. 6 represents an acceptable reliability of measurement.

The reliability of different aspects of customer service are tested as follows: reliability coefficient of inter-personal interaction is 0. 782; appearance reliability coefficient is 0. 742, and that of reliability is 0. 740. Therefore, the coefficient of each item is higher than 0. 6, and the survey has high reliability.

Table 4-8 Reliability Test of Inter-personal Interaction

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.782	.788	8

Table 4-8 Reliability Test of Appearance

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.742	.746	4

Table 4-10 Reliability Test of Reliability

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.740	.739	4

The reliability coefficient of customer satisfaction is 0.713, which represents a high reliability.

Table 4-11 Reliability Test of Satisfaction

Cronbach's Alpha	N of Items
.713	10

The reliability coefficient of loyalty is 0.793, which represents a high reliability.

Table 4-12 Reliability Test of Loyalty

Cronbach's Alpha	N of Items
.793	6

Validity, i.e. effectiveness, refers to the amount required to accurately measure by tools and means. Validity refers to the representativeness of measuring results; the more identical of measuring results to the tested content, the higher validity is, and vice versa. Validity is classified into three categories: content validity,

criterion validity and structure validity.

Generally speaking, factor analysis method is frequently used in testing of validity of questionnaire validity. Before factor analysis, KMO value and Bartlett' s sphericity test are carried out to measure the correlation among the variables of different items. Kaiser's criterion KMO is generally adopted: 0. 9 indicates very suitable;0. 8 indicates suitable; 0. 7 indicates average; 0. In addition, the Bartlett' s sphericity test shows that when significance probability (s i g) p=0. 000, p<0.00l (less than 0. 001).

The validity of different aspects of customer service are as follows: validity coefficient of inter-personal is 0.817, validity coefficient of appearance is 0. 765 and that of reliability is 0. 703; all of them are greater than 0. 7, and this indicates that the model has good discriminant validity.

Table 4-13 Validity Analysis of Inter-personal Interaction

Kaiser-Meyer-0Ikin Measure of Sampling Adequacy.	.817
BartIetYs Test of Sphericity Approx. Chi-Square	410.938
df	28
Sig.	.000

Table 4-14 Rotated Component Analysis of Inter-personal Interaction

	Component	
	1	2
HUDONG2	.820	.081
HUDONG3	.799	.088
HUDONG1	.763	.095
HUDONG4	.602	.174
HUDONG5	.511	.378
HUDONG8	.065	.811
HUDONG6	.221	.765
HUDONG7	.466	.563

Table 4-15 Validity Analysis of Appearance

Kaiser-Meyer-0Ikin Measure of Sampling Adequacy.	.765
BartIetYs Test of Sphericity Approx. Chi-Square	168.899

df	6
Sig.	.000

Table 4-16 Rotated Component Analysis of Appearance

	Component
	1
WAtGUANG1	.321
WAIGUANG2	.315
WAIGUANG3	.345
WAIGUANG4	.345

Kaiser-Meyer-0Ikin Measure of Sampling Adequacy.	.703
BartIetYs Test of Sphericity Approx. Chi-Square	183.332
df	6
Sig.	.000

Table 4-17 Validity Analysis of Reliability

Table 4-18 Rotated Component Analysis of Reliability

	Component
	1
KEKAO1	.287
KEKAO2	.347
KEKAO3	.364
KEKAO 4	.329

The result of customer satisfaction validity test: validity coefficient of inter-personal interaction is 0.836, which represents high validity.

Table 4-19 Validity Analysis of Satisfaction

Kaiser-Meyer-0Ikin Measure of Sampling Adequacy.	.836
BartIetYs Test of Sphericity Approx. Chi-Square	441.781
df	45
Sig.	.000

Table 4-20 Rotated Component Analysis of Satisfaction

	Component	
	1	2
MANYI7	.728	.080
MANYI3	.721	-.018
MANYI5	.700	-.095
MANYI4	.687	-.330
MANYI5	.601	.212
MANYI6	.587	.152
MANYI11	.562	-.327
MANY12	.391	.324
MANYI9	.438	.707
MANYI10	-.452	.488

The result of customer loyalty validity test: validity coefficient of inter-personal interaction is 0.836, which represents high validity.

Table 4-21 Validity Analysis of Loyalty

Kaiser-Meyer-0lkin Measure of Sampling Adequacy.	.724
BartIetYs Test of Sphericity Approx. Chi-Square	419.042
df	15
Sig.	.000

Table 4-22 Rotated Component Analysis of Loyalty

	Component	
	1	2
ZHONGCHENG5	.898	.074
ZHONGCHENG4	.867	.168
ZHONGCHENG6	.737	.338
ZHONGCHENG1	-.022	.792
ZHONGCHENG2	.251	.699
ZHONGCHENG3	.405	.694

4.4 Exploratory Factor Analysis

Firstly, the data received exploratory factor analysis, and the items with

factor load capacity less than 0.6 and cross load greater than 0. 35 are deleted. Through this, exploratory factor analysis is carried out using SPSS19. 0 to delete the items disqualified for above-mentioned conditions; see final rotation factor results in Table 1o EFA Analysis Result; KMO=0.896, x2 approximate value is 6086. 352, Sig. =0. 000; total variance of interpretation is 81.

To better illustrate the influencing factors of this article, factor rotation is carried out for data with Kaiser's standardized Varimax rotation adopted; from Table 1, it can be seen that, measurement items from one research aspect are collected together with low crossing degree, which is in line with the hypothesis; The rotated component matrix shows that the factor loading of each observed variable is greater than lowest critical value: 0.5 ; this indicates that the scale used in the research has good structure validity.

Table 4-23 Rotated Component Matrix

	Component				
	1	2	3	4	5
HUDONG1		.814			
HUDONG2		.826			
HUDONG3		.761			
WAIGUANG1					.766
WAIGUANG3					.769
WAIGUANG4					.715
KEKAO2				.743	
KEKAO3				.774	
KEKAO4				.741	
MANYI3			.724		
MANYI4			.837		
MANYI5			.737		
ZHONGCHENG4	.877				
ZHONGCHENG5	.885				
ZHONGCHENG6	.793				

4.5 Argument and Analysis of Hypothesis Test

Non-standard research path coefficient of Inter-personal interaction to

satisfaction is 0.18 with p<0. 001; therefore, the inter-personal interaction of E-business customer service personnel has significant positive influence on satisfaction, and assumption H1 is tenable. Non-standard research path coefficient of appearance to satisfaction is 0. 21 with p<0. 001; therefore, the appearance of E-business customer service has significant positive influence on satisfaction, and assumption H2 is tenable. Non-standard research path coefficient of reliability to satisfaction is 0. 36 with p<0. 001; therefore, the reliability of E-business customer service has significant positive influence on satisfaction, and assumption H3 is tenable. Non-standard research path coefficient of inter-personal interaction to loyalty is 0. 02 with p>0. 001; therefore, the inter-personal interaction of E-business customer service personnel has no significant positive influence on loyalty, and H4 assumption is not tenable. Non-standard research path coefficient of appearance to loyalty is 0. 01 with p>0. 001; therefore, the appearance of E-business customer service has no significant positive influence on loyalty, and H5 assumption is not tenable. Non-standard research path coefficient of reliability to loyalty is 0. 34 with p<0. 001; therefore, the reliability of E-business customer service has significant positive influence on loyalty, and assumption H6 is tenable. Non-standard research path coefficient of satisfaction to loyalty is 0. 23 with p<0. 001; therefore, the customer satisfaction on E-business service has significant positive influence on satisfaction, and assumption H7 is tenable.

It can be seen from the model that the influence degree of reliability (non-standard path coefficient: 0. Meanwhile, reliability has great impact on loyalty (non-standard path coefficient 0.34). Therefore, E-business customer service personnel shall deem feasibility as the basic principle during customer service. Although inter-personnel interaction and appearance cannot impact the customer loyalty directly, the two dimensions have significant positive impact to satisfaction, and satisfaction influence loyalty greatly in return. Therefore, the two aspects influence the customer loyalty through influencing satisfaction. It can be seen that, E-business customer service personnel shall also give considerations to inter-personal interaction and appearance while following the principle of reliability.

4.6 Result Analysis

In this paper, the influence of inter-personal interaction, appearance and reliability in customer service to customer satisfaction and loyalty is researched and the relations among different dimensions of customer service quality are analyzed. In addition, the different impacts of gender, age, education background, occupation and traveling times to customer service satisfaction and loyalty. To achieve research objectives, literature study and empirical study are combined in this article. Respondents for empirical study are customers who have used E-business service; Measurement items obtained through literature research are used for questionnaire and survey, and the on-line questionnaire survey lasted for one month. Base frequency analysis of the collected data was carried out and factor analysis, credit test and validity test were performed using SPSS; and AMOS is used to establish structural equation model for path analysis. The results and suggestions for enterprises are as follows:

Firstly, through study of the two dimensions of customer service: inter-personal interaction and satisfaction, customers have low perception on "individualized" service and do not think that they are "unique". Therefore, E-business enterprises shall enhance their awareness on individualized products and increase added value of on-line products to give full play to E-business' edges' over traditional travel service providers and fully explore customers' potential needs. For example, E-business enterprises may carry out classification and integration according to customers' interest points in their history view information, purchasing information and customer service record; increase application efficiency of information technology continuously and use data base system to provide "product personalized recommendation" so as to increase customer visits. Customers can also select their interested content, e.g. size and color etc. to customize personalized recommendations on their own.

Secondly, E-business enterprises can also see from this article that female customers always have higher requirement on appearance, and can set different

interfaces and fonts according to gender difference. When serving female customers, intimate tones and address can be used whiling providing individualized skins and fonts; when serving male customers, problem solving efficiency shall be stressed; the age difference examination in this article shows that inter-personal interaction and appearance influences differed according to different ages ($P<0.05$), i.e. the younger the customers, the lower the evaluation values of those two factors by customers. Therefore, the E-business customers can be classified according to ages, and more importance shall be attached to interaction process and interface appearance and fonts for young customers. Meanwhile, satisfaction and loyalty differ a lot with different ages ($P<0.05$); younger customers have lower satisfaction and loyalty, mainly because they have more acquisition channels of information and have more difficulties in resisting temptation of promotion products; therefore, site popularity and service quality shall be enhanced to increase their loyalty; appearance influence differs significantly in different professions ($P<0.05$), and it has relatively low evaluating average value in customers. Therefore, customers can also be classified according to different professions; students pay more attention interface appearance, font and tones; From the difference validation results of number of shopping, customers' attitudes toward "reliability" differ significantly ($P<0.05$); meanwhile, their user satisfaction differs a lot. Students also carry out online shopping frequently, therefore, they are key targets of various E-business sites; they pay more attention to attention to E-commerce sites and have more using experiences, and they have more comparative approaches. Therefore, E-business enterprises can perform statistical analysis based on visit frequency of users, and classify customers with high visit rate as VIP customers, and provide efficient solutions for customers' questions in a timely manner during service to better meet their needs.

Thirdly, the influence path of inter-personal interaction, appearance and reliability in customer services to customer satisfaction is significantly effective, among which, reliability has the most significant influence to customer loyalty. The conclusions are drawn as follows: E-business customer service shall focus on improving reliable services for in-time and effective answering of customers'

questions, record and feedback of customer data and handling of private information of customers, so as to improve customer service efficiency and make customers think their services are reliable and trustworthy. E-business enterprises can provide column for treatment of various problems occurred in shopping. On-line shopping service provider can set assistant for customers to solve their problems, and also let online consumers participate in problem solving and adopt points award system like Baidu, and provide such awards as points or coupons for customers who solved problems; this can not only enhance customers' sense of security, but also helps to build on-line community. On-line community can increase website traffic and user participation to a certain extent, and good website community operation can promote the product and enhance reputation of product brand and thus improve customers' satisfaction and loyalty.

CHAPTER 5

CONCLUSION AND DISCUSSION

5.1 Research Conclusions

In this research, the influences of different aspects of E-business service on customer satisfaction and loyalty are studied based on quantitative analysis; this is the first article in China focusing on E-business service innovation. During the analytic demonstration, the mature customer service quality analysis model are analyzed and validated, and the models fails to distinguish validity are reorganized and deleted. Finally, the new influence path analysis system of E-business customer quality to customer satisfaction and loyalty according to the features of E-business. The new system is of good guiding significance for future researches. From the research data, it is shown that customers think E-business enterprises fail to provide personalized service. Therefore, such basic statistics information as gender, education background and traveling frequency are used to research difference analysis on results; the results can provide effective basis for customer segmentation and personalized customization service in E-business.

In this paper, the influence path of inter-personal interaction of customer service personnel, appearance and reliability etc. on customer satisfaction and loyalty are researched, customer service quality improving model is proposed and detailed and effective suggestions on service quality improvement are proposed for E-business enterprises.

5.2 Development Strategy and Suggestions

5.2.1 Enhance Strength, Improve Service Level

According to social division of labor theory, "to be the most professional" is an effective way to improve overall social efficiency. E-business service provider shall improve their capacity continuously to meet the ever-changing demand. Service

providers can gain national or even world class certificate to prove their professional background, in addition, quality of staff is the primary productive force, therefore, regular training, salon and lecture etc. shall be organized for internal staff to make them master new knowledge and skills. They shall try hard to achieve transition from service competition and price competition to brand competition, and establish service brand through brand cultivation, business model output and chain management.

The new website interface established for customer communication shall have innovative design and sound customer communication channel. Site is the "face" of an E-business enterprise. It enables customers view the products and information in an efficient and convenient manner to complete the transaction trustingly. Providing of such functions as sound order system, easy inter-comparison between products and shortcut search etc. enables customers enjoy services and products in more efficient and better manner; Smooth, rapid and in-time communication with customers with various interactive media helps to solve problems for customers. Besides fax, telephone, E-mail and QQ, microblog can also be considered, the E-business transaction promotion through microblog is currently in customer service phase. Those are good social media, which can help E-business enterprises extend their business to undiscovered and potential customers and keep close relationship with existing customers. E-business enterprises must combine traditional communication channel and internet channel and get customers' feedback and store customer information in customer database to use them for management of customer relationship; this can not only reduce cost in customer service, but also win customers' trust and enhance customer loyalty.

E-business enterprises shall improve service quality through technical innovation, e.g. making a clear sales website attracting potential customers, providing excellent customer consultation website and application of mobile e-commerce etc. Application of visual search technology in E-business sites can provide the functions of searching relevant products through product picture for customers; Similar products recommendation and screening in the site shall also be provided. The above-mentioned methods are especially applicable to non-standard well-designed

and stylish products like clothes and jewelries. For example, an on-line fashion clothing sales website in America achieved a nearly 5-fold increase in EPC data after optimization of similarity in the site. Using cloud computing technology, e-commerce service can be provided on cloud platform through one-line renting, and this technology can reduce E-business IT capacity acquiring cost for E-business enterprises. It enables acquiring order handling capacity, customer analysis capacity, customer data storage capacity and network broadband and various end-to-end services from cloud platform and make E-business enterprises focus on more valuable business activities like improving brand, controlling quality, enhancing design and user experience and effective on-line marketing; through cloud platform, upstream and downstream businesses can be integrated effectively, based on which, innovation on E-business model is possible.

5.2.2 Flexible Respond to Demand, Transparent Service Standard

With the fast-changing E-business mode, new business models emerge one after another, and this requires E-business service providers shall not only provide such basic services as operation, design, training and data, but also provide customized and individualized services; also, whole outsourcing is replaced by partial functional outsourcing, and this requires E-business service provider to meet companies' needs flexibly and provide customized E-business service module. However, the flexible service does not mean flexible standard, and too much flexibility will lead to doubt about the professional degree of service provider. E-business service provider shall establish detailed standard for their service and define their service effect. In the field of E-business, nothing is certain. It hard to define a service effect, and this requires service provider can explore a way to standardize services.

The innovation of E-business enterprise service delivery is mainly realized through internal organization of service enterprises, i.e. reasonable arrangement, management and coordination, to ensure completion of works by enterprise workers and development and providing of innovative service products. Standard and reasonable customer service procedure shall be set, for example, customer service

procedure, changing or refunding procedure, complaint handling procedure, malicious negative feedback/ negative feedback, emergency procedure and damaged goods replacement procedures. Such procedures shall be set from the perspective of customers after detailed study by departments and efficiency analysis, and dynamic detailed service steps and procedures shall be set. Everything is changing, including companies, market and policies, therefore, the procedures shall be dynamic rather than permanent. A customer service team shall be reasonably set. E-business companies must an efficient and rational customer service team to achieve service innovation. E-business enterprises shall design and organize the customer service team through departments while following the principle of making plan or make changes according to the plan and actual operation condition of operation department, and shall organize service talent training frequently. For E-business enterprise, the capacity and quality of employees directly influence the performance of service delivery system, and new service delivery system of E-business enterprise requires innovation of organization and employee management to make sure that company structure and employees adapt to the new products and services. Fundamentally, the service innovation will be achieved by employees of the enterprise. Therefore, E-business enterprises shall organize training to make the enterprise employees understand and be familiar with the basic service procedures and implementation procedures of new service products, which is the basic premise of achieving service innovation for E-business enterprises.

5.2.3 Develop Good Service Attitude

Essentially, E-business service belongs to service industry. The core criteria of service industry is to go beyond customer expectation and meet customers' demands. For E-business service, the service altitude and form are also important. The sincerity, friendliness, warmth and politeness of service personnel, as well as focusing on company needs and company benefits show the excellent attitude of service providing, which are of great importance to the establishment and maintenance of cooperation between E-business enterprise and service provider. So as to achieve joint development and win-win of E-business service provider and E-business enterprises

through long-term cooperation.

E-business enterprises shall establish customer-oriented service concept. When providing services, E-business enterprises shall consider customers' needs to the largest extent and design service product, improve efficiency, reduce cost, improve service quality and provide maximum service benefit with the tenet of meeting customers' needs and improving customers' satisfaction to achieve competitive edges. Before innovation of new service concept, detailed analysis and survey on competitors must be carried out, otherwise, the innovation will be unachievable or cannot achieve anticipated goal. For enterprises, it is not easy to make any alter against competitors or innovation, even minor ones, in on-line marketing, customer service consultation, payment, delivery and after-sale service etc. For example, on-line transaction security, eliminating security threats and guarantying in-time delivery and preventing economic losses to customers. Protecting customers' privacy to make customers feel more secured and reassured when buying products is also an issue to be considered in service innovation of E-business enterprises. For example, Lashou.com opened 12315 green channel; this is good opening for integrity operation and innovation for E-business enterprise, which meet the need of customers' in communication on E-business website and build bridges of trust between customers and the enterprise.

Providing individualized customer service. Among E-business enterprises, there are few distinctive enterprises, and most of them have almost same website design and services. In this case, it hard for customers to be loyalty to an enterprise. Therefore, in order to attract more customers, enterprises shall provide individualized services and make customers loyal to their unique services.

Individualized customer services at contact stage. First contact with customers always the first impression left to customers. Most of the time, the first impression will directly influence customers' purchase decision. Enterprises can enhance advertising and provide individualized page to enhance customers' first impression. Firstly, build E-business site database to record the data of all the customers who have purchased the products on the site, and when the customers visit

the site for second time, the site will show the information that the customers may be interested in most according to their prior views, purchasing preference and habit. Secondly, the site shall display the products and services for the customers with the simplest procedures to ensure that the customers' problems and doubts are solved efficiently through service center and E-mail etc. Only through this way can make customers wander on the website with pleasure. This also shows the people-oriented service of the site.

Individualized customer services at implementation stage. Implementation stage is process when E-enterprise providing services to the customers who have purchased the products on the site. Firstly, streamline transaction process. Complex transaction is the obstacle for customers' good purchasing experiences. If on-line store can provide products with good customer services and easy, bright and attractive purchasing process , customers will like shopping on the site. Thirdly, provide platform for direct interaction. Through this platform, E-business enterprises can tell the service updates to the customers, and the customers can give feedback on their needs and suggestions. Fourthly, enterprises can offer discount for regular customers according to their number of visits to the site, to make them feel they are valued.

Individualized customer services at care stage. Care stage refers to the period after the transaction, during which the site may provide product and service information to customers as they required and inform the customers of each promotion. The individualized services provided in this period will enhance customers' impression and perception and increase their loyalty. Firstly, pay return visit to customers regularly through phone or E-mail to know customers' product use feeling and product improvement suggestion and give tips to customers in replacement, maintenance and repair. Secondly, understand potential needs of customers through view of websites and recommend relevant products to customers through data analysis.

5.2.4 Build Support and Guarantee System for Implementation of Service Innovation

Each service innovation policy is one option of service innovation, more

polices mean the increasing of possibility and enhancing of innovation service effect; there are many choices for service innovation of E-business enterprises, including E-business service concept innovation, E-business operation & management innovation, E-business service product and model innovation, E-business marketing innovation and E-business service soft environment. E-business operation is a complicated system. E-business enterprises, as the leading enterprise type, will face complicated problems in operation and management. Correspondingly, E-business enterprise can find more service innovation strategies in day-to-day operations. There are many ways of acquiring innovation ideas, for example: draw on the wisdom of the employees and get ideas from them through giving suggestions; executive leaders of the enterprises introduce advanced E-business management concept, and propose innovation proposal in case of shortcomings found, listen to customers' back-feed and receive their supervision, to continue the good policies and abolish or amend the bad ones, find the problems of the existing service process through communication and cooperation with other E-business enterprises and propose service innovation strategies and plans and obtain service innovation schemes through consulting with professional consultation companies. In conclusion, E-business service innovation covers many aspects, and it takes time to make service innovations; innovation ideas shall be summarized from da-to-day operations and communications to expand choices in E-business service innovation.

A sound support and guarantee system is indispensable for the achieving of expected effects of service innovation strategies of E-business enterprises, therefore, great importance shall be attached to the corresponding derivative matters. Firstly, build service innovation evaluation system to evaluate whether the service innovation target is achieved through implementation of service innovation; evaluation index system covers E-business service innovation strategy evaluation and service innovation effect evaluation, and the former one is mainly use to evaluate whether the service innovation conforms to E-business development strategy while the latter one is used to evaluate the actual effect of service innovation; secondly, build service

innovation support systems, including: ① establish professional service innovation team to be responsible for the E-business service innovation activities; ② perform market supervision and survey for service innovation products to get feedback; ③ increase service innovation input to support service innovation; ④ give moral and material encouragement to arouse the service enthusiasm of employees. Through implementation of above-mentioned measures to build healthy service innovation support system; at last, build service innovation guarantee system to establish standard procedures for featured service innovation of the enterprises. "people oriented" principle shall be adhered to attach importance to the subjective effect of E-business employees, management personnel and third-party institution and to guarantee that the suggestions of each service innovation participator are heeded and attached importance to ensure the smooth implementation of service innovation.

In addition, employee plays an important role in service innovation, therefore, organization of relevant trainings for E-business employees shall be enhanced. Employee is not the main provider of innovation service for E-business enterprise, but also directly impact the implementation effect of service innovation; therefore, training of employees to improve their capacities can improve the quality of service innovation of E-business enterprises. The training of employee does not mean that the employees are uncultured, and the training purpose is to cover the shortage for further development of employees. Before training, training needs in E-business enterprise operation, employee development and capacity improvement shall be determined to make targeted training goals, policies and process and determine the content and courses of training. Proper manpower, materials and money shall be used to ensure that the goals of improving employee capacities and ensuring service innovation of E-business enterprises. E-business enterprise training shall have clear purposes. New employees shall get familiar with the content, responsible and enterprise culture of E-business enterprises as soon as possible to be competent for their jobs and make contribution to service innovation; old employees shall be familiar with new equipment, new technology and advanced working procedure to supplement and enrich their knowledge and to get more innovation suggestions from

them. Moreover, assessment and feedback of training effect shall be paid attention to and carried out through tracking of such indexes as employee working efficiency, employee satisfaction, customer satisfaction and company earnings. For E-business enterprises, the main business of them is product selling and operation; therefore, their trainings shall focus on communication with customers while giving considerations to other aspects to further improve capacities of enterprise employees and promote implementation of service innovation.

5.3 Study Limitations and Future Research Direction

Although in this study we have made some research results, because of some uncontrollable factors, this study still has some limitations. Firstly, there is little related literature on the innovation management of E-business customer service, so there is some difficulty in literature acquisition. Secondly, the number of samples of this questionnaire is small, and the survey objects are mainly the fixed area consumers, and the general level of education is high, only part of consumers from microblog and other open platform from the community, which may lead to difficultly reflecting the public Aware of the real situation of online customer service. Thirdly, in the course of the scale design in research process, the questionnaire design and investigation were carried out on the basis of the mature scale of customer service, loyalty and satisfaction, which was adapted to the fine modification of tourism E-business customer service. There will be some errors in the measurement of validity.

In the process of development of E-business enterprises, the problems continue to occur and hinder the rapid development of this industry. Similar products, competition deterioration and other different issues make the major E-business enterprises need a good customer loyalty training path. There are many researches on macro level in the existing literature, therefore, in the future research, we should turn more research to the more concrete level of the development of E-business enterprises in our country, and provide the direction of the problem-solving operation in the future. Pay close attention to the actual impact of customer service facets. The customer relationship and customer service management model are proposed for the

actual situation and user characteristics of our market to guide the rational and orderly competition in existing online electricity market.

Customer service is an important function item in the process of customer relationship management between online and offline enterprises, which has rich research space and profound research significance. Since then, the analysis of customer service can be widely distributed in a variety of different areas to develop more dimension scales with practical significance and to constantly enrich the analytical investigation on consumer shopping decision-making paths, so as to promote the research on E-business customer relationship management.

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