Customer customization: literature review and future prospects

Ying Xu*

School of Nanjing university of science and technology, Nanjing, China

* Corresponding Author Email: 2252011481@qq.com

Abstract. As an important customer value strategy for enterprise development, customer customization is of great significance to the growth of customer satisfaction and enterprise revenue. Since the 80s of the 20th century, many scholars have carried out extensive research on the definition of customer customization and the research mechanism. In recent years, with the vigorous development of digital technologies such as artificial intelligence, big data, and cloud technology, customer customization is facing new opportunities and challenges. Therefore, it is necessary to conduct a systematic review of the customer's customized Chinese and English literature. This paper systematically sorts out and comprehensively analyzes the customer customization strategy from three aspects: the connotation, mode and influence results of customer customization, and looks forward to the future research direction.

Keywords: Customization, Literature Review, Digital age.

1. Introduction

With the increasing competition in the market, more and more enterprises regard customer customization as their strategic choice to enhance customer value. In the past few decades, many scholars have conducted rich discussions on customer customization based on topics such as production management [1, 2], supply chain management [3, 4], organizational management [5], information management [6], and marketing strategy [7].

In the process of the development of customer customization research , the first concept of customization was mass customization. Davis (1989) took the lead in proposing the concept of mass customization in combination with industry practice [8]. With the advent of the service economy, the advancement of information technology, and the increasing attention of enterprises to customer heterogeneity, more and more enterprises have emphasized the important role of customer participation in customer value enhancement and even enterprise value appreciation [9]. As a result, customer customization has entered the stage of customer participation in customization. In recent years, with the continuous upgrading of digital technologies such as the Internet, big data, cloud computing, and AI, the era of digital economy has quietly arrived [10], and digital customization has gradually become a new stage in the development of customer customization. Therefore, as an important research topic, it is necessary to conduct an in-depth literature review to systematically outline the research context in the field of customization.

Based on this, this paper focuses on customized related research, and conducts literature searches of core journals in Chinese and English in Web of Science and CNKI databases, respectively. Through a systematic review of these literatures, this paper integrates the research framework of customer customization, so as to help scholars engaged in customer customization research and related enterprise practitioners to form a systematic understanding of previous customer customization research.

2. Theoretical Background

2.1. Definition of customization

2.1.1. Sub heading

In the late 80s of the 20th century, large-scale production in the era of industrial economy led to fierce competition between manufacturing enterprises, and enterprises began to produce and sell customized products according to the specific needs of customers in order to win market competitive advantages, and mass customization emerged. Subsequently, Davis (1989) took the lead in proposing the concept of mass customization in combination with industry practice [8]. Broadly speaking, mass customization is the process agility, flexibility, and integration that enables a company to provide individually designed products and services to each customer [11] In a narrow sense, mass customization refers to a system with information technology, flexible processes, and an organizational structure for the delivery of products and services, which can meet the specific needs of customers for products and services on a large scale, and the cost is close to the cost of mass-produced standardized products [12].

With the advent of the service economy, the advancement of information technology, and the increasing attention of enterprises to customer heterogeneity, more and more enterprises have emphasized the important role of customer participation in customer value enhancement and even enterprise value appreciation [9]. At the same time, the service-oriented logic regards the customer as an operational resource and incorporates the customer into the value chain creation of the enterprise, and the enterprise and the customer can identify and interpret the customer's emotional, cognitive, and behavioral preferences through interaction, so as to provide customers with customized products or services [13]. As a result, customer customization has entered the stage of customer participation in customization. In the stage of customer participation in customization, customer customization is defined as a customer value strategy that identifies and interprets customer emotional, cognitive, and behavioral preferences in the process of interaction between customers and enterprises, and then provides customers with personalized products or services [14].

In recent years, with the help of digitalization, customer customization has been increasingly respected and favored by enterprises and scholars [15], and since then, digital customization has gradually become a new stage in the development of customer customization. In the digital customization stage, the customer further evolves from a participant in customization to the core of the customization strategy. At this stage, customer customization is actually a customer value strategy in which enterprises use digital technology to obtain and analyze customer characteristics and their heterogeneous needs, and then provide customers with the best matching products or services [10]. In summary, the research on customer customization in the stage of digital customization mainly focuses on the application of digital technology in customer customization [16, 17] and the new situations, new developments, and new models of customer customization spawned by the digital era [10].

Based on the above views, this paper argues that customer customization enterprises use different ways to interact with customers, and customize personalized products or services for customers according to their needs.

2.2. The mode of customization

When implementing a customization strategy, enterprises also need to evaluate the existing customization model and select the appropriate customization model to present to customers [18]. In the existing research, customer customization is generally divided into product customization and service customization.

As far as product customization is concerned, existing studies divide product customization patterns into scheme customization [14], attribute customization [14], additive customization [19], subtractive customization [19], and personalized customization [20]. Among them, scheme customization refers to the arrangement and combination of different attributes of a product to form

a complete product plan, and customers do not choose from a series of attributes to trade-off, but choose their favorite solution to customize from a complete set of product solutions provided by the enterprise [14]. Automaker Volkswagen, for example, offers pre-specified cars to customers in the United States, with hundreds of different options available for Golf models. Similarly, technology company Hewlett-Packard offers its U.S. customers a range of pre-specified business laptop configurations that include six main attributes (system software, processor, screen size, memory and hard drive, graphics card, and warranty) [20]; Attribute customization is a module that provides customers with different attributes of products, and customers can filter and combine attributes according to their needs [14]. For example, automaker Ford offers a range of options for attribute customization on its U.S. website, including paint type, engine, transmission, wheels, tires, exterior options such as sensing systems, and an additional six interior attributes and accessories. Car buyers can decide on their options one after the other among these attributes [20]. Similarly, clothing manufacturer Nike allows consumers to design their shoes by choosing their favorite color, soles, and lace in turn, and Lindt has even launched custom chocolates that allow consumers to choose the type, ingredients, and packaging of chocolate; Additive customization is when customers add their desired options to a series of options on top of the most basic product to produce the final customized product [19]. Subtractive customization is when a customer starts with a fully loaded product and removes unwanted options from a series of options to obtain the final customized product [19]. Personalization is a customization model that allows customers to add their own symbols (such as pictures and text) to their products [20].

In terms of service customization, Torres et al. divided service customization into three modes according to the degree of customer participation in service production: collaborative production, compatible co-creation, and disruptive co-creation [21]. Collaborative production refers to the customer's custom ordering of the service options provided by the enterprise. Compatibility co-creation refers to the redefinition of customer service providers' resources to supplement or improve the service experience. Disruptive co-creation refers to the complete reuse of the resources of the service provider and the re-construction of the existing space with the resources of the enterprise. Bock and others customize the level of service provided by the company's front-line employees. Customization is divided into service, product, and interpersonal behavior [22]. Among them, service product customization refers to the service-oriented enterprises taking customized services as their main business. Customized trips such as the hornet's nest platform; Interpersonal behavior customization refers to the differentiated interpersonal interaction behavior between front-line employees and customers due to the heterogeneous characteristics of services in the service contact of product sales.

3. Literature References

Customer customization is an important implementation strategy for enterprises, and enterprises must conduct detailed analysis of its impact results. Correspondingly, many scholars have carried out rich explorations on the results and influence mechanisms of customer customization. Through the review of the relevant literature, it is found that the empirical research on the impact and consequences of customer customization can be divided into two categories: one is based on the B2B (business-to-business) scenario, which takes the performance of the supplier itself as the outcome variable; The other is based on a B2C (Business-to-Consumer) scenario, using customer performance as an outcome variable to explore the underlying mechanisms.

3.1. The impact of the performance of the supplier enterprise

Based on the B2B context, previous customer customization studies have explored the impact of customer customization on the performance of supplier enterprises themselves from the perspective of cooperation between supplier enterprises and their corporate customers. By combing through the

relevant studies, it is found that the relevant literature of such studies mainly focuses on the following two aspects:

First, from the perspective of the impact on transaction performance, the impact of customer customization on the performance of the supplier enterprise itself is mainly analyzed from the perspective of the cost and benefit trade-offs generated by customer customization. Although customized products or services can better meet customer needs and bring more customer satisfaction, the impact of customer customization on the enterprise is not always positive [23], and the production of customized products will increase the cost of the enterprise, which will have a negative impact on the company's performance. As a result, some of the studies have explored the question of which boundary conditions can amplify or shrink the benefits and costs of customer customization in the process of buyer-seller cooperation. For example, Wang et al. demonstrated that clear customer needs, project team technical capabilities, and the degree of relationship embeddedness enable suppliers to increase the benefits they derive from customized projects at little to no additional cost [15]; Modular products help reduce customization costs, but do not directly increase revenues [15]. In the context of digitalization. With the rapid change of technology and the changing roles and needs of customers, digital technologies have brought new capabilities to many enterprises and changed the way they interact with customers [24]. This makes it possible for companies to achieve a better balance between maximizing revenue and minimizing costs.

From the perspective of the impact on financial performance, although the previous literature has different views on the path mechanism of customer customization on corporate financial performance, most studies have found that customer customization leads to better corporate financial performance [25]. From the perspective of marketing, customer customization greatly improves the differentiation of the products or services provided by enterprises in the market, so that enterprises can charge consumers a premium according to the uniqueness of their products or services and expand their revenues [25], and at the same time, the increase in differentiation improves the competitive advantage of enterprises in the industry [26]. From the perspective of organizational behavior, the completion of customer customization is not enough to rely on the efforts of the product manufacturing department, but also requires the effective coordination of various departments within the organization (e.g., sales department, technology department, finance department, etc.). This interdepartmental coordination has been found to be the key to prosperity within the firm [27].

3.2. The impact of the customer performance

Based on the B2C scenario, customer performance is mainly reflected in the value obtained by consumers in customization, and in the empirical analysis process, customer performance is mainly reflected in consumer satisfaction [28] and purchase intention and purchase behavior [29, 30]. In summary, the research on the impact of customer customization on customer performance mainly focuses on the following two mechanisms:

First, customer customization improves the practical value of the product or service, which in turn improves customer performance. In the context of technological advancements that have made the process of customer customization more convenient [31], companies have paid attention to customer preferences and provided customers with customized products or services, which has led to an increase in customer satisfaction with products [13]. From the perspective of consumer behavior, consumers increase or decrease the attributes of products or services based on their personal needs, which effectively matches their actual use needs, and thus improves customers' willingness to pay, purchase intentions, and repeat purchases [13, 32]. to effectively improve consumer satisfaction [13]. This study shows that the customization by attribute matches the information processing mode of Western consumers, the customization by scheme matches the information processing mode of Eastern consumers, and the customization interface matches the specific cultural processing style of consumers can improve the effectiveness of customer customization, thereby increasing consumers' satisfaction with customized products and their likelihood of purchasing, as well as the amount spent on products.

Second, customer customization enables customers to make autonomous choices and generate a pleasant customer experience, which in turn improves customer performance by capturing hedonic value [32, 33]. Specifically, the more effort a person puts into a task. the more they are able to improve their sense of pleasure in the task. In turn, greater utility is obtained [34], and the perceived effort and process enjoyment in the process of customer customization promote the improvement of customer hedonic value [35]. Jiang et al. also demonstrated that customer engagement platform customization can promote consumers' creativity and derive hedonic value from it, thereby improving customer satisfaction [36].

4. Summary

By systematically summarizing the Chinese and English literature on customer customization since 2001, this paper systematically and comprehensively combs and summarizes the research on customer customization, and finds that although the existing literature has made rich achievements in understanding customer customization management, with the vigorous development of digital-related technologies and their impact on business operations, as well as the endless innovation of enterprises in customer customization practice, it is necessary to further explore the new phenomena and new problems in the stage of digital customer customization, such as: The innovative manifestations of customer customization strategy, the influencing factors of customer customization in the digital era, the influencing results and mechanisms of customer customization, and the new form of customer customization research in the digital environment. The research conclusions of this paper conform to the requirements of the development of the times, summarize and enrich the application scenarios of customer customization research, and provide a reference for the development of more in-depth and systematic customer customization theory. At the same time, it helps enterprises that implement customer customization to have a deeper insight into the opportunities and challenges brought about by changes in the internal and external environment for the development of enterprises, comprehensively and systematically understand the adaptations and changes that enterprises need to make in order to implement customer customization strategies, and help enterprises better adjust their own customized strategic measures in combination with the differences in situational factors, so as to make better use of customer customization strategies.

Acknowledgements

Thanks to Nanjing University of Science and Technology for the data and hardware support. I would like to express my gratitude to Prof. Xiaohu Zhou, Assistant Prof. Aoran Hong, and Mr. Zheting Fei for their assistance in this research.

References

[1] Cheng Qiyun, Sun Caixin, Zhang Xiaoxing, et al. Short-Term load forecasting model and method for power system based on complementation of neural network and fuzzy logic. Transactions of China Electrotechnical Society, 2004, 19(10): 53-58.Duray R. Mass customization origins: mass or custom manufacturing?[J]. International Journal of Operations& Production Management, 2002,22(3):314-328.

[2] Salvador F, Forza C, Rungtusanatham M. Modularity, product variety, production volume, and component sourcing: theorizing beyond generic prescription[J]. Journal of operations management, 2002,20(5):549-575.

[3] Bozarth C C, Warsing D P, Flynn B B, et al. The impact of supply chain complexity on manufacturing plant performance[J]. ournal of operations management, 2009,27(1):78-93.

[4] Olhager J. Strategic positioning of the order penetration point[J]. International Journal of Production Fconomics, 2003,85(3):319-329.

[5] Huang X, Kristal M M, Schroeder R G. The Impact of Organizational Structure on Mass Customization Capability: A Contingency View[J]. Production & Operations Management, 2010,19(5):515-530.

[6] Murthi B P S, Sarkar S. The Role of the Management Sciences in Research on Personalization[J]. Management Science, 2003,49(10):1344-1362.

[7] Franke N, Schreier M. Product uniqueness as a driver of customer utility in mass customization[J]. Marketing Letters, 2008,19(2):93-107.

[8] Davis S. From future perfect: mass customizing[J]. Planning Review, 1989,17(2):16-21.

[9] Turner F, Merle A, Gotteland D. Enhancing consumer value of the co-design experience in mass customization[J]. Journal of Business Research, 2020,117:473-483.

[10] Tran T P, Lin C W, Baalbaki S. How personalized advertising affects equity of brands advertised on Facebook? mediation mechanism[J]. Journal of Business Research, 2020,140-155(120).

[11] Stanley M, Davis S. Future Perfect: Tenth Anniversary Edition[M]. New Jersey: Addison Wesley, 1997.

[12] Hart C W L. Mass customization: conceptual underpinnings, opportunities and limits[J]. International Journal of Service Industry Management, 1995,6(2):36-45.

[13] Franke N, Keinz P, Steger C J. Testing the Value of Customization: When Do Customers Really Prefer Products Tailored to Their Preferences?[J]. Journal of Marketing, 2009,73(9):103-121.

[14] Valenzuela A, Dhar R, Zettelmeyer F. Contingent Response to Self Customization Procedures: Implications for Decision Satisfaction and Choice[J]. Journal of Marketing Research, 2009,46(6):754-763.

[15] Wang Y, Lee J, Fang E, et al. Project customization and the supplier revenue-cost dilemmas: The critical roles of supplier-customer coordination[J]. Journal of Marketing, 2017,81(1):136-154.

[16] Holmstrom J, Howeg M, Khajavi S H, et al. The direct digital manufacturing revolution: definition of a research agenda[J]. Operations Management Research, 2016,9(1):1-10.

[17] Pathak B, Garfinkel R, Gopal R D, et al. Empirical Analysis of the Impact of Recommender Systems on Sales[J]. Journal of Management Information Systems, 2010,27(2):159-188.

[18] Mendelson H, Parlaktirk A K. Product-Line Competition: Customization vs. Proliferation[J]. Manageent Science, 2008,54(12):2039-2053.

[19] Wang Y, Kandampully J, Jia H. “Tailoring” customization services: Effects of customization mode and consumer regulatory focus[J]. Journal of Service Management, 2013,24(1):82-104.

[20] de Bellis E, Hildebrand C, Ito K H A, et al. Personalizing the Customization Experience: A Matching Theory of Mass Customization Interfaces and Cultural Information Processing[J]. Journal of Marketing Research, 2019,56(6):1050-1065.

[21] Tores E N, Lugosi P, Orlowski M, et al. Consumer-led experience customization: A socio-spatial approach[J]. Journal of service management, 2018,29(2):206-229.

[22] Bock D E, Mangus S M, Folse J A G. The road to customer loyalty paved with service customization[J]. 2016,69(10):3923-3932.

[23] Ben Jebara M, Modi S B. Product personalization and firm performance: An empirical analysis of the pharmaceutical industry[J]. Journal of operations management, 2021,67(1):82-104.

[24] Lim S, Donkers B, van Dijl P. Digital customization of consumer investments in multiple funds: virtual integration improves risk- return decisions[J]. Jounal of the Academy of Marketing Science, 2021,49(4):723-742.

[25] Auh S, Menguc B, Katsikeas C S, et al. When Does Customer Participation Matter? An Empirical Investigation of the Role of Customer Empowerment in the Customer Participation-Performance Link [J]. Journal of Marketing Research, 2019,56(6):1012-1033.

[26] Bernhardt D, Liu Q, Serfes K. Product customization[J]. European Economic Review, 2007,51(6):1396-1422.

[27] Maqueira J M, Novais L R, Bruque S. Total eclipse on business performance and mass personalization: how supply chain fexibility eclipses lean production direct effect[J]. Supply Chain Management: An International Journal, 2020,26(2):256-278.

[28] Chung M, Ko E, Joung H. Chatbot e-service and customer satisfaction regarding luxury brands[J]. Journal of Business Research, 2020,117:587-595.

[29] Morgeson I F V, Hult G T M, Mithas S, et al. Turning complaining customers into loyal customers: Moderators of the complaint handling- Customer loyalty relationship[J]. Journal of Marketing, 2020,84(5):79-99.

[30] Thirumalai S, Sinha K K. Customization strategies in electronic retailing: Implications of customer purchase behavior[J]. Decision Sciences, 2009,40(1):5-36.

[31] Ansari A, Mela C F. E-customization[J]. Journal of Marketing Research, 2003,40(2):131-145.

[32] Buechel E C, Janiszewski C. A Lot of Work or a Work of Art: How the Structure of a Customized Assembly Task Determines the Utility Derived from Assembly Effort[J]. Journal of Consumer Research, 2014,40(5):960-972.

[33] Dahl D W, Moreau C P. Thinking inside the Box: Why Consumers Enjoy Constrained Creative Experiences[J]. lJJournal of Marketing Research, 2007,44(3):357-369.

[34] Zenasni F, Lubart T. Pleasantness of creative tasks and creative performance[J]. Thinking Skills and Creativity, 2021,6(1):49-56.

[35] Franke N, Piller F. Value Creation by Toolkits for User Innovation and Deign: The Case of the Watch Market[J]. Journal of Product Innovation Management, 2004,21(6):401-415.

[36] Jiang P, Balasubramanian S K, Lambert Z V. Consumers' value perceptions of e-customization--a model incorporating information framing and product type[J]. Journal of Consumer Marketing, 2014,31(1):54-67.