

# Research on the Mechanism of value co-Creation of shared Bicycle

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## Abstract

Through constructing the conceptual model and analyzing the mechanism of value creation of shared bicycles. the following conclusions can be drawn: Extrinsic motivation, introjected motivation, Identity motivation, integrated motivation and intrinsic motivation positively influence the participation behavior in value co-creation and positively influence the citizenship behavior in value co-creation., but from the extrinsic motivation to the intrinsic motivation, its influence on participation behavior in value co-creation gradually weakens. From extrinsic motivation to intrinsic motivation, its impact on citizenship behavior in value co-creation gradually increases. The participatory behavior in value co-creation will promote the formation of citizenship behavior. Participation behavior and citizenship behavior in value co-creation can improve customer perceived value. Participatory behavior and citizenship behavior in value-creation can increase customer loyalty. And Increasing customer perceived value can increase customer loyalty.Finally,we give some suggestions based on the results of study.

## 1 the research background and significance

Since the 21st century, with the rapid development of the Internet and information technology, the business model has been constantly innovated. And various types of e-commerce enterprises have emerged one after another. In this context, the shared bicycles were born and dedicated to solving the problems of urban traffic congestion and the inconvenience of traveling in the last mile. Compared with the traditional rental service of public bicycle, the shared bicycle has the advantages of low price, high degree of freedom, and effective solution to short-distance travel problems. The shared bicycle is a new business operation mode in the traditional bicycle rental market. The model is based on the theory of shared economy , To achieve profitability by providing bicycling services (Lai Lei, Jiang Nongjuan, 2017)<sup>[1]</sup>. However, currently, shared bicycle enterprises operate mainly through user subsidies and burn-

back methods, and the position of customers is not clear. Therefore, it is urgent to explore innovative and sustainable business models. And with the rapid development of science and technology, differentiated consumer demand is becoming more and more obvious. The enterprise competitive strategy based on product and cost advantages no longer applies (DROEGE H. et al., 2009)<sup>[2]</sup>; therefore, the value co-creation theory based on service-dominant logic and customer using value came into being, which pointed out that the interaction between different subjects in the process of production and consumption is the foundation of value co-creation (PRAHALAD R., 2000)<sup>[3]</sup>. The business strategy based on the value co-creation is to integrate the market Stakeholder to create a symbiotic value co-creation system that together creates value through commitment and interaction to meet the individual needs of consumers (NORMANN R., TAMIREZ R., 1993)<sup>[4]</sup>. Since the shared bicycle emerging in 2015, there has not been a clear definition and in-depth study by the academic community. Based on the perspective of value co-creation, this paper analyzes and explains the value creation mechanism of shared bicycle, and provides theoretical support and practical guidance for the shared bicycle business.

## **2 Literature review at home and abroad**

### **2.1 The value co-creation of service-dominant logic**

The service-dominant logic is the key theory to explain the participation value co-creation of all subjects in the market. It considers that the value created by the enterprise and customer is not the exchange value, but the using value and situational value that created the interaction with customer in the consumption process (Vargo and Lusch , 2008, 2011)<sup>[5][6]</sup>. The research under the value co-creation of service-dominant logic emphasizes not only the interaction between subjects in the market but also the resource integration and service exchange based on interaction (Wu Yao et al., 2017)<sup>[7]</sup>. The study on the value co-creation under the service-dominant logic mainly consists of four parts: motivation of value co-creation, behavior of value co-creation, effect of value co-creation and mechanism in value co-creation.

In terms of motivation of value co-creation, some scholars have studied the motivational factors for consumers to participate in brand value co-creation (Merz, Michael A. et al. 2018, Kennedy, Eric; Guzman, Francisco, 2015)<sup>[8][9]</sup>. Kang, Seong-Ho et al. (2016) argue that consumer personality is an important factor that affects their participation in value co-creation and is conditioned by intrinsic and extrinsic motivation. And Kim, Jongki (2016) found that intrinsic motivation has a significant effect on consumer participation in value co-creation<sup>[10]</sup>. Fernandes, T and Remelhe, P (2016) pointed out that intrinsic motivation and knowledge motivation in virtual communities are important factors driving users' participation in collaborative innovation<sup>[11]</sup>. In addition, according to the difference of type and content of participation in value co-creation in the innovation process, self-motivation, altruistic

motivation, and speculative motivation separately drive different forms of value co-creation behavior (Roberts, Deborah et al., 2014)<sup>[12]</sup>. There are many motivations for driving customers to participate in value co-creation. Scholars have conducted rich research from different perspectives. However, from the perspective of psychology, especially using self-determination theory to study the impact of psychological motivation on customer participation in value co-creation. So this is one of the focuses of this article.

On the behavior of value co-creation, Yi et al.(2011, 2013) found that customer behavior of value co-creation has two dimensions: customer participation behavior and customer citizenship behavior. Customer participation behavior is a necessary internal role, and customer citizenship behavior is the voluntary behavior outside the role. And they developed a measurement scale for the two dimensional behavior. Among them, customer participation include: information search, information sharing, responsible behavior, interpersonal interaction. Customer Citizenship Behavior includes: Feedback, Advocacy, Help, Tolerance<sup>[13][14]</sup>. Bu Qingjuan et al. (2016) found that the customer interaction behavior of value co-creation in virtual brand community consists of four dimensions: help-seeking, interpersonal interaction, feedback and advocacy<sup>[15]</sup>.

In terms of effects of value co-generation, enterprises can reduce the risk of new product and service development, reduce innovation costs and speed up production by building a business model that facilitates consumer participation in value co-creation (Maklan, Knox, & Ryals, 2008, Romero & Molina, 2011, O'Hern, 'Rindfleisch, 2007)<sup>[16][17][18]</sup>. Zhang and Chen (2008) found that enterprise system of value co-creation have a positive impact on their ability to customize and serve<sup>[19]</sup>. For customers, participating in business value co-creation can improve product quality, experience better customized services, and increase consumer satisfaction (Füller & Matzler, 2008, Roser et al., 2009, Nambisan & Baron, 2007, Garcia- Haro, MA et al. 2015)<sup>[20][21][22][23]</sup>.

On the mechanism of value co-creation, Marco (2015) clarified the core mechanism of value co-creation in the context of moral consumption from the perspective of individual consumers through phenomenological research<sup>[24]</sup>. The development of information technologies such as the Internet has greatly promoted the boundary and efficiency in customer participation in value co-creation. Some scholars have conducted research on the value co-creation mechanism of Internet companies (Siu Zhaoquan et al., 2015; Zhao Zhe et al., 2017)<sup>[25][26]</sup>. Yang Xuecheng and Tu Ke (2016), taking Uber as an example, described the dynamic process of value creation of travel platforms and identified the key factors that affect value co-creation based on customer perspectives<sup>[27]</sup>. Wang Jiuhe and Liu Lin (2017) studied the mechanisms for customer participation in value co-creation in the logistics service industry from the perspectives of customer motivation, process and results<sup>[28]</sup>. Under different environments and industries, there are also differences in the participation modes and mechanisms of value co-creation. There are no studies on value co-creation of shared bicycle as the application of shared economy in the field of travel. Therefore, this paper analyzes the operating mechanism of its value co-creation based on background characteristics of shared bicycle.

## **2.2 shared bicycle**

Shared bicycle is a typical applicational example of sharing economy in the field of transportation and is the product of the separation of bicycle ownership from the right to use (Du Yiping, 2017)<sup>[29]</sup>. Since the emergence of shared bicycle in 2015, the number of monthly active users in shared bicycle app has grown from 540,000 in July 2016 to 69.73 million in May 2017 according to 2017 Share Cycling Market Report issued by QuestMobile, which appears geometry growth. The monthly compound growth rate is as high as 62.6%. In this context, scholars have discussed the factors influencing the willingness and demand of shared bicycle users (Huang Guoqing, Chen Xue, 2017, Xiang Bo et al., 2018)<sup>[30][31]</sup>. Under the circumstance of savage growing of shared bicycle, the hidden problems of the "capital pool", the bubble brought by the fanatical capitalism and the "bottom line competition" have also gradually emerged (Ma Guangqi, Wei Mengke, 2017, Tan Yuan, 2017)<sup>[32][33]</sup>. And on the issue of price war between shared bicycle companies, Wang and Wu (2017) used "Prisoners' Dilemma" model to analyze the substance and causes of the problem. They pointed out that enterprises should be oriented toward expanding profit model and enhancing user stickiness but not blindly rely on price competition through capital investment<sup>[34]</sup>. The study pointed out that currently there is a problem that the users of shared bicycles are not sufficiently motivated and not yet locked out, and that an innovative business model is needed<sup>[35]</sup>. Du Yiping (2017) pointed out that media transformation is a viable model for the development of new shared bicycles<sup>[29]</sup>. In order to form a sustainable profit model, this paper argues that not only from its own consideration, but also from the customer perspective, the business model should be rebuilt regarding consumers as the core, which is the key to service-dominant logic.

At present, the research on shared bicycles has just started, but not enough. It mainly explores the problems occurred in the process of shared bicycle development and the management behaviors. However, the research from the consumer perspective is still scarce, especially from the perspective of service-dominant logic. Therefore, based on service-dominant logic, this paper analyzes the value co-creation mechanism in the process of interaction between enterprises and customers in the shared bicycle market.

## **3 Conceptual model and mechanism analysis**

### **3.1 Conceptual Model**

This study constructs the conceptual model with the logic of "co-creation motivation – co-creation behavior – co-creation value". The motivation of consumer participation is mainly divided into extrinsic motivation and intrinsic motivation. However, Deci and Ryan (2000)<sup>[36]</sup> consider that there is neither

single dimensional motivation nor dual differentiation Motivation, but a motivaton system gradually transiting from the internal motivation to external motivation. Therefore, based on the research of Deci and Ryan (2000), this dissertation divides the co-creation motivation into External Motivation, Introjected Motivation, Identified Motivation, Integrated Motivation, As well as intrinsic motivation, which the internality of the motivation system gradually increased. The core of service-dominant logic is that consumers are always the main players in value co-creation. Consumers participate in value co-creation by interacting with producers throughout the value chain. Considering the association and difference of consumer co-creation behavior, this dissertation refers to the division of co-creation behavior by Yi et al. (2013), including customer participation behavior and customer citizenship behavior. Among them, customer participation behavior includes information search, information sharing, Behavior, interpersonal interaction. Customer Citizenship Behavior includes: Feedback, Advocacy, Help, Tolerance<sup>[11]</sup>. In terms of value co-creation, this article mainly refers to the value generated in the process of value co-creation for consumers and producers. The service-dominant logic theory holds that consumers pay more attention to the using value. Therefore, choosing the perceived value of consumers as one of the co-creation values. Customer loyalty is enterprise's greatest value, so choose customer loyalty as one of co-creation value. This article conceptual model shown in Figure 1.

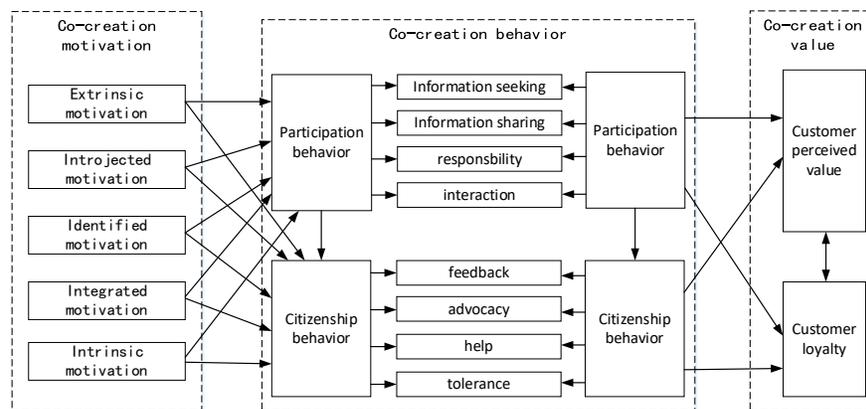


Figure.1 Model of shared bicycle value co-creation mechanism

### 3.2 mechanism analysis

#### 1) Co-creation Motivation and Co-creation Behavior

There are two types of behaviors that consumers participate in value co-creation: participation behavior and citizenship behavior (Yi et al. 2013). Participation behavior mainly refers to actions that must be taken to achieve value co-creation and directly determines whether the consumer can externally get the best effect<sup>[11]</sup>. Through information search, consumers can reduce the uncertainty of the transaction process, understand and participate in the value co-creation. Sharing information will enable

enterprises to better meet our needs. Only consumers recognize the responsibility and obligation as a participant in value co-creation, which can maximize the value of creation. And the interaction between consumers and businesses is the necessary conditions to achieve the value of creation. Different from consumer participation behavior, citizen behavior is not an essential factor for value co-creation. It embodies more the voluntary behavior in the value co-creation process and is a process of self-realization of consumers. Feedback can help enterprises to improve the quality of products and services. Initiatives bring new customers to the enterprise. Providing help to other consumers is a reflection of their own sense of social responsibility. Tolerance for enterprises is an affirmation and encouragement of their efforts. At the same time, citizenship behavior also reflects the inherent value needs of consumers.

The consumer's motivation directly determines and influences the behavior of value co-creation. The self-determination theory proposed by Deci and Ryan (2000) considers motivation as a continuum from external motivation to internal motivation according to degree of self-determination from low to high. And motivation is divided into external motivation, introjected motivation, identified motivation, integrated motivation and intrinsic motivation<sup>26</sup>. The behavior that is influenced by extrinsic motivation is directly related to remuneration or avoidance of punishment. The behavior under introjected motivation absorb external rules and requirements, but did not merge into one. When the individual's behavior is consistent with his or her own goals and characteristics, the consumer feels freedom and will, which is the identity motivation. The integrated motivation appears as the absorption and internalization of external rules and requirements, which achieve the deep integration of consumer behavior and external rules. Intrinsic motivation is a completely spontaneous state, in which individuals do not need any effort to self-control. The motivation system of self-determination theory embodies the control of external environment on individual behavior, but also reflects the behavior to meet the needs of different individuals. With increasing of the degree of self-determination. The motivation system from external motivation to internal motivation in turn will be more Stimulate consumers behavior based on intrinsic value needs, and reduce consumer behavior under the control of the external environment.

## **2) participation behavior and citizenship behavior of value co-creation**

In the process of value co-creation, consumer participation behavior is an intra-role behavior which is inevitability. And consumer citizenship behavior is a kind of extra-role behavior which is spontaneity. Liu Hongsheng et al.(2012) pointed out that consumer behavior is mediated by the quality of relationship during the process of transforming from participation behavior to citizenship. The quality of relationship refers to the extent to which the relationship between consumers and enterprises can meet the needs of specific consumers, namely, perception of the relationship and the whole service process, including the three dimensions of satisfaction, trust and commitment<sup>[37]</sup>. When consumers participate more in the process of value co-creation, products and services can preferably satisfy consumers' needs and make consumers get more satisfaction. High satisfaction will make consumers trust the enterprises

And promises, which in turn make consumers spontaneously show more citizenship behavior.

### **3) Co-creation Behavior and Co-creation Value**

In the production process of products and services, the value generated for consumers and producers is mainly consumer perceived value and customer loyalty. In the value co-creation mode, consumers get more control over products and services, which not only meet the individual needs of consumers, but also gain a unique consumer experience. This participatory experience improve consumer's Satisfaction of the value produced by the enterprise. So that its perceived value has been improved. Customer loyalty is a positive assessment of the product and service after the purchase as well as a purchase intention in the future. In the process of value co-creation, the co-creation behavior within and outside roles that decrease information asymmetry between consumers and enterprises can increase the customers' control over value creation. Enterprises also fully understand the needs of customers and lay the foundation for both parties to establish a good cooperative relationship. on this basis, the formation of customer trust in businesses enhance customer desire to repeat purchases. In addition, studies by Wang Jiuhe and Liu Lin (2017) point out that if customers perceive their products and services more, their willingness to repeat purchases will be higher<sup>[16]</sup>.

## **4 conclusion and suggestion**

Through constructing the conceptual model and analyzing the mechanism of value creation of shared bicycles, the following conclusions can be drawn: First, the motivation that affects the participation of consumers in shared bicycles value co-creation is a motivation system, including extrinsic motivation, introjected motivation, Identity motivation, integrated motivation and intrinsic motivation. And the degree of self-determination from extrinsic motivation to intrinsic motivation gradually increase. Second, the value co-creation behavior in shared bicycle mainly includes participation behavior and citizenship behavior. Participation behavior is the behavior within the role, and citizenship behavior is the behavior outside the role. In addition, extrinsic motivation, introjected motivation, Identity motivation, integrated motivation and intrinsic motivation positively influence the participation behavior in value co-creation, but from the extrinsic motivation to the intrinsic motivation, its influence on participation behavior in value co-creation gradually weakens. Extrinsic motivation, introjected motivation, Identity motivation, integrated motivation and intrinsic motivation positively influence the citizenship behavior in value co-creation. However, from extrinsic motivation to intrinsic motivation, its impact on citizenship behavior in value co-creation gradually increases. Finally, the participatory behavior in value co-creation will promote the formation of citizenship behavior. Participatory behavior and citizenship behavior in value co-creation can improve customer perceived value. Participatory behavior and citizenship behavior in value-creation can increase customer loyalty.

And Increasing customer perceived value can increase customer loyalty.

At present, there are many problems in the field of shared bicycles, such as the unsustainable profit model, the problem of capital pool and the existence of bubbles in the case of capital fever. Therefore, it is urgent for the shared bicycle enterprises to explore a new business model. Value co-creation is a new concept and mode of business operation under the new era. Shared bicycle enterprises can build this model from the following points. First, the orientation of consumers should shift from service targets to win-win cooperation partners, which achieve better interaction and communication. Secondly, guide customers to participate in the design process of enterprise products and services, set the appropriate external incentives for customers, and give full play to their subjective initiative. Thirdly, to build a platform for customers to communicate and facilitate the transfer of information between enterprises and customers as well as customers.

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