

## Impact of service innovation on consumer repurchase intentions - based on the intermediary role of live streaming and industry chain management

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**Abstract:** Service innovation significantly influences consumer repurchase intention through live streaming and industry chain management. Despite this impact, within the realm of cross-border commerce, e-commerce entities have often neglected to scrutinize the nexus between service innovation and consumer repurchase intention, resulting in a dearth of scholarly investigations on this subject. Accordingly, this study endeavors to establish a coherent conceptual framework elucidating the relationship between service innovation and consumer repurchase intention; Employing live streaming and industry chain management as mediating variables, the research conducts a comprehensive examination and analysis. One questionnaire was administered: Questionnaire was disseminated to 606 consumers engaged in cross-border e-commerce transactions. Utilizing SPSS26, questionnaire underwent correlation and multiple regression analyses. Findings underscore a positive correlation between service innovation and consumer repurchase intention. Moreover, service innovation exhibits a favorable association with live streaming and industry chain management, thereby exerting a positive influence on consumer repurchase intention. Consequently, service innovation plays a pivotal role in enhancing consumer repurchase intention, particularly when mediated by live streaming and industry chain management.

**Keywords:** *Consumer repurchase intention, Industry chain management, Live streaming, Service innovation.*

### 1. Introduction

In the context of the digital economy, cross-border e-commerce has emerged as a novel facet of international trade, assuming a pivotal role in facilitating the realization of a nation's opening-up strategy, serving as a fundamental catalyst for the advancement and modernization of foreign trade practices, and laying a robust groundwork for fortifying external circulation dynamics. The evolution of cross-border e-commerce in China has transitioned into a phase characterized by high-quality economic propulsion [1]. Premier Li Qiang reaffirmed the significance of "cross-border e-commerce" in the government work report on March 5, 2024. Remarkably, from its inaugural mention in the 2014 government work report to the present, "cross-border e-commerce" has been iteratively highlighted in governmental addresses, marking the eleventh inclusion. Through years of proliferation and advancement, the cross-border e-commerce pilot zones have achieved nationwide coverage, emerging as a potent engine for augmenting the economy's foreign trade landscape [2].

The advent of global trading opportunities facilitated by cross-border e-commerce platforms serves as an effective mechanism in fostering the integration of small and medium-sized enterprises (SMEs) into the globalization process. Encouraged by the exigencies of the global market, it has become an inexorable trend for Chinese manufacturing enterprises to embrace the "going out" strategy of cross-border e-commerce. Notably, cross-border e-commerce platforms predominantly inhabited by SMEs and individual entrepreneurs have undergone rapid expansion [3]. The concept of digital consumption

and services has progressively assumed a pivotal role within the realm of cross-border e-commerce [4]. The concept of digital consumption and services has progressively assumed a pivotal role within the realm of cross-border e-commerce [5]. From the consumer perspective, the direct consequence of enterprise initiatives manifests in an enhanced proclivity for repeat purchases. According to Cui; and Qu [6], when consumers perceive high product quality on cross-border e-commerce platforms, it positively influences their satisfaction and loyalty, thereby enhancing their propensity for repeat purchases. Live streaming, as a ubiquitous marketing method, assumes a pivotal role in implementing service innovation mechanisms and significantly impacts consumers' repeat purchase intentions and behaviors. The essence of live streaming marketing lies in its ability to attract and retain consumer attention, thereby fostering prolonged engagement within the live broadcast environment. Through the charismatic presentation of hosts and engaging content, consumers establish a sense of identification, thereby stimulating their inclination towards purchasing and subsequent purchase behaviors [7]. Furthermore, findings from a survey study on e-commerce enterprises underscore the indispensability of logistics services in online retail operations. The quality and efficiency of logistics services emerge as crucial determinants in enhancing consumer-provider relationships on shopping platforms [8]. Consumers seek prompt delivery of goods and convenient after-sales services such as returns and replacements. Consequently, cross-border e-commerce enterprises can significantly bolster consumers' repeat purchase intentions by continually enhancing logistics efficiency and offering seamless after-sales support. Personalized customization services, alongside high-quality logistics operations and consumer satisfaction initiatives, constitute impactful service innovations that significantly influence purchasing intentions. By persistently innovating and elevating service standards, cross-border e-commerce firms can augment consumer repurchase intention, thereby fortifying their market competitiveness.

Currently, the bulk of research in the realm of cross-border e-commerce predominantly concentrates on assessing its impact and delving into consumer behavior patterns and shopping experiences within the context of purchasing goods from various merchants and platforms. Notably, studies pertaining to consumer repurchase intentions predominantly center around traditional e-commerce platforms [9-11], leaving considerable gaps in academic exploration. For instance, there remains a dearth of research investigating the intricate interplay between consumer experiences and subsequent shopper behaviors, particularly regarding their willingness to engage in repeat purchases [12]. Furthermore, there exists a notable absence of scholarly inquiry into the role and influence of live streaming practices and industry chain management dynamics in shaping the process of service innovation and consumer willingness within the cross-border e-commerce domain. These unexplored areas represent fertile ground for further academic investigation and warrant scholarly attention to comprehensively understand the multifaceted dynamics inherent in cross-border e-commerce ecosystems.

Based on the identified gaps in existing research, this article centers on examining the nexus between service innovation and consumer repurchase intentions within cross-border e-commerce enterprises. The primary objective is to elucidate how enterprise-driven service innovation influences consumers' propensities for repeat purchases, with a particular focus on the roles played by industrial chain management strategies and live streaming practices. By delving into these aspects, this study seeks to provide insights into the mechanisms through which service innovation initiatives undertaken by enterprises reverberate across the consumer landscape, ultimately shaping their intentions to engage in repurchase behaviors.

## 2. Theoretical Review and Prospect

### 2.1. Literature Review

Service innovation encompasses enterprises' capacity to address consumer demands through the introduction of novel, distinctive, or enhanced services. Concurrently, consumers' encounters with and perceptions of innovative services hold the potential to positively influence their inclination to engage in repeat purchases. As consumers perceive, engage with, and derive benefits from service innovations,

their satisfaction towards the brand or enterprise amplifies, thereby fostering a propensity for recurring transactions. Within the context of China's economic metamorphosis, services have emerged as the pivotal nexus of value exchange, precipitating a gradual shift in enterprises' research and development emphasis from product-centric innovation to service-centric innovation [13]. Within the e-commerce milieu, consumers assume the central role in shaping the digital landscape, with consumer experience epitomizing the personalized sentiments engendered by interactions with media products or services [14]. Wang Haibo [15] posits that service innovation exerts a discernible influence on user experience, thereby subsequently shaping customers' willingness and behaviors towards repeat purchases. Evidently, enterprises' endeavors in service innovation wield a direct impact on consumers' purchasing experiences and consequent repurchase intentions.

The live streaming modality entails the presentation and sale of products or services via real-time video broadcasting. Live streaming accompanied by merchandise constitutes a nascent form of contactless online retailing [16], leveraging webcast technology with anchors serving as conduits for information dissemination, thereby facilitating product sales to users. This mode of live streaming augments consumers' comprehension and trust in products, thereby influencing their purchasing decisions. Within the live streaming milieu, Huang et al. [17] observed that customers' genuine perceptions and satisfaction with remedies provided by online stores positively influence their psychological inclination towards repurchase. When consumers perceive authenticity, credibility, and personalized service through live streaming channels, their willingness to engage in repeat purchases heightens. Furthermore, Huang et al. [18] contend that social media platforms can bolster customer loyalty by furnishing personalized services and fostering customer engagement through live-streaming e-commerce platforms. The ambiance of the live streaming environment fosters sustained consumer purchasing intentions by shaping perceptions of entertainment and trust. Liu Yang et al. [19] examined consumer purchasing behavior within the context of live shopping, identifying interactivity, authenticity, entertainment, and visibility as factors positively influencing purchasing behaviors. The interactivity of mobile video live streaming, the immersive live streaming experience, and the rapport established with hosts collectively enhance consumer satisfaction, subsequently influencing their willingness to persist in viewing or utilizing the platform [20]. Moreover, scholars have explored the impact of quasi-social relationships forged between consumers and live streamers on repurchase intentions. Yao Jie [21] demonstrated that quasi-social relationships between consumers and streamers can impact satisfaction levels, thereby influencing consumers' propensities for repurchase within the realm of online media.

Industrial chain management encompasses the orchestration and optimization of various components within the supply chain and value chain to enhance the quality, efficiency, and dependability of products and services. Proficient industrial chain management ensures the steadfastness and consistency of product supply while furnishing timely after-sales services and support, thereby fostering consumer trust and loyalty to the brand, and influencing repurchase intentions. The business industry chain denotes the interconnected links involved in the journey of goods from suppliers exporting across borders to end consumers (upstream suppliers, midstream cross-border e-commerce platforms, service providers, downstream users) and their interrelations [22]. Research in the domain of industrial chain management and consumer repurchase intentions spans several focal areas, encompassing supply chain management, branding, after-sales service, quality management, and pricing strategies. The quality of products or services offered by suppliers or service providers, alongside the efficacy of their marketing endeavors, significantly influence consumer decision-making. Collaboration among producers, suppliers, distributors, retailers, and consumers within each industry sector culminates in a holistic industrial chain, fostering operational efficiency through close cooperation, mutual benefit, and value creation across the cross-border e-commerce ecosystem [23]. Notably, in cross-border commerce, logistics service quality exerts a substantial positive impact on perceived value and repurchase intentions among consumers [24]. Additionally, Chen Qi et al. posited that blockchain traceability systems can augment consumer repurchase intentions [25], while Yan Xiuxia et al. suggested that refined logistics services

positively influence customer repurchase intention online [26]. High-quality brands have the potential to enhance consumer trust and their inclination to engage in repeat purchases [27]. The integration of service quality across multiple channels exerts a substantial positive influence on consumers' willingness to engage in repurchase behaviors [28]. Furthermore, the efficiency of order processing and the quality of logistical operations significantly impact consumer satisfaction levels and their intentions to repurchase [29]. Through a comprehensive literature review, this study identifies five primary dimensions of industrial chain management: supply chain management, brand management, multi-channel service integration, order efficiency, and logistics quality, all of which significantly influence consumers' propensity to engage in repeat purchases.

In summary, service innovation, industrial chain management, and live streaming practices collectively contribute to enhancing consumers' willingness to engage in repurchase behaviors. Despite existing research highlighting the impact of enterprise offerings such as products, services, and logistics on consumer repurchase intentions, notable gaps persist in the literature. This article aims to bridge these gaps by elucidating the interrelationships between service innovation, industrial chain management, live streaming practices, and consumer repurchase intentions, thereby facilitating the long-term development of enterprises, elevating repeat purchase rates, and fostering stable customer relationships.

## 2.2. Theoretical Analysis and Hypothesis

Scholars have proposed various frameworks for classifying service innovation, with many drawing on Gallouj's extension of Weinstein's original classification. However, there exists considerable overlap and intersection among these classifications, indicating a lack of substantial progress within the academic community. This gap presents an opportunity for further exploration and the development of new classifications of service innovation. Existing classifications typically aim to delineate the novelty, complexity, and various standards of service innovation, yet establishing clear classification criteria proves challenging and implementing them in practice remains difficult. In light of these challenges, this study endeavors to delineate a unified, practical, and operationally feasible classification standard by centering on the essence of service innovation within the context of cross-border e-commerce, prioritizing customer needs, and striving to reflect product characteristics.

In summary, building upon the literature review and the definition of service innovation provided in this article, service innovation primarily emerges from the interactions between enterprises and consumers. Given the industry context of cross-border e-commerce enterprises, this study posits that the value of service innovation lies in enterprises' continuous adaptation to meet evolving consumer needs. Moreover, service innovation theory underscores the importance of collaboration between enterprises and consumers to drive innovation and deliver superior products. Accordingly, this study proposes two dimensions of service innovation: customer-led service innovation and product-led service innovation. By enhancing service innovation, cross-border e-commerce enterprises can directly or indirectly enhance their marketing performance, thereby influencing consumers' willingness to engage in repeat purchases and sustainable behaviors. Consequently, this study posits the following theoretical hypotheses.

*Hypothesis H<sub>1</sub>: Service innovation exerts a positive influence on consumer repurchase intention.*

*Hypothesis H<sub>1a</sub>: Customer-led service innovation exerts a positive influence on consumer repurchase intention.*

*Hypothesis H<sub>1b</sub>: Product-led service innovation positively influences consumer repurchase intention.*

The industrial chain can be conceptualized as either the network of relationships within an enterprise or the collective arrangement of upstream and downstream industries catering to a particular demand or producing a specific product (alongside associated services). In the digital era, service innovation catalyzes consumer engagement within the industrial chain, fostering a virtuous cycle. Accordingly, this article posits hypotheses.

*Hypothesis H<sub>2</sub>: Service innovation yields a beneficial effect on industrial chain management.*

*Hypothesis H<sub>2a</sub>: Customer-led service innovation positively influences industrial chain management.*

*Hypothesis H<sub>2a</sub>: Product-led service innovation exerts a positive impact on industrial chain management.*

The advancement of the economy, particularly in the realm of digital transformation, propels the evolution of China's industrial chain [30]. Within the landscape of cross-border e-commerce enterprises, a focus on industrial chain management emerges as an inevitable consequence of firms' continuous pursuit of competitive advantages. Amidst competition, when internal organizational adjustments fail to meet expectations, entrepreneurs shift their focus to the external milieu, emphasizing the exploration of new core competencies from a consumer-centric perspective [31]. This shift directly impacts the company's industrial chain management, prompting firms to seek novel core competencies rooted in the industrial chain and fostering potential win-win scenarios aligned with sustainable consumption [32]. This iterative process underscores the interplay between industrial chain management and consumer dynamics. The collaboration between cross-border e-commerce enterprises and local government initiatives aimed at bolstering industrial chain infrastructure has enhanced the efficacy of consumer experiences and augmented overall user satisfaction with products and services, thereby fostering sustainable consumer behaviors. In summary, a discernible relationship exists between livestreaming practices in cross-border e-commerce, service innovation, industrial chain management, and consumer repurchase intentions, thereby forming the basis for the following theoretical hypothesis.

*Hypothesis H<sub>3</sub>: Industry chain management exerts a direct positive influence on consumer repurchase intention.*

*Hypothesis H<sub>4</sub>: Service innovation directly enhances consumer repurchase intentions through its impact on industrial chain management.*

*Hypothesis H<sub>5a</sub>: Customer-led service innovation positively influences consumer repurchase intentions through industry chain management.*

*Hypothesis H<sub>5b</sub>: Product-led service innovation directly enhances consumer repurchase intentions through industrial chain management.*

In light of the significant role of big data in China's cross-border e-commerce sector, research on service models suggests the necessity for these models to evolve in tandem with big data advancements. Enterprises must timely innovate their service models and explore novel pathways to remain competitive [33]. Some enterprises have adopted innovative communication methods such as WeChat QR codes to enhance customer experience, thereby fostering increased customer repurchase intentions [15]. Drawing upon the insights gleaned from the literature review, this article posits hypotheses.

*Hypothesis H<sub>6</sub>: Service innovation positively influences live streaming with goods.*

*Hypothesis H<sub>6a</sub>: Customer-led service innovation positively impacts live streaming.*

*Hypothesis H<sub>6b</sub>: Product-led service innovation positively affects live streaming with goods.*

The attributes of interactivity, authenticity, entertainment, and visibility within live streaming environments collectively stimulate favorable purchasing behaviors among consumers [19]. The interactive engagement between consumers and anchors, coupled with the features of live streaming platforms, fosters a heightened sense of presence, enabling active consumer participation in live shopping experiences [34]. Notably, the presence of opinion leaders and the contextual circumstances surrounding purchases significantly enhance consumer satisfaction levels and their willingness to engage in repeat purchases [29]. Moreover, the ambiance cultivated within cross-border e-commerce platforms can engender a conducive environment for fostering sustained consumer purchasing intentions, influenced by perceived entertainment value and trustworthiness (Huang, Xiao et al. 2020). Given the capacity of live streaming to enhance consumers' willingness to engage in repeat purchases, this study postulates the following hypothesis:

*Hypothesis H<sub>7</sub>: Live streaming positively influences consumer repurchase intention.*

*Hypothesis H<sub>7a</sub>: Service innovation enhances consumer repurchase intention through live streaming.*

*Hypothesis H<sub>7b</sub>: Customer-led service innovation positively affects consumer repurchase intention through live streaming.*

*Hypothesis H<sub>7c</sub>: Product-led service innovation positively impacts consumer repurchase intentions through live streaming.*

### 3. Research Method and Design

#### 3.1. Research Methods

This study employs three methodologies: literature review, questionnaire survey, and empirical analysis to investigate the relationship between cross-border e-commerce and the development of China's Internet economy. Specifically, it delves into the mechanism by which enterprise service innovation influences consumer repurchase intentions. Initially, the study systematically reviews existing theories and relevant literature to furnish theoretical guidance for constructing the research framework. Subsequently, it utilizes a questionnaire survey method to gather pertinent data pertaining to service innovation, live streaming, industrial chain management, and consumer repurchase intentions. Finally, the research hypotheses formulated within the theoretical framework are empirically tested. Thus, this study ensures the scientific rigor and validity of its findings through a multifaceted approach encompassing literature review, questionnaire survey, and empirical testing methodologies.

##### 3.1.1. Literature Analysis Method

The literature research method involves a comprehensive examination of scholarly achievements within relevant research domains, encompassing the collection and analysis of pertinent information to elucidate the latest advancements and comprehensively address research issues. In the context of this article, the research process entailed consulting relevant papers and electronic resources to gather theoretical evidence concerning topics such as service innovation, live streaming with goods, industrial chain management, and consumer repurchase intentions. This process facilitated the clarification of the primary research content, identification of potential future research directions, and organization of collected materials. Additionally, diverse perspectives offered by scholars were analyzed and scrutinized to deeply explore the impact mechanism of service innovation, live streaming with goods, industrial chain management, and consumer repurchase intentions within cross-border e-commerce enterprises in China. Key research inquiries include investigating the causal relationship between service innovation and consumer repurchase intentions, assessing the mediating role of live streaming with goods and industrial chain management, and examining the intricate mechanisms linking service innovation, live streaming with goods, industrial chain management, and consumer repurchase intentions. The synthesis of this literature review serves to construct the overall research framework and theoretical model of service innovation within cross-border e-commerce enterprises in China, laying a robust theoretical foundation for this study. Material acquisition predominantly entails utilizing online resources and library databases. Online sources primarily comprise platforms such as CNKI, Wanfang Database, and Web of Science, among others.

##### 3.1.2. Questionnaire Survey Method

The questionnaire survey method serves as a pivotal research approach within this article. Drawing from a review of pertinent literature on variables, the measurement questionnaire for these variables was curated, organized, and refined to align with the specific objectives of this study. Subsequently, the questionnaire was tailored to accurately capture the research content. Primarily, the study focuses on one key entity: China's consumers engaged in cross-border online consumption.

To ensure robust measurement, this study predominantly adopts scales utilized in existing literature, with adjustments made as deemed necessary based on the study's focus. The measurement scale employed in the questionnaire utilizes a five-level Likert scale, originating from the Total Addition Scale developed by American social psychologist Lee Katzspecial in 1932. Throughout the questionnaire design process, considerable reference was made to content utilized in prior studies, particularly doctoral theses addressing related subject matter. Additionally, extensive communication was conducted with industry peers to glean insights and refine the questionnaire design. Subsequently, the questionnaire underwent thorough scrutiny by five scholars and experts in relevant fields, whose feedback was carefully considered and incorporated into the final version.

Finally, the questionnaire was disseminated and collected via online platforms, allowing respondents to conveniently fill out the form electronically. The survey questionnaire and QR code were directly distributed to consumers of relevant Chinese cross-border e-commerce consumption, facilitating direct online submission of responses. The collected data were securely stored on a server for subsequent analysis.

### 3.1.3. Empirical Analysis Method

This study investigates consumers involved in the cross-border e-commerce consumption. The primary objective is to discern the factors influencing service innovation within enterprises through questionnaire survey. The survey aims to gather, compile, and sift through relevant information and data to delineate the determinants of service innovation in enterprises.

To analyze the data, this study employs SPSS 26.0 statistical software as its analytical tool. The analysis encompasses descriptive statistical analysis, assessment of variable reliability and validity, typical correlation analysis, and regression analysis methods. These analytical approaches collectively aid in uncovering patterns, relationships, and predictive factors relevant to service innovation within cross-border e-commerce enterprises in China.

### 3.2. Questionnaire Design

This article draws upon a range of research and theoretical studies on service innovation, including contributions from He Peng (2006), Song Zhigang (2006), Zhang Fengjie (2007), Yang Wei et al. (2011), Wang Tienan (2012), Fu Xianzhi (2012), Liu Libo and Shen Yuzhi (2015), Liu Ailing (2015), and Chen Wu et al. (2015, 2016). It also integrates existing research and case analyses. In measuring service innovation, the article adopts two dimensions: customer-led and product-led service innovation.

Regarding industry chain management, the article leverages insights from research by Liu Xiaogang et al. (2022), Zhang Xiaoxiao (2016), Xu Yiliang et al. (2013), Cao Fang et al. (2004), Yu Hai et al. (2005), and other experts and scholars. Four dimensions are selected for dimensional measurement: supply chain management, information chain management, process integration, and customer response.

E-commerce live streaming, encompassing internet celebrity sales and platform live broadcasts, serves as a marketing tool for enterprises. Internet celebrity sales involve influencers providing consumers with product information and guidance, while platform live broadcasts entail enterprises marketing through live broadcasts on platforms. The article designs a comprehensive scale for e-commerce live broadcast modes, encompassing two dimensions: Weibo-driven (WH) and platform live broadcast (PT).

While previous research has extensively examined consumer repurchase intention from the perspectives of consumer perception, satisfaction, and service quality, there has been limited exploration from the vantage point of industry chain management and service innovation. This article addresses this gap by incorporating service, satisfaction, and loyalty as dimensions of consumer repurchase intention. Drawing on studies by Parasuraman et al. (2005), Chiu et al. (2013), and Liao Chun et al. (2016), the article designs questions that reflect the characteristics of service innovation in cross-border e-commerce enterprises, informed by expert opinions.

### 3.3. Data Sources

Based on available channels, materials, and information, the survey targets individuals engaged in cross-border e-commerce business operations. The survey aims to gather data on various variables: firstly, to ascertain the impact of service innovation on consumers' repurchase intentions and collect relevant data; secondly, to assess the state of industrial chain management during the impact of service innovation on consumers' repurchase intentions and gather relevant data; thirdly, to evaluate the role of live streaming in the impact of service innovation on consumers' repurchase intentions and collect relevant data; fourthly, to understand how service innovation affects consumers' repurchase intentions



through industrial chain management and gather relevant data; and finally, to examine how service innovation influences consumer repurchase intentions through live streaming and gather relevant data.

Due to constraints such as manpower, time, and funding, the questionnaire distribution was facilitated through WeChat, utilizing the questionnaire star distribution method. Each questionnaire comprised 10 questions based on four variables. A total of 606 questionnaires were distributed, all of which were deemed valid, resulting in a 100% valid questionnaire rate.

## 4. Empirical Analysis

### 4.1. Descriptive Statistics and Correlation Analysis of Questionnaire

#### 4.1.1. Basic Information Description of the Sample

As shown in Table 1, the basic information of the samples of Questionnaire is described.

**Table 1.**  
Basic information of samples.

Name	Option	Frequency	Percentage (%)	Cumulative percentage (%)
Gender	masculine	321	52.970	52.97
	woman	285	47.030	100
Age	20-30 years old	178	29.373	29.373
	31-40 years old	155	25.578	54.95
	41-50 years old	143	23.597	78.548
	Over 50 years old	130	21.452	100
educational background	middle school	45	7.426	7.426
	Specialist	228	37.624	45.05
	undergraduate course	229	37.789	82.838
	Master's degree or above	104	17.162	100
Monthly income	Less than 3000 yuan	25	4.125	4.125
	RMB 3,001-5,000	257	42.409	46.535
	RMB 5,001-10,000	164	27.063	73.597
	RMB 10,001-20,000	90	14.851	88.449
	RMB 20,001-50,000	70	11.551	100
Total		606	100	100

#### 4.1.2. Description of Basic Information Variables

As shown in Table 2, the basic information pertaining to the variables of Questionnaire is outlined.

**Table 2.**  
Basic description of variables.

Name	Sample size	Minimum value	Maximum value	Average value	Standard deviation
Service innovation	606	1.2	5.0	4.039	0.850
Live streaming with goods	606	1.1	5.0	3.623	0.971
Industrial chain management	606	1.0	5.0	3.707	0.875
Consumer repurchase intention	606	1.2	5.0	3.918	0.814



#### 4.1.3. Correlation Analysis

As shown in Table 3, the correlation analysis of each dimension within the sample of Questionnaire is presented.

**Table 3.**  
Correlation analysis of each dimension.

	<b>Service innovation</b>	<b>Live streaming with goods</b>	<b>Industrial chain management</b>
Service innovation			
Live streaming with goods	0.349**		
Industrial chain management	0.374**	0.347**	
Consumer repurchase intention	0.522**	0.491**	0.474**

A notable positive correlation emerges between consumer repurchase intention and service innovation, live streaming, and industry chain management, as evidenced by correlation coefficients of 0.522, 0.491, and 0.474, respectively, with a significance level below 0.05 ( $p < 0.05$ ).

#### 4.1.4. Regression Analysis

In this Questionnaire, the examination of mediating effects encompasses a series of indicators delineated as follows:

**Total Effect (c):** Representing the regression coefficient of variable X on Y in the absence of any mediating variable M within the model, indicating the aggregate impact.

**Mediating Effect (a\*b):** Where 'a' denotes the regression coefficient of X on M, 'b' signifies the regression coefficient of M on Y, and 'a\*b' denotes their product, quantifying the mediating influence.

**95% Bootstrap Confidence Interval (95% BootCI):** This denotes the confidence interval computed via Bootstrap sampling, with significance inferred if the interval excludes 0.

**Direct Effect (c'):** This represents the regression coefficient of X on Y when an intermediate variable M is incorporated into the model, illustrating the direct impact.

**Complete Mediation:** Occurring when both 'a' and 'b' are significant, while 'c' is not, indicating a complete mediation. Additionally, the inclusion of 0 within the 95% confidence interval signifies complete mediation.

**Partial Mediation:** Established when 'a' and 'b' are significant, along with 'c', with 'a\*b' equating to 'c', suggesting partial mediation.

**Masking Effect:** Identified when both 'a' and 'b' are significant, alongside 'c', with differing signs between 'a\*b' and 'c', suggesting a masking effect.

**Insignificant Mediation:** Occurring when at least one of 'a' and 'b' is not significant, and the 95% confidence interval of 'a\*b' encompasses 0, indicating an insignificant mediating effect.

**Complete Mediation (Insignificant):** Identified when at least one of 'a' and 'b' is not significant, and the 95% confidence interval of 'a\*b' excludes 0, with 'c' being insignificant, signifying complete mediation.

**Partial Mediation (Insignificant):** Observed when at least one of 'a' and 'b' is not significant, and the 95% confidence interval of 'ab' excludes 0, with 'c' being significant and 'ab' equating to 'c', suggesting partial mediation.

**Masking Effect (Insignificant):** Present when at least one of 'a' and 'b' is not significant, and the 95% confidence interval of 'ab' excludes 0, with 'c' being significant and 'ab' differing in sign from 'c', indicating a masking effect. This comprehensive explanation is aimed at facilitating a clear understanding of the mediating effect analysis.

As showed in table 4-6, the results of two mediating effects analysis of Questionnaire were presented.

**Table 4.**  
Results of the mediating effect of live streaming with goods (n=606).

	Consumer repurchase intention			Live streaming with goods			Consumer repurchase intention		
	B	t	p	B	t	p	B	t	p
constant	1.899**	13.836	0.00	2.011**	11.189	0.00	1.305**	9.378	0.00
Service innovation	0.500**	15.033	0.00	0.399**	9.159	0.00	0.382**	11.667	0.00
Live streaming with goods							0.295**	10.293	0.00
R <sup>2</sup>	0.272			0.122			0.381		
Adjust R <sup>2</sup>	0.271			0.121			0.379		
F-value	F (1,604)=225.986,p=0.000			F (1,604)=83.896,p=0.000			F (2,603)=185.596,p=0.000		

Note: \* p<0.05 \*\* p<0.01

**Table 5.**  
Results of mediating effect analysis of industrial chain management (n=606).

	Consumer repurchase intention			Industrial chain management			Consumer repurchase intention		
	B	t	p	B	t	p	B	t	p
constant	1.899**	13.836	0.00	2.152**	0.16	0.00	1.249**	8.533	0.00
Service innovation	0.500**	15.033	0.00	0.385**	0.039	0.00	0.384**	11.431	0.00
Industrial Chain Management							0.302**	9.259	0.00
R <sup>2</sup>	0.272			0.14			0.363		
Adjusting R <sup>2</sup>	0.271			0.138			0.361		
F-value	F (1,604)=225.986,p=0.000			F (1,604)=97.999,p=0.000			F (2,603)=171.713,p=0.000		

Note: \* p<0.05 \*\* p<0.01

**Table 6.**  
Summary of mediation effect test results.

Term	c	a	b	a*b	a*b	c'	Inspection conclusion
	Total effect			Mediation effect value	(95% Boot CI)	Direct effects	
Service innovation => live streaming with goods => consumer repurchase intention	0.500**	0.399**	0.295**	0.118	0.087~0.163	0.382**	Partial intermediaries
Service innovation => industry chain management => consumer repurchase intention	0.500**	0.385**	0.302**	0.116	0.085~0.160	0.384**	Partial intermediaries

Note: \* p<0.05 \*\* p<0.01

Bootstrap type: percentile bootstrap method

#### 4.2. Results

Drawing upon an examination of cross-border e-commerce enterprises and consumer repurchase intention towards cross-border transactions, this research delves into the intricate interplay among service innovation, live streaming, industry chain management, and consumer repurchase intention. A conceptual framework is constructed to delineate these relationships, accompanied by the formulation of pertinent hypotheses. Empirical investigation is conducted through the analysis of data acquired from one questionnaire. Findings demonstrate a positive correlation between service innovation and consumer repurchase intention, as well as a constructive influence of service innovation on live streaming. Furthermore, a positive association between service innovation and industry chain management is observed. Notably, live streaming serves as a mediator between service innovation and consumer repurchase intention, while industry chain management similarly assumes an intermediary role in this relationship.

### 5. Conclusion and Suggestions

#### 5.1. Conclusion

This research centers on the contextual backdrop of cross-border e-commerce within the framework of contemporary business practices. Grounded in a thorough review of pertinent literature, this study focuses its inquiry on enterprises operating within the ambit of the "Internet Plus" initiative. Employing data sourced from one meticulously designed questionnaire, this investigation endeavors to elucidate the interplay among service innovation, live streaming commerce, industrial chain management, and consumer repurchase intentions. Leveraging methodologies such as factor analysis, correlation analysis, and multiple regression analysis, this study empirically examines the intricate dynamics governing these relationships. The findings of this empirical inquiry not only furnish theoretical insights but also offer practical evidence crucial for informing strategic decisions about the design of service innovation initiatives and the cultivation of consumer repurchase intentions within the domain of cross-border e-commerce enterprises. Consequently, this research yields discernible conclusions pertinent to the aforementioned relationships:

Firstly, it is evident that service innovation exerts a positive influence on consumer repurchase intention. Through canonical correlation analysis, this study substantiates a favorable correlation between service innovation and consumer repurchase intention, underscoring the efficacy of cross-border e-commerce enterprises in augmenting consumer repurchase intention through the facilitation of service innovation initiatives. Moreover, regression analysis corroborates the significant positive impact of two distinct dimensions of service innovation - namely, customer-led service innovation and product-led service innovation - on consumer repeat purchase intention. Notably, customer-led service innovation necessitates enterprises to undertake endeavors in experience enhancement, collaborative innovation, and business model refinement, all oriented towards enhancing consumer repurchase intentions. Conversely, product-led service innovation mandates cross-border Internet enterprises to bolster efforts in product enhancement, process optimization, and innovative marketing strategies to foster consumer loyalty and repeat purchases.

Secondly, service innovation has yielded favorable outcomes for merchandise. This investigation corroborates the positive impact of service innovation and livestreaming on merchandise. The observed positive correlation underscores the efficacy of service innovation in enhancing livestreaming sales for cross-border enterprises. Concurrently, regression analysis affirms the noteworthy positive influence of the two dimensions of service innovation—namely, product-led service innovation and customer-led service innovation—on live streaming sales. To optimize livestreaming sales outcomes, cross-border e-commerce enterprises ought to fortify the training of team members engaged in live streaming sales, while concurrently implementing personalized service innovation initiatives. Likewise, consumers should prioritize the enhancement of shopping experiences and diversification of sales channels to capitalize on the benefits derived from service innovation service innovation has yielded favorable

outcomes for merchandise. This investigation corroborates the positive impact of service innovation and livestreaming on merchandise. The observed positive correlation underscores the efficacy of service innovation in enhancing livestreaming sales for cross-border enterprises. Concurrently, regression analysis affirms the noteworthy positive influence of the two dimensions of service innovation—namely, product-led service innovation and customer-led service innovation—on live streaming sales. To optimize live streaming sales outcomes, cross-border e-commerce enterprises ought to fortify the training of team members engaged in live streaming sales, while concurrently implementing personalized service innovation initiatives. Likewise, consumers should prioritize the enhancement of shopping experiences and diversification of sales channels to capitalize on the benefits derived from service innovation.

Thirdly, the examination reveals a positive correlation between service innovation and industrial chain management. Canonical correlation analysis conducted in this study substantiates this correlation, highlighting the symbiotic relationship between service innovation and industrial chain management. Concurrently, regression analysis confirms the significant positive impact of two dimensions of service innovation—namely, customer-led service innovation and product-led service innovation—on industrial chain management. Notably intertwined, service innovation and industrial chain management mutually influence and reinforce each other. On one hand, service innovation serves as a catalyst for industrial chain management by creating an enabling external environment and internal motivation. It establishes the technical foundation necessary for industrial chain management, thereby fostering its advancement and facilitation. On the other hand, within the realm of service innovation, enterprises can strategically allocate resources to bolster their service innovation systems by adopting appropriate industrial chain management models. Industrial chain management, in turn, enhances enterprise managerial capabilities, streamlines the service innovation development process, mitigates associated risks, and furnishes requisite assurances. Furthermore, the efficacy of service innovation hinges significantly on the harmonization and optimization of organizational structures, operational procedures, and other management facets. Industrial chain management plays a pivotal role in facilitating such coordination and collaboration, thereby optimizing information flow and enabling service innovation to be more attuned to customer needs while concurrently enhancing overall industrial chain efficiency.

Fourthly, live streaming with shopping plays a mediating role between service innovation and consumers repurchase intention. This study confirmed through canonical correlation analysis that there is a positive correlation between service innovation and live streaming with shopping; and between live streaming with shopping and consumers repurchase intention. At the same time, regression analysis confirmed that the two dimensions of service innovation, customer-led service innovation, and product-led service innovation, have a significant positive impact on live streaming with shopping. Live streaming with shopping has a significant positive impact on consumers repurchase intention. Live streaming with shopping improves consumers' shopping experience, establishes emotional connections between enterprises and consumers, and features such as instantaneity, personalized services, and social attributes of live streaming with shopping act as a bridge between enterprise service innovation and consumer repurchase intention and behavior. It is an effective marketing strategy that encourages consumers to establish closer ties with enterprise products and services.

Fifthly, industrial chain management emerges as a pivotal mediator in the nexus between service innovation and consumer repurchase intention. This study underscores, through canonical correlation analysis, a discernible positive correlation not only between service innovation and industrial chain management but also between industrial chain management and consumer repurchase intention. Moreover, regression analysis validates the substantial positive impact of both customer-led service innovation and product-led service innovation on industrial chain management. Notably, industrial chain management exerts a significant positive influence on consumer repurchase intention by enhancing the efficiency and quality of the supply chain. By facilitating the swift and efficient dissemination of service innovation outcomes to consumers, industrial chain management ensures timely delivery and expedites the commercialization process of service innovations. Indeed, the fruition

of service innovation endeavors hinges upon the orchestration of industrial chain management activities to penetrate the market effectively. Simultaneously, industrial chain management aids enterprises in cost control, thereby enhancing the efficiency of service innovation and augmenting the competitiveness of enterprise offerings. Consequently, by bolstering consumer attraction, improving consumer repurchase intention, and fostering repeat purchases, industrial chain management emerges as a linchpin in driving sustained consumer engagement and facilitating market success for enterprises.

Sixthly, fostering consumer repurchase intention via service innovation stands as a pragmatic strategy for cross-border e-commerce enterprises. This study endeavors to construct an analytical framework delineating the intricate relationship between service innovation and consumer repurchase intention. Embracing a cross-border e-commerce perspective, the study establishes a relational model and action pathway elucidating the interplay among service innovation (as the independent variable), live streaming (as an intermediate variable), and consumer repurchase intention (as the dependent variable), as well as between service innovation (as the independent variable), industry chain management (as an intermediate variable), and consumer repurchase intention (as the dependent variable). This model systematically examines the antecedents of livestreaming, industry chain management, and consumer repurchase intention, offering both theoretical insights and empirical demonstrations. By disaggregating service innovation into two distinct dimensions—namely, customer-led and product-led—quantitative empirical analyses are conducted to validate the relationships between service innovation and consumer repurchase intention, service innovation and live streaming, live streaming and consumer repurchase intention, service innovation and industry chain management, as well as industry chain management and consumer repurchase intention. Furthermore, the mediating roles of live streaming and industry chain management in the association between service innovation and consumer repurchase intention are explored and substantiated, thereby extending the applicability and relevance of innovation-driven strategies within the cross-border e-commerce landscape.

## 5.2. Proposal

Drawing upon the insights gleaned from both theoretical frameworks and empirical investigations, this study endeavors to elucidate strategies for augmenting consumer repurchase intention within the domain of cross-border e-commerce, with considerations spanning governmental, industrial, commercial, and managerial realms. Specific implementation strategies and recommendations are provided herein.

### 5.2.1. Recommendations For Government and Industry Organization

Governmental and industry entities are advised to apprehend the distinctive attributes of cross-border trade. While ensuring the preservation of incentives for the development of novel models and formats, there exists an imperative to harness the guiding influence of governmental and industrial bodies. This entails the innovation of supervisory methodologies, enhancement of regulatory frameworks, and facilitation of a conducive environment conducive to the sustainable advancement of cross-border e-commerce. To this end, the following countermeasures and suggestions are proposed for governmental and industry organizations:

Firstly, governmental authorities should prioritize the cultivation of sectors pertinent to cross-border commerce, fostering synergies between digital domains such as artificial intelligence and big data and industrial and supply chains. By fostering innovation in productivity and harmonizing internal and external cycles, efforts can be directed towards effectuating the transition from antiquated to novel driving forces.

Secondly, there is a pressing need to bolster investments in the infrastructure supporting cross-border e-commerce operations. The government should offer incentives and support mechanisms tailored to stimulate service innovation endeavors within Internet enterprises. Introducing targeted industrial and financial policies aligned with the exigencies of international trade, governmental bodies can galvanize and incentivize enterprises towards proactive engagement in service innovation

initiatives. Moreover, concerted efforts should be directed towards fostering a fair market competition milieu, thereby fostering an ecosystem conducive to the exploration and implementation of novel business forms and models via service innovation initiatives.

### *5.2.2. Recommendations for Cross-Border E-commerce Enterprises*

In the current era characterized by rapid technological advancements, the landscape of cross-border e-commerce is marked by dynamic shifts, with high-tech products undergoing frequent updates and shorter product life cycles. In this milieu, competition among enterprises is transitioning from price and product-centric approaches towards service-oriented paradigms and innovation. It is imperative for internet enterprises operating within this domain to not only sustain but also enhance their focus on service innovation, thereby converting consumers' repurchase intentions into tangible economic value. Building upon the insights gleaned from the aforementioned research findings, the following strategies and recommendations are proposed for internet enterprises:

Firstly, prioritize continual innovation and refinement. Given the rapid pace of change within the cross-border e-commerce arena, enterprises must vigilantly monitor and respond to emerging technologies, market trends, and shifts in consumer purchasing behaviors. By maintaining a stance of perpetual innovation and improvement, enterprises can effectively devise and implement strategies and adjustment plans aligned with evolving market dynamics.

Secondly, underscore the importance of cohesive service innovation efforts. Central to successful service innovation initiatives is the cohesive coordination and alignment of efforts across all organizational tiers. Senior management personnel play a pivotal role in fostering a culture of innovation, wherein their awareness and experience serve as vital catalysts for driving service innovation initiatives forward. By nurturing an organizational ethos conducive to innovation, enterprises can effectively harness the potential of service innovation to bolster consumer repurchase intentions and attain sustainable growth within the cross-border e-commerce landscape.

### *5.2.3. Recommendations for Business Decision-Makers and Senior Manager*

Despite the growing prominence of service innovation within the corporate sphere and the proliferation of successful case studies, there persists a lack of clear and consistent understanding among corporate decision-makers and senior managers regarding the optimal timing, drivers, and requisite support mechanisms for implementing service innovation initiatives. In light of this, the following recommendations are proposed for business decision-makers and senior managers:

Firstly, enterprise leaders at the highest echelons should conscientiously cultivate organizational resources and capabilities, effect structural adjustments, and forge collaborative partnerships within the value network to foster the development of services aligned with emerging paradigms, thereby fostering service innovation.

Secondly, senior managers within enterprises can catalyze service innovation by orchestrating a structured cognitive process that actively drives innovation from within. This entails leveraging internal drivers to propel model innovation forward. Prior to embarking on innovation initiatives, managers should meticulously assess the enterprise's existing resources and advantages, discern the factors that resonate with consumers, and gain a deep understanding of the enterprise's value proposition within the cross-border e-commerce landscape. Subsequently, they should explore avenues for synergizing with consumers to enhance service innovation outcomes.

Thirdly, senior managers must elucidate the central role of consumers within the realm of service innovation, consistently deliberating on methods to effectively convey the value generated by their endeavors to consumers, and even exploring avenues for generating additional value. By enhancing the perceived value of consumer behavior, enterprises can engender consumer willingness and propensity for repeat purchases, thereby fostering sustained consumer loyalty and driving business growth within the dynamic landscape of cross-border e-commerce.

#### 5.2.4. Recommendations for Future Research

In the realm of cross-border e-commerce, the means by which internet companies augment consumer repurchase intention through service innovation constitutes a pivotal consideration for business managers. This study endeavors to delve into the intricacies of cross-border e-commerce operations, grounded in the imperatives of internet enterprise survival and growth, as well as consumer purchasing behaviors. It constructs a model elucidating the relationship between service innovation and consumers' propensity for repeat purchases, deliberates on the mediating roles of livestreaming and industrial chain management in shaping this relationship, and aims to unveil the internal mechanisms whereby internet enterprises can consistently foster consumers' sustained purchasing behaviors. By offering both theoretical frameworks and empirical analyses on service innovation and consumer repurchase intention, this study furnishes research support for enterprises seeking to enhance consumer repurchase intention through service innovation. While this study bears practical and theoretical significance, several research limitations warrant further exploration and inquiry in the following areas.

Firstly, suggestions for sample selection. Considering the diversity in enterprise size and maturity levels, it is imperative to acknowledge the variability in resources, capabilities, and challenges across different enterprises. The generalizability and scalability of the study's conclusions are thus subject to scrutiny. Future research endeavors could delve deeper into this aspect by exploring and demonstrating the implications across various dimensions, such as enterprise size and maturity.

Secondly, recommendations for variable selection. While numerous factors influence consumer repurchase intention, this study primarily focuses on service innovation as an independent variable, owing to the multidimensional nature of research variables and data availability constraints. Additionally, while the study examines the relationship between service innovation, livestreaming, and industrial chain management, it does not delve into other potential mediating factors that may yield synergistic effects. Subsequent research endeavors could further explore these mediating factors to facilitate a more comprehensive understanding of the dynamics at play.

Thirdly, suggestions regarding research perspectives. Enhancing enterprise innovation entails considerations spanning diverse facets such as business model innovation, product innovation, and social innovation. Future research could contemplate investigating the mechanisms of multiple innovative synergies on consumer repurchase intention within the context of cross-border e-commerce. Furthermore, given the diverse internal and external environments and challenges encountered by internet enterprises of varying sizes, industries, and geographical regions, future research endeavors should adopt a multidimensional and multilevel approach. This may involve exploring the utilization of different factors by industry to conduct research and comprehensively analyzing the mechanisms and interactions among impact factors, innovation, and consumer behavior.

#### Author contributions:

Rongfei Guan: Conceptualization, Data curation, Investigation, Writing original draft, validation; Thitinant Wareewanich: Methodology, Supervision.

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#### References

- [1] Wang Z, Zhang Q, Song X, Hu R (2022) Spatial-temporal Evolution and Influencing Mechanisms of Cross-border E-commerce in China: Evidence From the Analysis of Location-Based Big Data. *Econ Geogr* 42(1): 44-52.
- [2] Li L (2024) Eleven reports on government work cross-border, e-commerce from pilot to "new growth pole". *China Bus* 2: 3.



- [3] He Z (2023) Analysis on the Development Status and Improvement Strategies of Cross-border E-commerce in China. *Time-honored Brand Market*(6): 45-47.
- [4] Wang J, Wang Y (2020) A new path to upgrade China's cross-border e-commerce rules under the digital economy. *Macrocon Manage*(7): 6.
- [5] Gao M, Meng F (2021) The Influence of Servitization Strategy on Manufacturing Enterprises Performance: Taking Service Innovation as Intermediary Variable. In: 2021 33rd Chinese Control and Decision Conference (CCDC). p 4238-4242
- [6] Cui X, Qu H (2021) Impact of clothing cross-border e-commerce platform service quality of repurchase willingness. *J Donghua Univ (Nat Sci)* 47: 123-134.
- [7] Xu A, Liu Z (2024) Influencing factors of consumers' purchase decision under live delivery situation. *Commer Econ Res* 1: 83-86.
- [8] Zheng B, Wang H, Golmohammadi A-M, Goli A (2022) Impacts of logistics service quality and energy service of Business to Consumer (B2C) online retailing on customer loyalty in a circular economy. *Sustain Energy Technol Assess* 52: 102333.
- [9] Istanbuluoglu D (2017) Complaint handling on social media: The impact of multiple response times on consumer satisfaction. *Comput Human Behav* 74: 72-82.
- [10] Sullivan YW, Kim DJ (2018) Assessing the effects of consumers' product evaluations and trust on repurchase intention in e-commerce environments. *Int J Inform Manage* 39: 199-219.
- [11] Xu H (2021) O2O fresh e-commerce platform consumer repurchase willingness to affect the mechanism. *Circ Econ China* 35(4): 38-47.
- [12] Li J (2022) Seamless Experience in the Context of Omnichannel Shopping and Exploring its Effects on Customer Behaviors. In: Huazhong University of Science and Technology
- [13] Wang D (2023) Research on the influence mechanism of supply chain partner characteristics on service innovation Performance in manufacturing enterprises. *Business Administration*. In: Jiangxi University of Finance and Economics
- [14] Martin J (2021) Operational excellence: Breakthrough strategies for Improving customer experience and productivity. Productivity Press
- [15] Wang H (2017) Economy hotel customer experience quality research influence on repurchase intention. In: Anhui University of Finance and Economics
- [16] Liu T (2023) Research on User Information Interaction Behavior and Information Interaction Effect Evaluation in Live Stream Marketing. In: Jilin University
- [17] Huang Z (2022) Study on the effect of service recovery on repurchase intention in the context of live delivery: the chain mediating role of perceived sincerity and satisfaction after recovery. *Commer Econ Res*(3): 4.
- [18] Huang S (2020) Study on the Influencing Factors of Consumers' Continuous Buying Intention on Social E-Commerce Platform Based on S-O-R Theory. *Soft Sci* 34(6): 7.
- [19] Liu Y (2020) Research on the Influence of Webcast Shopping Features on Consumer Buying Behavior. *Soft Sci* 34(6): 108-114.
- [20] Fan X, Jjiang X, Ni R, Dong X (2020) Influence of Interactivity of Mobile Live-Video Broadcast on Intention of Continuous Use of Users. *J Syst Manage* 29(2): 294-307.
- [21] Yao J (2017) A Study of Consumer Repeat Purchase Intention under the Background of Online Celebrity Economy. In: Dongbei University of Finance and Economics
- [22] Qian Y (2017) Research on China's Industry Chain of Export Cross-border E-commerce. In: Anhui University
- [23] Wang Z (2017) Research on the Construction of Whole Industry Chain Cross-border Electronic Commerce Ecosystem. In: Zhejiang University
- [24] Zhu Y, Huang J (2020) A study on the influence of perceived performance of live streaming delivery platform on consumers' purchase intention. *Price Theor Pract*(10): 123-126.
- [25] Qi C (2022) Study on the impact of agricultural products blockchain traceability system on consumers' repurchase intention. *J China Univ Geosci (Soc Sci)*(5): 100-111.
- [26] Yan X (2021) A study on the influence of live streaming on consumers' purchasing behavior——mediated by perceived value. *Price Theor Pract*(6): 137-140.
- [27] Xu T (2022) Research on the Influence Mechanism of Brand Experience on Repurchase Intention——Take Mobile Intellegent Devices as an Example. In: Jiangxi Normal University
- [28] Qi Y, Zhang M (2021) The influence of multi-channel integration service quality on repurchase intention of new retail enterprises: the moderating effect of customer involvement. *China Bus Market* 35(4): 58-69.
- [29] Yang J, Wang L (2021) Influencing factors of consumers' repurchase intention under "live + e-commerce" mode. *China Bus Market* 35(11): 56-66.
- [30] Liu Y (2022) Research on Digital Economy Driven Upgrading of China's Manufacturing Industry ——Examination Based on the Spatial Layout of the Industry Chain. In: Jilin University
- [31] Guo Q (2020) The development motivation, current situation and trend of China's live streaming e-commerce. *Journal Writing*(8): 84-91.
- [32] Liang YY (2020) Research on Logistics Oriented Product Design Based on the Win-Win Principle of "Producer-Consumer". *E-Commer Lett* 9(4): 89-94.

- [33] Fu J (2019) Discuss the problems encountered in the development environment of cross-border e-commerce and analysis of countermeasures. *Tax Paying*(31): 1.
- [34] Chen Y (2021) A study on mutual trust between buyers and sellers in online live shopping mode. *Chin J Manage Sci* 29(2): 228-236.

## Appendix

### Questionnaire

#### Research on the Impact of Service Innovation on Consumer Repurchase Intention

Dear Sir/Madam:

Hello! First of all, thank you for participating in our survey. The purpose of this questionnaire is to study the impact of service innovation by Chinese cross-border e-commerce enterprises on consumers' willingness to repurchase. There is no right or wrong answer to the questions. Please fill out the questionnaire based on the actual situation of the consumption process, as incomplete filling of the questionnaire will invalidate your questionnaire. Therefore, please do not leave any items blank. I solemnly promise that this questionnaire test is only for the use of scientific research papers. The questionnaire you filled out is only a sample for statistical analysis, and the survey results involving specific individuals will not be disclosed to the public. It will be strictly confidential, without the need for signature, and will not pose any personal harm to you. Please mark "√" on the corresponding items according to the actual situation. If you still need to know more about the test content of the questionnaire or need the test results of the questionnaire, please contact me. Thank you for your support!

Thank you again for your strong support!

#### (1) Personal background information

1. Gender:  Male  Female
2. Age:  20-30  31-40 years  41-50 years  Over 51 years
3. Education:  Middle school  Junior college  Bachelor's degree  Master's degree or above
4. Monthly income:  Less than 3000 yuan  3001-5000 yuan  5001-10000 yuan  10001-20000 yuan  20001-50000 yuan  Above 50001 yuan

#### (2) Survey questionnaire form

Please carefully read and judge whether the following statements about service innovation, live streaming sales, and industry chain management are in line with your personal situation. There are 1-5 levels to choose from in the table, where 1=non compliant; 2=Not very consistent; 3=basically compliant; 4=relatively consistent; 5=fully compliant. Please mark "√" on the corresponding information according to the actual situation, and only one item can be selected for each question.

Measurement questions for service innovation		One	Two	Three	Four	Five
FW1	The service innovation of this enterprise left a deep impression on me					
FW2	The service innovation of this company makes me feel happy when shopping					
FW3	I will be very looking forward to the next product and service of the enterprise					
FW4	I usually keep an eye on the dynamics of the company					
FW5	I will consider the impact of my consumption behavior on enterprise service innovation					
FW6	Whenever possible, I would like to repeat purchases of products from companies that actively engage in service innovation					
FW7	When a company innovates customer service, I prioritize					

	purchasing the company's products again					
FW8	When a company's service innovation stagnates, I lose interest in consumer behavior					
FW9	I am very willing to share with others the consumption impulse generated by the service innovation provided by enterprises					
FW10	If the enterprise can provide continuous service innovation, I will become a loyal customer of the enterprise					
	Measurement questions for live streaming sales	One	Two	Three	Four	Five
ZD1	I really enjoy watching live streaming sales of enterprises					
ZD2	The performance of the anchor during the live broadcast can make me feel the urge to make a purchase					
ZD3	The personalized suggestions provided by the anchor during the live broadcast process will make me prioritize purchasing again					
ZD4	Shopping websites make my shopping more convenient					
ZD5	I think the anchor is very attractive					
ZD6	I made multiple purchases on this live streaming platform					
ZD7	Shopping during live streaming is enjoyable					
ZD8	Shopping on the same live streaming platform can save me purchasing costs					
ZD9	I enjoy using the product according to the anchor's demonstration of the product					
ZD10	The products I received are exactly the same as those presented in the live broadcast room					
	Industry Chain Management Questions	One	Two	Three	Four	Five
CY1	The efficient product circulation of the company always makes me prioritize purchasing again					
CY2	Trust in product supply capability will enhance my interest in purchasing again					
CY3	A global layout of the industry chain will make me more interested in this product					
CY4	I have always believed that the cross-border e-commerce enterprise can guarantee its products and services					
CY5	I have constructive opinions on the issues caused by industrial chain management during the purchasing process, and the company is able to provide good services					
CY6	Compared to other companies, companies with a good industrial chain make me prioritize purchasing again					
CY7	I will continue to pay attention to enterprises with high scalability					
CY8	Having good information processing capabilities in the enterprise will make me prioritize purchasing again					
CY9	The efficient integration of various aspects by enterprises will make me prioritize purchasing again					
CY10	Enterprises are able to provide good feedback to customers' responses, which will make me prioritize purchasing again					
	Consumer's willingness to repurchase					
XF1	The excellent service provided by the company will					

	generate a willingness for me to purchase again					
XF2	I am satisfied with the shopping process and would like to make another purchase					
XF3	The shopping process makes me feel happy and I would like to make another purchase					
XF4	I have a high level of loyalty to the company's brand and products					
XF5	The products of this company have always been reassuring for me to use					
XF6	I believe that the company's shopping website can ensure the quality of its products and services					
XF7	I will continue to purchase the company's products and services in the future					
XF8	I am willing to share my shopping experience with others					
XF9	If necessary, I will prioritize repurchasing the company's products					
XF10	The company provided real product information, which gave me a sense of trust in the product					