Empirical Analysis of Shared Logistics Platform Users' Willingness to Consistently Use

Based on an Improved Expectation Confirmation Mode

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Abstract. In recent years, the fierce homogenization competition of shared logistics platforms has resulted in a serious loss of users, and users, especially owners, have low stickiness to shared logistics platforms. In this paper, an improved expectation-validation model is established, and two variables, user interface, and perceived safety; are introduced to verify and explain the factors affecting the continuous use of shared logistics platforms by shippers. The empirical analysis was carried out with 312 experienced owners of the shared logistics platform as sample data. The results show that the two variables, user interface, and perceived safety, have a positive moderating effect on users' satisfaction with using the platform; and then affect their willingness to continue using the platform. Perceived usefulness has a positive moderating effect on users' willingness to continue using. Based on this, suggestions and countermeasures to improve user stickiness and realize the sustainable development of shared logistics platforms are put forward.

Keywords: Shared logistics platform · Information technology · Expectation Confirmation model · Continued use

1 Introduction

With the rapid development of information technology changes and transportation, the business environment has undergone new changes and the birth of the sharing economy has become a new growth point to promote market dynamics. Companies are looking for ways to integrate into the sharing economy, and traditional industries such as the hospitality industry may face market threats and impacts if they do not integrate into the sharing economy in their operating models [1]. Influenced by the sharing economy and the concept of "Internet Plus", shared logistics platforms sprang up in 2014, but they were mostly small freight enterprises with no formal management. It was not until 2016 that the country launched a pilot scheme for "car-less carriers" and introduced relevant policies and management methods in 2019. According to statistics, by the end of 2022, there were 2,527 online freight platforms nationwide. Although the market environment is complex, the rise of information technology has made it possible for shared logistics platforms to provide basic services. There are still many shared logistics platforms in

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the market that rely on the number of users to win, and these platforms are facing the huge challenge of maintaining user stickiness. Therefore, the most important concern for shared logistics platforms is to ensure continued user use, i.e. to understand the factors that influence the continued use of the platform by users. Previous literature on shared logistics platforms and the area of sustained use is sparse, and research on shared logistics platforms has focused on platform management and driver-side users, with a gap in research on sustained use by shipper-side users.

The current literature on shared logistics platforms focuses on the following three areas; firstly, research on the credit system and payment management system of the platform. Xiong Ran proposed that the platform should increase the management of information security and the platform's payment system after analyzing the problems in the freight industry around Nanjing [2]; Yin Yang pointed out that the domestic freight market needs to improve the payment model and transaction process after comparing the third-party payment systems at home and abroad [3]; Wu guangsheng, by studying the preferences of both sides of the platform transaction, argued that the platform should establish a reputation rating system to promote the sustainable development of the platform [4]. The second is the research on the improvement of vehicle and cargo matching technology and methods; Mou xiangwei provided a reference model for a new vehicle and cargo matching technology by improving the quantum evolutionary algorithm [5]; Sun weiquan established a capacity scheduling evaluation model based on BP neural network and optimized the scheme of capacity scheduling [6]. Thirdly, the study proposes targeted suggestions to help platforms improve their service quality by sorting out the development status of shared logistics platforms. Zhang Guowei put forward operational suggestions for the platform in response to the loss of carrier users [7]; Xu Qiao put forward operational strategies for the development of the platform in response to the management of carriers [8].

In summary, most of the existing studies focus on the two main subjects, drivers and platforms, and do not address the demands of shippers, i.e. shipper-side users, on the platform, ignoring the important role of shipper-side users on the sustainable development of the platform. Unlike drivers, who can take orders on several platforms at the same time and may have multiple shippers and receivers for a journey, switching costs are low, but shippers usually choose only one vehicle for delivery for time efficiency. Therefore, the study focuses on the services provided by the shared logistics platform and the perceived characteristics of the users' use of the platform, and improves the expectation confirmation model by introducing two variables: "user interface" and "perceived safety". The research model on the factors influencing the use of shared logistics platforms was developed and empirical analysis was carried out to examine the factors that contribute to the continued use of shared logistics platforms by cargo-owning users. The study will not only help the platform to improve its operation and management mechanism, but also provide theoretical guidance to increase the willingness of cargo owners to continue using the shared logistics platform and reduce the loss of platform users.

2 Literature Review

2.1 Shared Economy and Shared Logistics Economy

The term sharing economy first appeared in the late 1970s and was coined by American scholars Felson and Speth when they explored about cooperative consumption behavior [9]. According to them, the sharing economy is a type of information technology platform that allows social organizations and individuals to trade or share resources and information with each other through a third-party platform. The sharing economy is popular in the market because it combines the three elements of "surplus capacity + sharing platform + participation by all", thus optimizing the allocation of social resources. The sharing economy is of great significance in improving the efficiency of resource use and reducing costs and increasing efficiency. Shared logistics is achieved on the basis of the sharing economy, optimizing the allocation of logistics resources by sharing or exchanging information and technology, thereby improving the operational efficiency of logistics systems [10].

Most warehousing facilities are self-built by enterprises, but the cost of building a logistics team on their own is large, so enterprises usually choose to share logistics resources in the society [11]. Due to China's vast territory, the network of capacity resources of a single freight enterprise cannot cover the whole country, making it difficult to meet the changing customer needs, so shared resources are needed for cooperative development. Some studies have shown that shared logistics platforms can alleviate the lack of functionality and inefficiency of urban logistics networks by quickly and accurately matching bilateral users through information technology [12]. In the traditional logistics model, due to the lack of an effective communication platform, there is a serious information asymmetry between carriers and shippers, resulting in both parties' needs not being met. Compared to the traditional logistics model, shared logistics platforms provide services as a third-party technology platform, solving the problem of poor information.

The popularity of the internet has provided technical support for shared logistics platforms. 5G era has made positioning systems more accurate and real-time dynamic information on vehicles more rapidly updated. The use of information technology to achieve accurate matching between bilateral users of the shared logistics platform improves the efficiency of resource utilization, breaks the previous passive situation of "having goods without vehicles, having vehicles without goods", saves logistics costs and reduces logistics expenses. The operation mode of the shared logistics platform is a sharing mode where multiple users share the same platform under the unified dispatch of the service or information provider, which is also the main direction of innovation in sharing logistics resources in the market. Full Help Group, currently recognized as a benchmark shared logistics company in the market, is better than smaller vehicle and cargo matching platforms in terms of integrating logistics resources and improving trust between platform users. Cargo owner-side users can use the Full Help Group's Yunman platform to enjoy the protection of a third-party platform while matching with the right driver or vehicle to improve shipping efficiency and thus revenue [13].

2.2 The Model of Customer Continued Use

According to the ECT theory proposed by Oliver [14], consumers will follow a certain behavioral process to achieve a willingness to repeat the purchase of the good or use the service. This behavioral process consists of the consumer's psychological expectations prior to purchase, and the perceived understanding of the product or service that is developed after the initial consumption and compared to the initial psychological expectations. If the result of the comparison meets the consumer's expectations, it makes the consumer feel satisfied and forms an intention to repurchase.

Based on the ECT theory of IS continued use, i.e. information system continued use, is a theory by Bhattacherjee [15] in his research on whether users will continue to use a technology after their initial use. The model suggests that users' willingness to continue using is influenced by perceived usefulness and satisfaction from prior use experiences, that user satisfaction is directly influenced by perceived usefulness and validation, and that user validation positively affects perceived usefulness. The theory is widely used in various technology platforms, such as e-commerce, online banking and some information technology platforms. The specific model is shown in Fig. 1.

The ECM model, based on ECT theory, has been changed from ECT theory. Firstly, the ECM model emphasizes post-use expectations, i.e. after using the product/service, the user's expectation of the product/service is confirmed to a much different extent than the expectation before using it, which is closer to the reality. Secondly, the ECM model does not include performance variables as its assumed performance variables are already explained by confirmation variables. The ECM model has been widely used in marketing to measure consumer satisfaction and post-transaction behavior. The model is shown in Fig. 2.

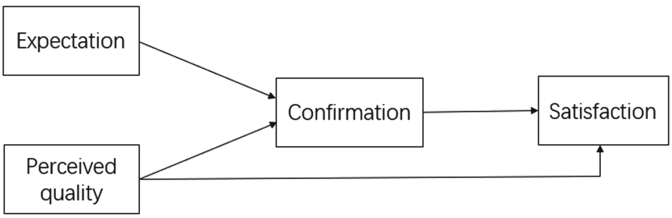

Fig. 1. IS continued use

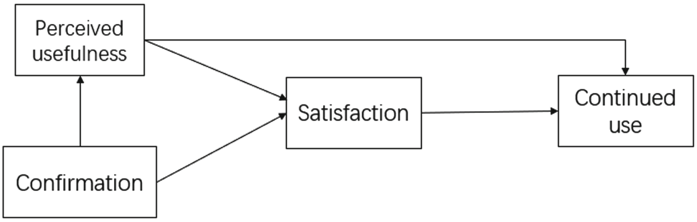

Fig. 2. Expectation-Confirmation

2.3 Application of the Consumer Continuity of Use Model

There is now a large literature that makes clear that a number of relevant user perceptual characteristics play a significant role in the development of theories related to technology acceptance. Most of the perceptual characteristics in the existing literature on sustained use are based on beliefs, and there are different expectations and beliefs among users that determine their sustained use of a technology. Taylor & Todd argue that factors related to technology use can be derived from different types of literature, such as psychology and human-computer interaction theory (HCI) [16]. During the practice of the theory, scholars have continued to refine and introduce additional user beliefs to extend the ECM model, broaden the scope of user behavior, improve the applicability of ECM theory in different technological contexts, and also help to better understand the behavioral patterns of ongoing user use. For example, Wang zhe added variables "perceived pleasure" and "perceived trust" to the expectation confirmation model to build a model of SNS users' intention to continue using the technology [17]; Wu wenbing et al. used empirical analysis while introduced a technology acceptance model to analyze the factors influencing driver-side users' intention to continue using, and put forward relevant suggestions for the platform to improve driver-side users' intention to use [18]. However, no research has yet been found that applies the theory of sustained use to the behavior of shipper-side users of shared logistics platforms.

The study improved the ECM model by introducing 'user interface' and 'perceived safety' as independent variables. Sun et al. proposed to integrate existing models to improve their applicability in explaining persistent use behavior in specific contexts, which is also one of the current research directions on persistent use intention [19]. The process by which users on the shipper side of the shared logistics platform in the study model achieve continuous use intentions is shown in Fig. 2. Firstly, after downloading and registering the app, the shipper forms initial expectations of the app's products or services offered by the registration process, pages and instructions for newcomers. Secondly, the shipper accepts and uses the services provided online by the Freight Forwarder platform. After a period of use, they form an opinion and attitude towards the performance of the platform. Again, shippers assess their perceived performance against their original expectations and determine the extent to which their expectations are confirmed. Next, users form satisfaction with their use of the platform and confirmation based on their expectations, based on their level of confirmation. Ultimately, satisfied users form an intention to use again, i.e. a willingness to continue using, while dissatisfied users stop or suspend subsequent use.

3 Research Hypothesis

3.1 Satisfaction

Customer satisfaction is "the summation of psychological states that arise when emotions surrounding unconfirmed expectations are combined with consumers' prior feelings about the consumption experience" [14]. Satisfaction has been shown in previous studies to be a determinant of repeat purchase or use and customer loyalty. According to ECT theory, satisfaction depends on the extent to which the user's initial expectations of the service are confirmed during actual use. In other words, satisfaction is influenced by the rational process of comparing initial expectations with actual experience.

User satisfaction reflects the extent to which users feel positively about service providers in a mobile business environment, and platforms can improve their service quality and capabilities by understanding users' evaluations and visions of the service. It is easier to build user satisfaction if the shared logistics platform is able to better meet the needs of shippers and beat its competitors in the same kind of competition in the market. Once a user is dissatisfied with the service quality or with the product, the lower switching costs are such that users can easily switch platforms. And few users continue to use the platform after a poor experience with the service. Therefore hypotheses are proposed:

H1: Satisfaction positively influences shippers' willingness to continue using a shared logistics platform

3.2 Perceived Usefulness

Perceived usefulness refers to the fact that users will only want to continue to try a service or product if they find it useful. However, the innovative and intangible nature of B2C enterprises such as shared logistics platforms is such that many users only realize the potential benefits of the service after using it, which also requires the platform to provide appropriate guidance instructions to users so that they can become more skilled in the process of using it and understand and learn how to realize these benefits through the platform. Perceived usefulness can be used as a reference standard to judge user satisfaction and thus positively influence satisfaction, a relationship supported by adaptation level theory, which suggests that user perceived stimuli are only relevant to the level of adaptation. Cargo owners need to see shared logistics platforms as a useful tool that can increase the speed and efficiency with which they can transport their goods to a given location, eliminating many of the complexities of finding a freight broker that were required before shared logistics platforms were commonplace. Perceived usefulness has also been consistently validated in the literature on related technology use as the most important determinant of user intention to use [20].Therefore the hypothesis is proposed that:

H2: Perceived usefulness positively influences shippers' satisfaction with shared logistics platforms
H3: Perceived usefulness positively influences shippers' intention to continue using a shared logistics platform

3.3 User Interface

As technology changes, perceived ease of use has some degree of cognitive and logistical limitations that user interfaces overcome [21].

User interface refers to the ease of interacting with a system that is user-friendly, enjoyable, aesthetically pleasing and easy to navigate and use. Having a good user interface can better enhance the overall experience of the shipper while increasing user satisfaction. User interfaces have a profound impact on the development of satisfaction research, which suggests that service providers should orient their development efforts towards designing an attractive and user-friendly interface with the goal of attracting users and increasing competitiveness. Therefore the hypothesis is formulated:

H4: User interfaces positively influence shippers' satisfaction with shared logistics platforms

3.4 Perceived Safety

In the age of the internet, users are concerned about whether their personal information has been compromised when they see pop-up ads, receive spam messages and emails. As an online platform, perceived security is also one of the decisive factors for user satisfaction, especially for shippers. Shared logistics platforms offer value-added services in addition to basic services, such as financial services and insurance, and if the platform expects shipper-side users to use value-added services, the platform must ensure the security of the user's information. Perceptual security is an important factor in user satisfaction. Previous research has confirmed that perceived security and user interface have a positive moderating effect on satisfaction [22]. In addition, the shipper needs to interact with the driver face-to-face after the vehicle has been selected and the goods need to be loaded by both users within a specified time. During a telephone interview with the shipper-side user, User A suggested that "after using the platform, I no longer worry about the driver's character as much as before, after all, it is someone I have never come into contact with before." Thus, perceived safety may also influence shippers' willingness to continue using shared logistics platform services. It has been argued that trustworthiness can promote consumer acceptance of technology and consumer loyalty [23]. Liébana-Cabanillas et al. verified the significant impact of trustworthiness on willingness to use IoT technologies such as telemedicine systems and mobile payments [24]. Nooree Kim also showed that perceived security and perceived riskiness can be included in the technology acceptance model, and that the negative impact of perceived security may affect consumers' use of on-call car services and that car service providers should spend more time and effort on consumer safety [25]. Hypothesis is therefore proposed:

H5: Perceived safety positively affects shippers' satisfaction with shared logistics platforms

3.5 Confirmation

Bhattacherjee (2001), in developing a model of expectation recognition under continuous IS use, validates "recognition" as "the realization of the expected benefits of IS use". In a shared logistics platform, the shipper is the only one who can be expected to use the IS. In a shared logistics platform, the confirmation process for shippers is based on the three nodes of marketing, sales and service, and shippers' expectations are based on whether they have more options, such as the type of transaction, payment method, ease of special transactions, or whether orders can be fulfilled within a specified timeframe. When the actual experience of use meets or exceeds initial expectations, confirmation leads to user satisfaction because the expected benefits of IS use have been realized [26]. Therefore, shared logistics platforms need to study the behavioral characteristics of users on the shipper's side. When shippers perceive that this platform has more abundant driver resources relative to other platforms, faster order matching, more smooth transaction completion and a better guarantee system, shippers will have a higher level of confirmation, as well as perceive the platform as useful and have a higher level of satisfaction, thus forming and reinforcing a willingness to continue using it. No research has yet been conducted on the continued use behavior of shared logistics platforms using the expectation confirmation model. Therefore the following hypothesis is proposed:

H6: Confirmation positively influences shippers' satisfaction with shared logistics platforms

According to cognitive dissonance theory users may experience cognitive dissonance if they are unable to confirm the usefulness of their prior expectations during actual use. To reduce this dissonance, platforms can attempt to adjust the perceived usefulness of shipper-side users to be more realistic. Confirmation increases the perceived usefulness, while non-confirmation decreases the perception of usefulness [27].

Cognitive dissonance also applies to the beliefs associated with ongoing user use (user interface and perceived safety), and platforms can influence satisfaction with the platform by continually adjusting the perceived usefulness of shipper-side users to meet their level of confirmation of the platform. The hypothesis is therefore proposed that

H7: Confirmation positively influences shippers' perceived usefulness of a shared logistics platform

3.6 Perceived Service Quality

In their study of users' willingness to use online learning services, Lin & Wang suggested that users who perceive online learning courses to be rich in content and of high quality can increase the perceived usefulness of online learning services and thus raise the level of desired confirmation [28]. Perceived service quality is a key performance indicator in mobile communications and an important prerequisite for satisfaction [29]. When shipper-side users find the service quality of a shared logistics platform to be high, they develop a higher level of satisfaction with the platform, which in turn influences users' willingness to continue using it [30]. Therefore the hypothesis is proposed:

H10: Perceived quality positively influences shippers' acknowledgement of shared logistics platforms
H11: Perceived quality positively influences shippers' satisfaction with the shared logistics platform

Figure 3 shows the model of user's intention of using shared logistics platform.

4 Research Methods

4.1 Scale Development

The study used a questionnaire to collect the required sample data, which was divided into two parts. The first part was a scale measuring the structure of the research model and the second part consisted of questions about the demographics of the participants. Each item corresponding to a construct was measured on a 5-point Likert scale, with

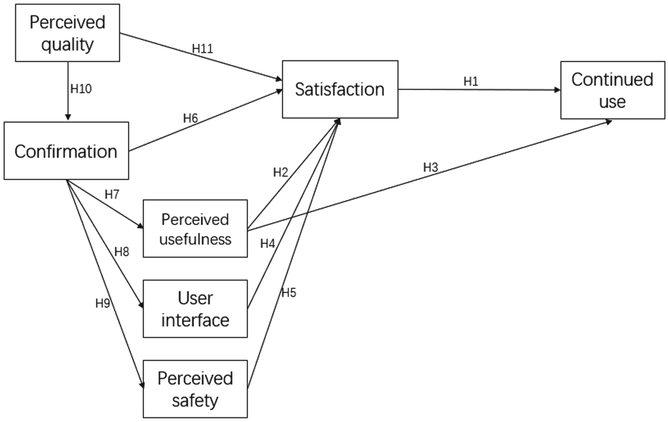

Fig. 3. Intention model of continuous use of shared logistics platform

answer choices ranging from 'very unlikely to meet' to 'very likely to meet'. To ensure the reliability and validity of the scale, all items were derived from scales that are well established in the literature and published in international and national journals. The perceived usefulness scale was adapted from Venkatesh et al. [1]; the perceived safety scale from Cheung and Lee [32]; the perceived service quality scale from Roca et al. [33]; the user interface scale from Flavian et al. [34]; and the continued intention to use scale from Venkatesh [31];Acknowledgement scale adapted from Bhattacherjee [15].

4.2 Data Collection

The target population of this paper is shipper-side users with experience of using the shared logistics platform. The questionnaire was created using the Questionnaire Star website. After clarifying the academic use and anonymity of the questionnaire through in-depth knowledge of the platform's services during the internship and the assistance of the platform's information department, the researcher placed the questionnaire on the platform's forum and set up a reward mechanism, and confirmed the authenticity of the completed questionnaire through communication in the form of telephone interviews with a sample. Excluding incomplete and randomly completed invalid questionnaires, a total of 339 questionnaires were received, with 312 valid questionnaires. In terms of demographics, 31.4% of the respondents were male and 68.6% were female. In terms of age and education, most of our respondents were between the ages of 18–25 and 31–40; we learned through questioning interviews that many shippers, because of their age (e.g. agricultural shippers) and lack of experience in using smartphones, choose to have their children at home assist in registering on the platform and finding suitable transport vehicles. The regional statistics are scattered, with several provinces and cities across the country. The time spent by cargo owners on the platform is mainly concentrated within three months, followed by three months to six months, with only 8% of users having used the platform for more than a year.

5 Data Analysis and Discussion of Results

During the data analysis phase, the strength and direction of the relationships between the theoretical hypotheses are tested firstly by measuring convergent and discriminant validity, and secondly by examining the structural model.

5.1 Analysis of the Measurement Model

The study used SPSS 27.0 software to test the reliability as well as validity of the questionnaire. The Cronbach's alpha for the six variables and 24 items of the questionnaire was 0.831, and the Cronbach's alpha for individual variables was greater than 0.7, indicating that each structure of this questionnaire showed strong internal reliability. Table 1 shows the validity items and Cronbach'α.

The measurement error in the validated factor analysis of the measurement model needs to be greater than the variance, the average variance extracted value (AVE) is greater than 0.5, and the combined validity (CR) is greater than 0.7. The results are shown in Table 2. Firstly, the factor loadings of all the question items are greater than 0.5 and less than 0.95, and the dimensions required for the study are divided, indicating that the variables belonging to each measurement question item are highly representative; secondly, the AVE values are Therefore, all three conditions of convergent validity were met, and the accuracy of the measurement model was verified, with good reliability and validity.

Correlation analysis refers to the closeness of the correlation between two variables that can support the model hypothesis. In this analysis, the correlation between multiple variables was analyzed exploratively through Pearson correlation analysis, and according to the analysis results in Table 3, it can be concluded that there is a more significant correlation between each variable in this analysis. In summary, all variables are positively correlated with each other, which tentatively supports the hypothesis proposed in the study.

5.2 Analysis of the Structural Model

The results of the structural equation model analysis are shown in Table 4, the chi-square value (CMIN) is 253.999, the degrees of freedom (DF) is 237, the ratio of chi-square degrees of freedom (CMIN/DF) is 1.072, greater than 1 and less than 3, good fit; the root mean squared error of estimation (RMSEA) is 0.015, less than 0.05, good fit; GFI/AGFI are 0.938 and 0.922 respectively, both greater than 0.8, which are excellent fits; CFI/IFI/TLI are 0.995/0.947/0.994 respectively, all greater than 0,9, indicating an ideal fit. Therefore, the comprehensive results of this analysis can indicate that the fit of the model is in a good condition.

The hypotheses proposed for the study were tested based on the output of the Amos computational structural equation analysis, as shown in Table 5 with significant results and coefficient values for the path coefficients. Hypothesis 1 Satisfaction positively influences continued intention to hold is supported with a significant path coefficient of 0.282; Hypotheses 2 and 3 Perceived usefulness positively influences satisfaction and continued intention to use is supported with path coefficients of 0.204 and 0.31;

Table 1. Validity items and Cronbach's α

Variable	Items	Cronbach 'α
Perceived service quality (QA)	1. The information provided by the platform is accurate and reliable.	0.847
	2. The platform gives me personal attention and prompt service.	
	3. I feel very comfortable when using the functions and services provided by the platform.	
	4. The service system of the platform provides the correct solution for my request during the platform failure period.	
	5. When I encounter service or system problems, I have no platform to deal with the problem.	
Confirmation (QB)	1. The service level provided by the platform is better than I expected.	0.773
	2. The platform has brought me more benefits than expected before.	
Perceived usefulness (QC)	1. Using this platform can improve my income.	0.894
	2. Using this platform can improve my work efficiency.	
	3. Using this platform allows me to find the vehicle faster.	
	4. Using this platform can reduce my time to find transport vehicles.	
User interface (QD)	1. Even when using the platform for the first time, it is easy to operate.	0.887
	2. Every function and characteristic of the platform is well understood.	
	3. It's easy to link to the function I want on the platform.	
	4. The platform provides the accurate information and functions I need.	
	5. Search and check the information I need very fast.	
	6. The content and organization of the platform are very organized. It is easy to know which interface I am in when operating.	
Perceived safety (QE)	1. The platform implements security measures to protect all platform users.	0.856
	2. The platform has the ability to verify user identity to ensure security.	

(*continued*)

Table 1. (*continued*)

Variable	Items	Cronbach 'α
	3. The platform has the ability to verify user identity to ensure security.	
	4. The platform usually confirms that the transaction information will not be accidentally changed or destroyed in the process of Internet transmission.	
Intention of continue use (QG)	1. I will continue to use this platform	0.843
	2. I will share and recommend this platform to my peers.	
	3. I will use this platform as often as now	

Table 2. Validity tests for measured variables

Variable	Range of Factor Loading	AVE	CR
QA	0.82–0.84	0.694	0.919
QB	0.831–0.7	0.723	0.839
QC	0.793–0.83	0.657	0.884
QD	0.783–0.819	0.632	0.911
QE	0.819–0.856	0.69	0.899
QG	0.836–0.865	0.726	0.888

Table 3. Correlation analysis results of six variables

Variable	QA	QB	QC	QD	QE	QG
QA	1					
QB	.272**	1				
QC	0.098	.268**	1			
QD	0.104	.243**	0.090	1		
QE	0.095	.227**	0.092	0.096	1	
QG	.112*	0.103	.344**	0.094	0.099	1

Hypothesis 4 User interface positively influences satisfaction is supported with a path coefficient of 0.191; Hypothesis 5 Perceived safety positively influences satisfaction is supported Hypotheses 6–9 Confirmation positively influences satisfaction, perceived usefulness, user interface, and perceived safety are supported with path coefficients of 0.225, 0.33, 0.299, and 0.283, respectively; Hypotheses 10–11 Perceived quality

Table 4. Model fitting index

	CMIN/DF	RMSEA	GFI	AGFI	NFI	IFI	TLI	CFI
Standard	1–3	<0.5	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9
Factors	1.072	0.015	0.938	0.922	0.931	0.995	0.994	0.995

Table 5. Results of research

Hypotheses	B			Estimate	S.E.	C.R.	P-Value
H1	Satisfaction	→	Continuance intention	0.282	0.039	4.66	***
H2	Perceived usefulness	→	Satisfaction	0.204	0.105	3.645	***
H3	Perceived usefulness	→	Continuance intention	0.31	0.080	4.619	***
H4	User interface	→	Satisfaction	0.191	0.112	3.542	***
H5	Perceived safety	→	Satisfaction	0.197	0.098	3.617	***
H6	Confirmation	→	Satisfaction	0.225	0.127	3.234	0.001
H7	Confirmation	→	Perceived usefulness	0.33	0.07	4.617	***
H8	Confirmation	→	User interface	0.299	0.061	4.27	***
H9	Confirmation	→	Perceived safety	0.283	0.072	3.993	***
H10	Perceived quality	→	Confirmation	0.335	0.065	4.846	***
H11	Perceived quality	→	Satisfaction	0.19	0.092	3.49	***

positively influences confirmation and satisfaction are supported with path coefficients of 0.335 and 0.19. In summary, all the research hypotheses were significantly supported.

6 Conclusion and Management Insights

6.1 Conclusion

Based on the above empirical analysis, the study used a modified expectation-confirmation theoretical model incorporating two variables, user interface and perceived safety, to explore the factors that influence the continued use of the platform by shipper users of shared logistics platforms. The results of the structural equations show that all 11 hypotheses proposed are supported.

Firstly, perceived service quality has the most significant impact on the level of confirmation that shipper-side users have after using the shared logistics platform. This shows that the perceived service quality of a shipper-side user when using a shared logistics platform can have a positive impact on the expected confirmation. As a logistics service provider, a good service quality of a shared logistics platform can bring a quality experience to the shipper-side users, who will also trust and rely on the platform more, thus increasing the level of confirmation of the platform. Secondly, perceived usefulness has a positive impact on the continued use of the shared logistics platform by the shipper-side users. For cargo owners, a shared logistics platform means more efficient logistics operations, more convenient logistics management and relatively low logistics costs. When cargo owners discover these benefits when using a shared logistics platform, they will strengthen their perceived usefulness of the platform, further enhancing their willingness to continue using the platform. Again, the perceived user interface of the shared logistics platform positively influences satisfaction with the platform. If the user interface is clear, easy to use, functional and smoothly animated, it will greatly enhance the user experience and satisfaction; when the user interface is complex and difficult to navigate, it will take time and effort for the user to operate, which will make the user feel dissatisfied. In particular, when cargo owner-side users view cargo transportation information and order update status through the user interface, it will allow users to have a more comprehensive understanding of the logistics transportation situation, while generating a good impression and evaluation of the platform. Fourth, the perceived safety of the shared logistics platform positively affects the satisfaction of the cargo owner-side users. When shipper-side users perceive that the platform provides a reliable and safe service, they are more willing to conduct business activities on this platform. In addition to this, the study also verified other hypotheses of the expectation confirmation model, all of which were supported.

6.2 Management Insights

The management insights from this paper are as follows: Firstly, cargo owner-side users need the platform to ensure the timeliness, safety and accuracy of logistics transport to meet the business needs of the cargo itself. Therefore, shared logistics platforms should pay close attention to the perception of service quality by cargo-side users and strengthen operations and management to improve service quality and satisfaction. Secondly, the shared flow platform should be committed to providing functions that are useful to cargo-side users, such as for improving the pricing mechanism and improving the efficiency and accuracy of matching between users through big data, etc. Third, the platform should improve the page design of the applet or app, especially in the user interface for viewing the status of orders. Color matching and smooth animation effects are issues that the platform should consider, and an aesthetically pleasing user interface can be a key influencing factor for users to use the platform. Fourthly, the platform should ensure data and transaction security, meet the user's identity verification and authentication, establish a perfect customer service mechanism, provide quick response and effective solutions, and provide timely response when the shipper-side user encounters problems or transaction disputes, enhance professionalism and responsibility, which in turn enhances user satisfaction and influences the shipper-side user's behavior for continued use.

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