

Business Analysis of User Purchasing Behavior on Cross-Border E-commerce Platforms—Focusing on User Profiling and Conversion Paths

Guidong Dai^{1*}, Fei Yin²

¹*Faculty of Science, The University of Melbourne, Melbourne, Australia*

²*College of Business & Public Management, Wenzhou-Kean University, Wenzhou, China*

**Corresponding Author. Email: guidong.dai@student.unimelb.edu.au*

Abstract. The emergence of cross-border e-commerce as a crucial component of the global digital economy has been achieved albeit its advancement being impeded by the high-browsiness, but low-conversion challenge associated with cross-border shopping as it involves logistics delay, information asymmetry and policy uncertainties. The purpose of the study is to find the optimal way of cross-border e-commerce platforms to increase the user conversion rate. It initially examines the existing development of the cross-border e-commerce industry in the context of the scale of the market, the competitiveness, and the nature of the industry and examines user purchasing behavior in terms of demand, behavior, and channels. Based on these premises, the research develops a comprehensive analysis model of user portraits that can be segmented into fundamental, behavioral and value traits and staged conversion paths. It then suggests a three-fold approach to optimization strategy system comprising accurate marketing, product and service improvement and user lifecycle management and defines critical issues in the conversion process at the level of product, platform, and external factors with specific countermeasures. Such research offers theoretical directions and practical examples to a cross-border e-commerce platform to improve the efficiency of operations and user experience, as well as add to the body of knowledge about cross-border e-commerce user behavior and platform optimization.

Keywords: User purchasing behavior, cross-border e-commerce platforms, user profiling and conversion paths.

1. Introduction

Cross-border e-commerce has come to be one of the most significant forms of international online commerce. Not only does it connect buyers and sellers across borders by using platform-based systems, allowing consumers to buy products not available in their domestic market but also allows companies to go global without having to build physical stores. Nevertheless, cross-border shopping is a much more complicated process compared to domestic e-commerce. Customers frequently experience extended delivery periods, increased uncertainty about the authenticity of products, extra shipping charges, and varied regulatory conditions. They are also more careful and

compartmentalized in their decision making. Consequently, numerous platforms see a mismatch between a high level of browsing and low payment completion rate which means that interest is not necessarily converted to conversion. The gap indicates that the solution to improving cross-border platform performance cannot be achieved merely by increasing the traffic or broadening the product categories. It needs a better insight into what goes on during the shopping journey and where the users are likely to have some doubts. In reality, users may exit the process at various stages due to various reasons. There are people who are hesitant when the final cost changes with the addition of shipping or tax. There are others who leave the whole process because the payment methods seem unfamiliar or when reviews are not credible enough. Negative experiences of logistics can still decrease the probability of repurchase even after the successful payment. The trends indicate that conversion is not an event but a process that takes place over time and depends on trust, usability as well as contextual factors.

With such insight, this paper will integrate a review of the existing consumer purchase actions with a systematic approach that can connect between user pictures and conversion processes. Initially, the current state of e-commerce across borders and its user behavior features are analyzed through the prism of industry, demand, behavior and channels. Afterwards, profiling system is created to group users into three main categories (basic, behavioral and value), and conversion path based on stages (awareness and repurchase). Combining these views, the research will offer better reasoning behind the identification of bottlenecks in the conversion process and more specialized optimization strategies at the actual cross-border conditions.

2. Analysis of the current situation of user purchase behavior on cross-border e-commerce platforms

2.1. Development status of the cross-border e-commerce industry

2.1.1. Market size and growth trends: development trends in global and key regional markets

Economic growth is uneven among regions, and cross-border e-commerce presents varying developmental trends in China, Asia, Europe, and Africa. Cross-border platforms are very well-integrated into the digital market in China and some areas of East Asia, where there are sophisticated payment systems and logistics networks and where platforms play an important coordination role in world trade [1]. The Southeast Asian markets are growing fast because of increased smartphone usage and regional platform approaches. Platform activities and consumer expectations are regulated by regulations and consumer protection policies in Europe whereas in other parts of Africa, adoption is slowed down by infrastructure limitations and payment accessibility even as demand rises. Regional cross-border performance is also affected by differences in digital capability and organizational readiness [2].

2.1.2. Competitive landscape of major platforms: differentiated positioning between international leading platforms and local characteristic platforms

The positioning of large international platforms illustrates the platform competitive situation in cross-border e-commerce extremely well. Amazon, eBay and AliExpress, among the global leaders, depend on massive infrastructure scales and the uniformity of working principles (rules), relatively consolidated logistics systems. Their benefits include wide variety of products, payments systems, and formalized buyer protection systems that will reduce the level of instability in international

deals. Simultaneously, their dimensions put them in a pressure situation. There is significant competition among sellers, increased platform fees and tight compliance measures.

Popular cross-border platforms in the Chinese market are Tmall Global, JD Worldwide, and various social commerce channels based on a platform. They are also very tied to the developed digital payment system of China and its speedy local delivery services, which make the transactions more efficient and convenient to mobile users. They have strong points in localised marketing programs, integration with Alipay and WeChat Pay and a high rate of mobile penetration. Nevertheless, they can face issues with regard to overseas brand procurement, coordination of international logistics, and discrepancies in regulatory regulations during their activities across country borders. As opposed to global head platforms, Chinese cross-border platforms appear to integrate better with domestic digital infrastructure, whereas global platforms tend to focus on scale and global standardisation.

2.1.3. Industry development characteristics: clear trends toward digitalization, intelligence, and scenario-based consumption

Cross-border e-commerce has become a new standard of digitalization. The promotion, order placement, shipping tracking and customer support are becoming more and more based on data instead of being done manually. More important is that cross-border performance is determined by organizational capability, not merely by having a product online. Studies on cross-border development of firms have shown that digital leadership and digital transformation commitment may be beneficial to cross-border e-commerce results [2]. This will go a long way towards explaining why there are performance gaps between sellers providing the same products: variations in the use of data, management of services, and coordination of operations may lead to different consumer experiences.

The concept of intelligence is used in recommendation systems, targeted advertising as well as automated processes. Nevertheless, intelligent systems will only enhance their performance when they correspond to both the user intent and its context. The analysis of traffic reveals conversion rates vary by traffic sources, which means that users come with a varied level of buying interest based on channel [3]. Also, scenario-based consumption is growing in popularity: shopping may be done during brief mobile sessions, but payment may be made at a later time on an alternative device. When the mobile experience is poor (slow loading, lack of clarity in checkout process), purchase intentions can fall through until conversion. Thus, tendencies towards digitalization and intelligence are to be assessed not only in terms of technical adoption but also in terms of effectiveness in supporting user journeys in real-life usage contexts.

2.2. Overall characteristics of user purchase behavior

2.2.1. Demand characteristics: product preferences, price sensitivity, quality concern, motivation for cross-border shopping

Cross-border demand usually involves both obvious likes and a thorough evaluation of risks. A lot of customers opt to use cross-border channels to buy foreign brands, exotic categories, or products that are thought to be more authentic or of superior quality. Nevertheless, price sensitivity becomes a factor when it takes into account shipping costs, possible taxes, and delivery time. The concept of total cost comprises time and uncertainty, not merely product cost. It is the reason why platforms

which inform about fees and delivery conditions clearly may impact on demand by decreasing perceived risk and eliminating surprise costs in subsequent stages.

Trust is extremely significant in cross-border demand creation since there are higher rates of information gaps among the buyers as well as insufficient knowledge about the sellers. Literature incorporating Technology Acceptance Model concepts and the idea of commitment-trust theory indicates that perceived usefulness and simplicity of use can enhance trust and commitment that in turn fosters the intention to buy [4]. Practically speaking, convenience works as an indicator of credibility: product details are presented clearly, checkout process is predictable, the policies are understandable hence reducing nervousness and increasing the chances of demand transforming into action.

The online reviews also have a significant effect on the demand appraisal in cross-border markets. The research on review quality indicates that higher review quality may boost purchase intention as it lowers the level of uncertainty and perceived risk [5]. Review credibility is hence not a trivial matter, it is an aspect of the platform risk control system. Simultaneously, review systems may introduce new uncertainty in cases where the reviews are repeated or non-informative. A platform might demonstrate high star ratings yet fail to persuade users due to lack of detail in the review contents, which can lower demand conversion even with interest present.

2.2.2. Behavioral characteristics: browsing habits, purchase frequency, payment method preferences, repurchase intention

Cross-national purchasing habits are frequently perceived as sequential instead of instantaneous. Consumers tend to spend more time browsing, comparing more, and reviewing more due to higher costs of errors (longer delivery times, more difficulty with returns, more uncertainty). It is also usual to add items to cart without making payment immediately and this does not necessarily mean that such a purchase has failed. The clickstream study reveals that there are several drop-off rates in the user journey and that the transition to purchase is not inevitable [6]. Browsing depth, search intensity, and cart behaviour ought to be seen as significant intermediary indicators and not merely noise.

Payment behavior is often the weakest link in the process. Customers are likely to choose payment options that appear familiar and safe to them and will leave them behind if steps include currency conversion, repeated verification, or ambiguous fee breakdown. Conversion-path concept represents user actions as a series in which every step may be used as a decision point and a potential exit point. Cross-border commerce focuses the perceived risk on the payment stage, where minor usability issues can result in significant losses in completed orders.

Repurchase intention is a more powerful indicator of the success of a platform compared to one-time purchase. One-time purchases may be an outcome of curiosity or advertising, but repeated purchases normally indicate a reduction of uncertainty and a consistent experience delivered by the platform. Trust and commitment have again been associated with purchase intention and relationship stability across borders [7]. It is because of this reason that repurchase is viewed in this context as part and parcel of behavioral features: it indicates how cross-border shopping becomes a habit, not a trial.

2.2.3. Channel characteristics: traffic source distribution, platform usage scenarios, device preferences

The sources of traffic have an impact on the quality of users getting to the platform. Visitors who come through direct search tend to have more purchase intention compared to visitors who come through social media ads, which are still browsing. The results of traffic-source analyses prove that the conversion performance varies between sources [8]. It means that it is necessary to assess the channel's performance in terms of volume and downstream quality. The existence of high traffic does not necessarily imply an increase in terms of traffic leaving at a fast rate without considering and converting it.

The usage scenario and device preference influence behaviors. The browsing activity tends to be done in mobile devices with short sessions whereas the checkout activity can be done later on desktops when the focus is lower. Slow-loading mobile pages, unreadable product information, unoptimized checkout fields may cause the users to abandon the purchase even when they are interested. The conversion-path logic suits this fact since it assumes that behavior is staged actions determined by context instead of one event. This will help in comparison of conversion indicators across different devices and channels which can be used in future analysis as opposed to only using overall average figures.

3. Platform optimization strategies based on user portraits and conversion paths

The development of cross-border e-commerce platforms cannot be optimized without knowing exactly the characteristics of users, which in turn leads to the full-scale implementation of the conversion processes management. According to this chapter that is written according to some research outcomes, it builds a three-dimensional optimization strategy scheme, as precisely marketing strategies, and upgrading product/services, and management of users lives cycles so that it can improve efficient platform operation and user shopping experiences.

3.1. Precise marketing optimization strategies

Exact marketing is the fundamental bond between user profiles and conversion paths, and its application depends on the accurate division of user groups and targeting the marketing efforts at various stages. In terms of the exact segmentation of user portraits, researchers have noted in their systematic review of cross-border e-commerce user behavior that cross-border e-commerce user portraits should incorporate multidimensional characteristics including basic group characteristics, behaviour preferences, and value contributions, offering a theoretical foundation to the development of precise marketing strategies [9]. An example would be that people with high levels of purchasing power and high brand awareness are more appropriate to market via social media and product opinion leaders whereas price sensitive customers are better suited to search engine optimisation and promotional activity push.

In regard to target marketing across various stages, the integrated artificial intelligence marketing strategy can offer pragmatic assistance. Platforms may apply AI technology to examine user browsing, adding to cart as well as other behavioral data to establish the conversion stage of the user [10]. In relation to the consideration stage, the conclusion made by Pham on how review quality influences purchase intention is of reference value. Platforms may choose to highlight high-quality user reviews to promote user trust [11]. The platform can filter high-quality reviews and send them to the user home page using the APP based on the criteria of 50 words or more of the review text and

product details description and update it weekly. This is done on the basis of the standard set by 50-character comments that include product details that are sent to the user homepage through an app and updated every week. To users in the cognitive stage, personalized recommendations of content can be offered depending on their past history of browsing. To customers who have already purchased something, repurchase encouragement programs should be initiated to move them to the repurchase stage.

3.2. Product and service optimization strategies

Product supply and service system optimization is the secret to enhancing user conversion rate and repurchase rate, and such optimization must be done at the pain points within the user shopping process. Experts in their research on cross-border e-commerce competition strategies related to product differentiation indicated that the product homogeneity on the platform are also a significant cause of user churn [12]. Hence, the platform needs to modify the product structure depending on the preference features defined by the user portrait. Integrating these two factors, namely the strong demand of high quality and individuality of products, when consumers buy abroad, the platform can enhance the introduction of specialty and personalized products to satisfy the different needs of users [13]. Simultaneously, the design of product detail pages should be improved in order to emphasize the main benefits of products and minimize the inequality of information between users and sellers.

The quality of logistics services is yet another critical aspect impacting on the experience of users. Researchers have systematically explored the issue of cross-border e-commerce logistics service quality through a mixed-method approach and determined that logistics timeliness and information transparency were the two most important factors considered by users [14]. Then the platform must enhance collaboration with cross-border logistics companies, streamline the logistics network structure, and offer live logistics tracking services to users. As an example, small and medium-sized platforms focus on the optimization of the payment process and large platforms reorganize their foreign warehouses. When it comes to removing barriers to cross-border shopping, scientists noted that due to cultural differences, language barriers may lead to a drastic decrease in the shopping intentions of users [15]. It should therefore be able to support the customers service and product description services in different languages. Studies in operational risk management of cross-border e-commerce reveal that complex payment procedures and unclear information about tariffs are major barriers to payment conversion of users. To minimize the cost of decision making among users, platforms are supposed to make the payments simple and incorporate various types of payment systems as well as offering clear tariff calculation means [16].

3.3. User lifecycle management strategies

User lifecycle management is one of the ways to implement sustainable platform operation in that it involves all stages of bringing a new user on board and retaining the current users and re-activating lost users. According to the consumer behavior research findings, new users pay more attention to the initial usage threshold [5]. To minimize the trial costs, platforms need to come up with an easy and effective onboarding procedure for new customers and provide them with exclusive rewards like first-order reduction and free shipping. The retention of existing users could be achieved by introducing a tiered membership system whereby the different benefits of memberships are provided depending on user value attributes including average purchase value and frequency of purchases,

including dedicated customer service, priority shipping, and point redemption, in order to boost user stickiness.

In order to reactivate lost users, it is essential to initially discover the indicators of user churn like substantial decline in the rate of browsing, and expiration of the membership. The effect of service quality on user satisfaction and user churn has been studied with regard to negative shopping experiences and absence of individualized attention [17]. There should be therefore specific re-engagement policies introduced by platforms depending on the cause of user churn. As an illustration, logistics compensation vouchers can be given to the users who churned because of logistics delays; time-limited discount information can be sent to the price-sensitive users.

4. Core challenges and countermeasures in the user conversion path

Regardless of the ongoing improvement strategies in cross-border e-commerce platforms, the user conversion path has several issues that come up in numerous areas including but not limited to: products, platforms, services and the external environment. These main challenges are reviewed in this chapter with respect to appropriate research evidence and recommended specific solutions.

4.1. Challenges and suggestions at the product level

The main challenge in consumer conversion is the problem of products, which is comprised of inadequate product flexibility, poor price competition, and a non-existent quality assurance system. The study of the attitudes of consumers towards shopping on foreign websites indicates that the inconsistency between the specification of the products and the needs of the local population is one of the major reasons that make people cancel the purchase [18]. As an example, the clothing and footwear size standards differ by country which may influence the buying choices of the users. Platforms must have a mechanism to assess product flexibility, where sellers must offer detailed descriptions of the parameters of the product as well as local adaptation recommendations. As Pham states, the quality of the product has a strong correlation with user reviews, and poor-quality assurance may cause a high percentage of negative reviews, which in turn may decrease the purchase intention of the potential users [5]. Platforms should enhance the supervision of product quality, create an effective product sampling inspection system, and offer quality certification services to sellers.

In terms of price competitiveness, researchers noted that owing to tariffs and transportation charges, the cost competitiveness of cross-border e-commerce goods has been diminishing over time [9]. In order to tackle the problem, platforms may enhance the centralization of product purchasing to minimize the costs of purchases of sellers; concurrently, they may establish ties with local authorities to acquire tariff benefits and decrease the total cost of products. The findings based on research about logistics services quality reveal that efficient supply chain structure optimization can be used as a means of reducing product circulation costs, which is an available way to improve the price competitiveness of products offered by platforms [14].

4.2. Challenges and suggestions at the platform level

The most significant problems with the platform level are demonstrated by the poor design of the page, the processes of operation and the optimization of the search function, which in turn influence the experience of browsing and shopping of a user. Researchers investigated how computer applications could influence the performance of cross-border e-commerce and discovered that low

page load rate and clumsy operation processes would result in a serious rise of the bounce rate of users [16]. The platforms must take advantage of the big data and artificial intelligence systems to enhance the page code structure and enhance the speed of the pages loading as well as streamlining the shopping process and minimizing the number of steps involved in the process to enable one-click ordering as far as possible. In accordance with the real-life e-commerce platform operations experience, a lack of high precision in search functionality may cause customers not to be able to locate the necessary items fast, which is why the conversion rate is affected. It is necessary to optimize the search algorithm and add semantic search technology in order to increase the correlation between search results and user requirements.

Moreover, poor tracking and analysis of user behavior data by the platform may cause failure to determine the important nodes of user churn. Considering the user behavior study model, the platform needs to develop a comprehensive user behavior data monitoring system that will monitor the conversion rates of users at every step live and quickly detect the conversion path bottlenecks [9].

4.3. Challenges and suggestions at the external factor level

The main external factors challenges are cross border payment risks, modification of tariffs rules, and language barriers that lie outside the control of the platform, however, they significantly affect the user conversion path. An in-depth analysis of Su, H on the risk management of cross-border e-commerce operations indicates that cross-border payments have risks like exchange rate fluctuations and payment security, that can influence the success rate of user payments [11]. Platforms need to collaborate with professional cross-border payment organizations to offer a variety of modes of payment and introduce the service of exchange rate locking to minimize the effect of exchange rate changes on the users. Researchers noted in their literature review on cross-border e-commerce studies that alteration of tariff policies was one of the key factors that influenced the growth of cross-border e-commerce sector [17]. Platforms need to develop a system to monitor and alert them on changes in the tariff policies of different countries and regions in real time to give consumers the most recent tariff data, response plans, and countermeasures.

According to language barriers, Hasan, R., and Abdullah, M. S. suggested in their study of promoting artificial intelligence marketing in the sphere of cross-border integration that artificial intelligence technology may be used as a tool to help in achieving real-time translation of product information and customer service, which would be highly effective in mitigating the effect of language barriers [10]. The platform needs to invest more in artificial intelligence translation technology, enhance the accuracy of translations, and ensure the customers have a smooth shopping experience. Also, platforms ought to take into consideration the variations in cultural practices and consumer behavior between various countries and territories, do local work, and minimize cultural obstacles in the purchase procedure.

5. Conclusion

In this research paper, the author explores the concept of optimizing cross-border e-commerce platform in detail by focusing on the main issue of poor conversion rate of users when it comes to cross-border shopping. The paper first explains the unequal growth features of the world cross-border e-commerce sector and the diverse positions of international and domestic platforms and then discloses the fact that the choice of purchase behavior of users in cross-border e-commerce is a multi-stage decision-making process that is influenced by demand, behavior and channel properties.

Based on that, the paper builds up a scientific analysis model of user portraits and conversion processes and proposes a three-dimensional optimization strategy system of cross-border e-commerce platforms, which defines the implementation concepts of targeted marketing, product and services optimization, and user lifecycle management.

This paper will also discuss the most common issues experienced in the conversion process of the cross-border e-commerce users on the various components of the product, platform, service and even external factors, and offer specific and implementable solutions to each challenge. It is stated that cross-border e-commerce user conversion is not a single link, but it is a systematic project that is influenced by several factors including product quality, platform experience, service quality and external environment. The findings of the research offer clear practical guidelines on how cross-border e-commerce platforms should optimize their working strategies and enhance user conversion rates.

The research in the future may be extended by adding empirical information about various kinds of cross-border e-commerce platforms and investigating how the conversion path optimization differs between diverse regional and user populations, thus making the research findings more specific and practical. Meanwhile, with the ongoing advancement of digital and intelligent technology, the application of new technologies including big data and artificial intelligence to the optimization of cross-border e-commerce platforms will be one of the major research directions that are very crucial to the sustainable growth of the cross-border e-commerce industry.

Authors contribution

All the authors contributed equally and their names were listed in alphabetical order.

References

- [1] Chen, Y., Wang, Q. and Zhang, J. (2025) The role of cross-border e-commerce platforms in the digital economy: Empower firms to gain global market insights to increase global competitiveness. *Journal of Digital Management*.
- [2] Cassia, F. and Magno, F. (2025) Leveraging cross-border e-commerce platforms for export strategies: A model for exporters in B2B markets. *Review of International Business and Strategy*, 35(4), 527-550.
- [3] Gong, Z. (2024) Optimization of cross-border e-commerce (CBEC) supply chain management based on fuzzy logic and auction theory. *Scientific Reports*, 14, Article 14088.
- [4] Muralidhar, A. and Lakkanna, Y. (2024) From clicks to conversions: Analysis of traffic sources in e-commerce..
- [5] Pham, T.V.A., Nagy, Á. and Ngo, M.T. (2024) The effect of review quality on purchase intention in cross-border e-commerce: The case of Hungary. *Society and Economy*, 46(2), 120-.
- [6] Trung, T.T. (2025) Exploring consumer behavior in cross-border e-commerce: Evidence from Vietnamese consumers. *Journal Title on KoreaScience*.
- [7] Wang, Z., Geng, Y., Xie, P. and Peng, K. (2025) Digital leadership and the development of firms' cross-border e-commerce. *International Review of Economics and Finance*, 104857.
- [8] Wistedt, U. (2024) Consumer purchase intention toward POI-retailers in cross-border e-commerce: An integration of technology acceptance model and commitment–trust theory. *Journal of Retailing and Consumer Services*, 81, 104015.
- [9] Xu, Y., He, D. and Fan, M. (2024) Antecedent research on cross-border e-commerce consumer purchasing decision behavior: The moderating role of platform-recommended advertisement characteristics. *Heliyon*.
- [10] Chen, J., Lan, Y.C. and Chang, Y.W. (2023) Consumer behaviour in cross-border e-commerce: Systematic literature review and future research agenda. *International Journal of Consumer Studies*, 47(6), 2609-2669.
- [11] Chen, J., Xu, S., Zhao, C. and Chen, H. (2020) Cross-border e-commerce competitive strategy based on the survey of product differentiation. In *International Conference on Simulation Tools and Techniques*, 659-678. Springer International Publishing.
- [12] Han, L. and Han, X. (2023) Improving the service quality of cross-border e-commerce: How to understand online consumer reviews from a cultural differences perspective. *Frontiers in Psychology*, 14, 1137318.

- [13] Hasan, R. and Abdullah, M.S. (2022) Advancing AI in marketing through cross border integration ethical considerations and policy implications. *American Journal of Scholarly Research and Innovation*, 1(1), 351-379.
- [14] Hazarika, B.B. and Mousavi, R. (2021) Review of cross-border e-commerce and directions for future research. *Journal of Global Information Management*, 30(2), 1-18.
- [15] Huang, S.L. and Chang, Y.C. (2019) Cross-border e-commerce: consumers' intention to shop on foreign websites. *Internet Research*, 29(6), 1256-1279.
- [16] Jin, L. and Chen, L. (2024) Exploring the impact of computer applications on cross-border e-commerce performance. *IEEE Access*, 12, 74861-74871.
- [17] Su, H. (2024) Research on operational strategy and risk management of cross-border e-commerce platform. *Financial Engineering and Risk Management*, 7(3), 51-56.
- [18] Zhang, Y., Yuan, Y. and Su, J. (2024) Systematic investigation of the logistics service quality of cross-border e-commerce: a mixed-methods perspective. *Asia Pacific Journal of Marketing and Logistics*, 36(3), 549-564.