

Factors Affecting the Intention to Use Green Logistics Platform: Research at Military Telecommunication Group (Viettel) - Viettel Logistics

Ha NGUYEN-VAN¹, Giang PHAN-THU², Anh LE- HAI³

¹ Faculty of Business Administration, Banking Academy of Vietnam, Ha Noi, Viet Nam

^{2,3} Banking Academy of Vietnam, Ha Noi, Viet Nam

ABSTRACT: In recent years, business platform has been rapidly developing in the Vietnamese market, appearing in various sectors such as transportation, connecting drivers and customers, or in the e-commerce sector, linking sellers and buyers. So, if there is a platform in the logistics field that connects logistics service providers and customers, and emphasizes sustainability, will customers be willing to use this green logistics platform? What factors influence customers' decision to use a green logistics platform? The author team used an SEM model to analyze data from 454 valid responses from employees at Viettel Logistics. After conducting the research and analysis, the authors found that factors such as trust, network effects, and security all have a positive impact on perceived usefulness. Perceived usefulness also positively influences the intention to use the green logistics platform. The results of this study will contribute to the development strategies and directions of green logistics platforms in the future in Vietnam.

KEYWORDS: green logistics, intention to use, perceived usefulness, customer willingness, logistics platform

I. INTRODUCTION

In the present era, the logistics industry is facing increasing pressure due to the growing demand for environmental protection. The use of fossil fuels in the transportation of goods has been identified as a leading source of environmental pollution (Mingxuan Lu et al., 2019). Carbon emissions from transportation activities accounted for a significant proportion in 2016 (I. E. Agency, 2018), and it is forecasted to increase by 60% by 2050, contributing significantly to the total global carbon emissions (A. McKinnon, 2010). In the context of environmental degradation and climate change, green development models and carbon reduction efforts are receiving widespread attention from the international community.

However, the development of a model to minimize the environmental impact of the logistics industry also requires a deep understanding of the psychology and perspectives of customers to effectively implement the model. Therefore, the authors conducted a detailed study on the factors influencing the intention to use green logistics platforms, aiming to propose development directions for these platforms in the future.

II. LITERATURE REVIEW AND HYPHOTESIS DEVELOPMENT

A. Green Logistics Platform

Before delving into green logistics platforms, let's explore the platform business model. Rochet and Tirole (2006) studied the platform business model and defined it as a type of enterprise that adds value by connecting two or more different parties. Through this, they help these parties find partners and provide products and services of value to customers. In the research paper "Some empirical aspects of multi-sided platform industries," Evans (2003) emphasized the significant role of platform businesses in supporting heterogeneous communities. He argued that firms using platforms may differ significantly from those without platforms, especially in fostering cooperation among them to shape pricing, supply and demand, and investment strategies. The two-sided platform business model creates an environment and tools that facilitate transactions for both participating parties (Eisenmann, 2006). And to succeed in the platform business, integrating business models is crucial. This helps create a flexible and open business model that meets the needs of diverse users and partners (Jin, 2013). Furthermore, for the platform business model to develop sustainably, it is important to understand the role of each user, regardless of who participates in the platform (Jung and Sung, 2017). In summary, according to the book "Platform Revolution": "Platforms are a form of business based on activating interaction to create value between external producers and consumers. The overall purpose of the platform is to enable seamless interaction between users, facilitating the exchange of goods, services, or social currency, thereby activating value creation for all participants."

Factors Affecting the Intention to Use Green Logistics Platform: Research at Military Telecommunication Group (Viettel) - Viettel Logistics

The post-logistics platform is a foundational model in the logistics sector. It serves as an environment where multiple parties participate to smoothly utilize post-logistics services. Within this environment, the platform generates value by orchestrating and integrating the capabilities or resources of the participating parties (KS Noh, 2014). Post-logistics platforms encompass intermediary freight transportation information networks and services for estimating and comparing international transportation. Such post-logistics platforms also provide detailed market information tailored to the needs of market participants (Song et al., 2016).

Based on the roles of partners, the post-logistics platform can be classified into two main groups: post-logistics service providers and platform operators. Within the group of post-logistics service providers, there are three basic types: carriers, freight forwarders, and warehouses/distributors. Carriers are companies or organizations responsible for transporting goods from origin to destination points. Freight forwarders act as intermediaries between shippers and carriers. Warehouses/distributors are storage facilities or distribution centers where goods are temporarily held, managed, or distributed. Platforms in which carriers directly participate provide services to shippers, bypassing the intermediary step of freight forwarders, which can save time and costs. However, shippers may encounter inconvenience because some carriers are limited in terms of scope or quantity of available services, while carriers may lack specialized knowledge compared to freight forwarders. On the other hand, platforms in which freight forwarders participate as service providers will have a wider and more diverse range of services compared to platforms related to carriers, but the transaction process may take more time and incur higher costs. Platforms involving freight forwarders with broad and easily transferable service scopes may be advantageous in the initial stages when the logistics platform is introduced. However, platforms of carriers with the ability to save time and costs will compete more vigorously as the post-logistics platform market develops and stabilizes.

B. The Framework and Hypothesis

Below is the research model proposed by Su-Young Kwak and colleagues (2020), which analyzes the factors of “Trust”; “Network Effects”; and “Security”; impacting customers’ Intention to use green logistics platforms through “Perceived usefulness.” Recognizing the suitability of this model to the author’s research objectives, the author will apply Kwak’s model, albeit with adjustments to the scope and research subjects to align with the study’s context.

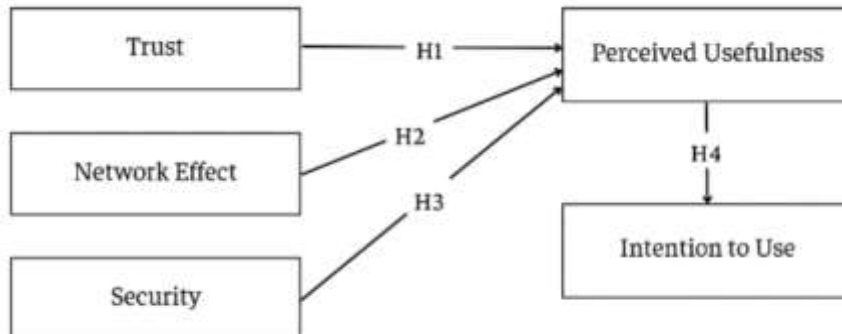


Figure 1. The research model by Su-Young Kwak and colleagues (2020). Source: Kwak and colleagues

The hypothesis in this study based on the conceptual research model, is as follows:

H1: Trust in the platform positively influences customers’ perceived usefulness of the green logistics platform.

H2: The network effect of the platform positively impacts customers’ perceived usefulness of the green logistics platform.

H3: The security of the platform positively influences customers’ perceived usefulness of the green logistics platform.

H4: Customers’ perceived usefulness of the green logistics platform positively impacts their intention to use the green logistics platform.

III. RESEARCH METHOD

The authors employed both qualitative and quantitative analysis methods to collect and analyze data in the study. The qualitative research phase involved synthesizing and analyzing previously published materials, including articles, research papers, and documents from reputable sources. From these, measurement scales and research models were developed. The quantitative research phase consisted of conducting an online survey from April 4, 2024, to April 10, 2024. In total, 470 survey responses were gathered, out of which 454 were deemed valid. The collected data underwent selection and processing using SPSS and AMOS software to conduct analyses such as Cronbach’s Alpha, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM), aimed at assessing the impact of various factors.

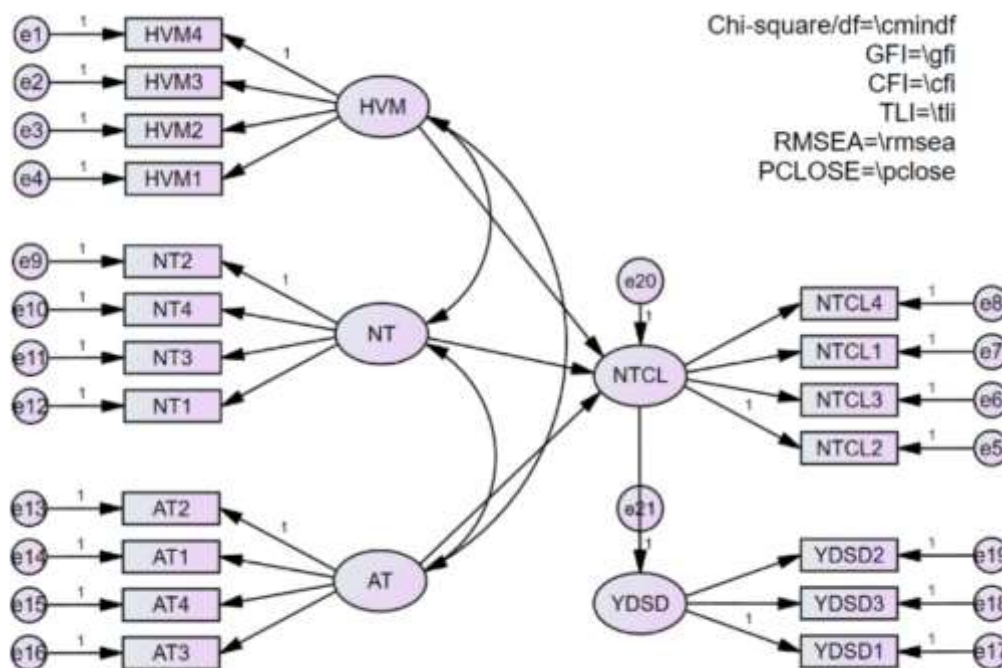


Figure 2. The SEM model is employed to analyze the impacts of factors based on the research framework.

IV. DATA ANALYSIS

The results indicate that Cronbach’s Alpha coefficients are all > 0.6, and the total intercorrelation coefficients of all variables are > 0.3, indicating high reliability of the scale.

Next, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is 0.855 > 0.5, and the significance level of Bartlett’s Test is 0.000 < 0.05, suggesting significant correlations among the variables. The total variance extracted reveals that 5 factors out of 19 observed variables can account for 67.355% of the data variation, and all factors are statistically significant with factor loadings > 0.5, with no problematic variables.

Subsequently, Confirmatory Factor Analysis (CFA) was employed to assess the correlations between factors. The results indicate that the model fits well, as evidenced by the following indices: Comparative Fit Index (CFI) = 0.945 < 0.95, Goodness of Fit Index (GFI) = 0.967 > 0.95, Tucker-Lewis Index (TLI) = 0.960 > 0.9, and Probability of Close Fit (PCLOSE) = 0.939 > 0.05. Additionally, the chi-square/df ratio is 1.810 < 3, and the Root Mean Square Error of Approximation (RMSEA) is 0.042 < 0.06. These results from data analysis demonstrate that the proposed model is both reasonable and highly valid.

Following that, running the SEM model, all relationships are statistically significant (p ≤ 0.05), with standardized coefficients of H1 to H4 being 0.292, 0.258, 0.175, and 0.324 respectively.

V. CONCLUSIONS AND RESEARCH CONTRIBUTION

After conducting the research and analysis, the author team found that the factors of trust (0.292), network effects (0.258), and security (0.175) positively impact customers’ perceived benefits of green logistics platforms. Furthermore, customers’ perceived benefits (0.324) of green logistics platforms positively influence their intention to use these platforms. Based on the research results, several specific recommendations have been made to contribute to the development and direction of green logistics platforms in Vietnam in the future. Firstly, it is necessary to enhance customer trust in green logistics platforms by organizing seminars, presentations, and providing materials to increase awareness among stakeholders about the benefits and importance of green logistics platforms for the economy in general and the logistics industry in particular. Secondly, there is a need to enhance the network effects of green logistics platforms by leveraging influential individuals to promote the platform to a wide range of users and continuously updating features to meet customer needs. Thirdly, there is a need to strengthen platform security through training and developing the security team. Lastly, it is essential to establish policies to protect customers’ rights in case of undue risks with service providers in the logistics industry. In summary, these recommendations aim to help green logistics platforms operate effectively as they develop in Vietnam.

Factors Affecting the Intention to Use Green Logistics Platform: Research at Military Telecommunication Group (Viettel) - Viettel Logistics

REFERENCES

- 1) Lu, M., Xie, R., Chen, P., Zou, Y., & Tang, J. (2019). Green transportation and logistics performance: An improved composite index. *Sustainability*, 11(10), 2976.
- 2) IEA. (2018). CO2 Emissions From Fuel Combustion Highlights 2018 Edition. Paris, France: International Energy Agency.
- 3) McKinnon, A. (2010). Green logistics: the carbon agenda. *Electronic Scientific Journal of Logistics*, 6(3).
- 4) Rochet, J. C., & Tirole, J. (2006). Two-sided markets: a progress report. *The RAND journal of economics*, 37(3), 645-667.
- 5) Eisenmann, T., Parker, G., & Van Alstyne, M. W. (2006). Strategies for two-sided markets. *Harvard business review*, 84(10), 92.
- 6) Evans, D. S. (2003). Some empirical aspects of multi-sided platform industries. *Review of Network Economics*, 2(3).
- 7) Jin, D. S. (2013). Research on Success & Failure of Platform business in perspective of multi-method research. *International Commerce and Information Review*, 15(2), 387-410.
- 8) Jung, K. H., & Sung, C. S. (2017). A Study on the Business Model of a Platform Company using Platform Business Model Map: Case Study on Youtube, Kakao, and edupang. *Journal of the Korean Entrepreneurship Society*, 12(2), 57-75.
- 9) Parker, G. G., Van Alstyne, M. W., & Choudary, S. P. (2016). Platform Revolution: How Networked Markets Are Transforming the Economy and How to Make Them Work for You. W. W. Norton & Company.
- 10) Noh, K.-S. (2014). What Is the Platform. Communication Books: Seoul, Korea.
- 11) Song, S.-W. (2016). ICT-based Logistics Industry Activation Policy Study. Institute of International Trade, 18, 1-109.
- 12) Kwak, S. Y., Cho, W. S., Seok, G. A., & Yoo, S. G. (2020). Intention to use sustainable green logistics platforms. *Sustainability*, 12(8), 3502.