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ENVIRONMENTAL AWARENESS, PERCEIVED BENEFITS-COSTS AND GREEN LOGISTICS SERVICE ADOPTION AMONG VIETNAMESE ENTERPRISES

Ho Lan Ngoc

Ba Ria - Vung Tau University, Vietnam

ABSTRACT

This paper develops a qualitative, literature-based conceptual framework to explain the adoption of green logistics services by Vietnamese enterprises. Although green logistics has received growing scholarly attention, most studies still focus on internal green supply chain practices, sustainability performance, or consumer green purchase intention. The demand-side decision of enterprises that actually buy and use green logistics services remains underexplored, especially in emerging economies. Drawing on a synthesis of recent Scopus/ISI studies published between 2015 and early 2026, together with seminal works on behavioral and organizational theory, this paper integrates the Theory of Planned Behavior, perceived benefit-cost logic, Institutional Theory, and Dynamic Capability/Technology-Organization-Environment reasoning. The proposed model positions environmental awareness, perceived benefits, and perceived costs as the core antecedents of attitude and behavioral intention; institutional pressure and green logistics readiness as organizational drivers; and digital integration capability as a moderator of the intention-adoption relationship. Thirteen hypotheses are proposed, including a sequential mediation mechanism through attitude and behavioral intention. The article contributes by shifting the analytical focus from green orientation or internal green practices to enterprise-level green logistics service use behavior in a business-to-business setting. It also offers a context-sensitive framework for future empirical research and for managers, logistics providers, and policymakers seeking to accelerate greener logistics adoption in Vietnam.

Keyword: green logistics, environmental awareness, perceived benefits, perceived costs, digital integration capability, Vietnam

1. INTRODUCTION

Vietnam's logistics sector now sits at the intersection of three transitions: cost-sensitive supply chain modernization, the decarbonization agenda, and the rapid digitalization of interorganizational operations. This convergence makes green logistics more than an environmental aspiration. It turns green logistics into a strategic business choice with consequences for cost efficiency, customer compliance, export competitiveness, and long-term resilience. At the same time, Vietnamese enterprises are under increasing pressure to respond to ESG requirements, stricter expectations from international buyers, and the wider demand for traceable and lower-emission supply chains (Arvis et al., 2023; Lam et al., 2019; World Bank, 2025).

However, the academic conversation has not fully kept pace with this managerial reality. A large body of research explains green behavior through the Theory of Planned Behavior (TPB) or related behavioral frameworks, but those studies are primarily rooted in consumer markets (Paul et al., 2016; Yadav & Pathak, 2017). Another stream focuses on green supply chain management or green logistics practices at the provider, manufacturer, or system level, often emphasizing performance outcomes rather than service adoption from the user side (Abu Seman et al., 2019; Geng et al., 2024; Sureeyatanapas et al., 2018). As a result, the literature still lacks a strong explanation of why Vietnamese enterprises actually choose, prioritize, and continue using green logistics services.

This gap matters because demand-side adoption is central to market formation. If enterprises do not

translate environmental concern into sustained service demand, logistics providers have little incentive to invest at scale in low-emission transport, green warehousing, digital documentation, route optimization, and emissions-monitoring solutions. The key problem, therefore, is not simply whether green logistics is desirable. The deeper question is how environmental awareness, economic evaluation, institutional pressure, organizational readiness, and digital capability combine to shape actual adoption behavior.

Against this background, this paper develops a conceptual model for green logistics service adoption among Vietnamese enterprises. It is a qualitative, literature-based article whose main contribution is the proposed model and the set of research hypotheses derived from it. The paper synthesizes recent Scopus/ISI studies from 2015 to early 2026 together with foundational theoretical works, with special attention to the Vietnamese context. The central argument is that a useful explanation of green logistics adoption in business markets must integrate behavioral logic, perceived benefit-cost reasoning, institutional pressure, and capability-based implementation conditions.

2. RATIONALE AND CURRENT RESEARCH CONTEXT

The practical relevance of this topic is especially clear in Vietnam. Lam et al. (2019) estimate that logistics costs in Vietnam are around 21% of GDP, with transport accounting for roughly 60% of total logistics costs. This means that decisions about transportation modes, routing systems, service providers, warehousing arrangements, and information integration are not peripheral decisions; they directly affect enterprise competitiveness. When green logistics services can reduce waste, optimize routing, improve visibility, or enhance coordination, their value is both environmental and operational.

The environmental dimension is equally important. Transport and logistics remain a material source of emissions, while Vietnam's longer-term development strategy increasingly prioritizes greener growth, climate resilience, and lower-carbon production and distribution systems (World Bank, 2025). In international supply chains, green logistics is also becoming closely tied to market access. Global buyers increasingly scrutinize Scope 3 emissions, supply chain transparency, and the credibility of ESG claims. For Vietnamese firms, green logistics therefore matters not only because it is environmentally sound, but because it is increasingly tied to competitiveness and legitimacy in export markets.

A second reason for selecting this topic is that enterprise decision making is shaped by both normative and economic logics. Firms may recognize the environmental relevance of green logistics, yet still hesitate when they perceive high investment costs, unclear returns, switching risks, data integration difficulties, or weak implementation support. This suggests that environmental awareness alone cannot adequately explain adoption. A model that ignores perceived benefits and perceived costs is likely to understate how organizations actually make logistics decisions in a business-to-business setting.

Third, willingness does not automatically translate into implementation. Even when firms hold favorable attitudes and declare green intentions, actual adoption may stall because systems are not ready, people are not trained, processes are fragmented, or digital coordination with logistics partners is weak. This is particularly important in logistics, where service use depends heavily on data exchange, platform connectivity, scheduling, traceability, and process synchronization. The relevance of readiness and digital integration therefore emerges not as a secondary concern, but as a central part of the adoption mechanism.

The current research context reinforces this need. International studies have already shown that TPB variables, perceived value, customer pressure, institutional logics, and digital capability each matter for green decisions in different settings (Cheng et al., 2024; Geng et al., 2024; Paul et al., 2016; Qiao et al., 2023; Yadav & Pathak, 2017). In Vietnam, a new wave of studies has examined green market orientation, green logistics knowledge, green customer integration, digital transformation, stakeholder involvement, and green logistics practices (Duzgun & Atay, 2025; Le & Nguyen, 2024; Ngo, 2022; Pham et al., 2025; Vo & Nguyen, 2023). Yet these insights remain fragmented. What is still missing is an integrated enterprise-level explanation of green logistics service adoption from the buyer side.

3. THEORETICAL FOUNDATIONS

The first theoretical pillar of this paper is the Theory of Planned Behavior (Ajzen, 1991). TPB remains one of the most influential frameworks for explaining the path from cognition to intention and from intention to behavior. In the present context, attitude represents the extent to which a firm evaluates the use of green logistics services favorably or unfavorably. Behavioral intention reflects the firm's stated readiness or commitment to use such services in the near future. Actual adoption refers to real organizational behavior, such as choosing, prioritizing, and continuing to use low-emission transport, green warehousing, paperless documentation, or digitalized logistics solutions with lower environmental impact. The enduring relevance of TPB in green studies lies in its ability to model behavior as an intentional process rather than a purely structural outcome.

The second pillar is perceived benefit-cost logic. This perspective complements TPB by recognizing that firms do not assess logistics decisions only in moral or symbolic terms; they also ask whether a decision creates sufficient business value relative to its expected costs. Perceived benefits may include lower long-term logistics costs, improved route efficiency, stronger customer trust, ESG alignment, reputational gains, export readiness, and compliance support. Perceived costs may include upfront investment, systems integration effort, uncertainty about payback, process disruption, and the need for additional organizational resources. Earlier adoption research and green purchase studies suggest that value-related judgments can strongly reinforce or suppress green intention, especially in price-sensitive and resource-constrained contexts (Lin & Ho, 2011; Yadav & Pathak, 2017).

The third pillar is Institutional Theory. DiMaggio and Powell (1983) argue that organizations do not act in a vacuum; they are shaped by coercive, normative, and mimetic pressures. In green logistics, this means that firms may move toward greener service use not only because of internal conviction, but also because regulators, major customers, industry peers, and broader business norms create pressure to do so. This logic has been widely used in green supply chain research, where institutional pressure often appears as an antecedent of environmental practices and sustainability-oriented behavior (Geng et al., 2024; Zhu & Sarkis, 2007). In the Vietnamese context, institutional pressure is particularly relevant because firms are increasingly embedded in export-oriented and compliance-sensitive networks.

The fourth pillar combines Dynamic Capability reasoning with the Technology-Organization-Environment perspective. Capability-based views argue that firms differ in their ability to sense opportunities, reconfigure resources, and implement new practices under changing conditions (Bharadwaj et al., 2013; Hart, 1995). TOE-based thinking similarly emphasizes that technology adoption depends on technological conditions, organizational preparedness, and environmental influences. Applied to green logistics, these perspectives suggest that intention is not enough. Firms also need operational readiness and the digital capability to coordinate with external logistics partners. Accordingly, this paper uses green logistics readiness to capture the internal preparedness of the enterprise and digital integration capability to capture the firm's ability to connect data, systems, and processes with logistics providers in a way that makes implementation feasible (Ghobakhloo, 2020; Le Viet & Dang Quoc, 2023; Nhuong et al., 2026).

4. REVIEW OF MAJOR RESEARCH STREAMS

A first major research stream uses TPB and related behavioral models to explain green intention and green behavior. Paul et al. (2016) show that extending TPB with environmental concern improves explanatory power in green consumption research. Yadav and Pathak (2017) likewise demonstrate that perceived value and willingness-related economic considerations strengthen the explanation of green purchase behavior. These studies are theoretically useful because they establish that green action is not merely a function of awareness; it is mediated by evaluative and intentional mechanisms. At the same time, their empirical setting is predominantly consumer oriented. This limits direct transferability to enterprise logistics decisions, which are often more collective, cost-sensitive, and operationally constrained.

A second stream focuses on green logistics, green supply chain management, and related organizational practices. Lin and Ho (2011) identify technological, organizational, and environmental determinants of green practice adoption among logistics companies in China.

Sureeyatanapas et al. (2018) show that organizational support, financial conditions, and customer pressure influence green initiatives among logistics service providers. Abu Seman et al. (2019) highlight the mediating role of green innovation between green supply chain management and environmental performance, while Karaman et al. (2020) link green logistics performance to sustainability reporting. Geng et al. (2024) further demonstrate that customer pressure does not work in a simple linear way; its effect depends on institutional logics and contextual conditions. Together, these studies provide important insight into green logistics, but they mostly explain internal practices, innovation, or performance from the provider or producer side rather than actual service adoption by enterprise customers.

A third stream emphasizes digital capability, interorganizational learning, and green transformation. Qiao et al. (2023) show that digital capability advantage can improve green supply chain innovation through green supplier and customer learning. Cheng et al. (2024) find that digital capability promotes green innovation both directly and through green supply chain collaboration, while top management's environmental awareness strengthens that relationship. More broadly, digital strategy and digital capability research argues that firms create advantage when they can integrate information resources, processes, and partner relationships into coherent digital business systems (Bharadwaj et al., 2013). This stream is highly relevant to green logistics because the environmental value of logistics services often depends on visibility, traceability, platform connectivity, and coordinated data exchange rather than on isolated technical investments alone.

Vietnam-based research has grown rapidly, but it remains dispersed across adjacent themes. Ngo (2022) examines green market orientation in Vietnamese logistics SMEs and shows its connection with green innovation and organizational performance. Vo and Nguyen (2023) demonstrate that green logistics knowledge and green intellectual capital influence green logistics management practices and performance. Le and Nguyen (2024) find that green customer integration mediates the relationship between green operations and sustainability performance. Tran (2024) shows that green logistics is associated with stronger regional trade outcomes in Vietnam, reinforcing the strategic relevance of this domain. More recent studies add an important digital and organizational layer: Duzgun and Atay (2025) emphasize stakeholder involvement in green HRM-GSCM integration; Pham et al. (2025) highlight the roles of intellectual capital and digital transformation in green logistics practice; Van Hoang et al. (2025) show the strategic importance of digital capabilities in Vietnamese SMEs; and Nhuong et al. (2026) integrate TOE, Institutional Theory, and Dynamic Capability Theory to explain supply chain digitalization in Vietnamese export SMEs.

The cumulative lesson from these streams is clear. The literature has already demonstrated that green decisions are shaped by cognition, economic appraisal, institutional pressure, and organizational capability. However, these strands have not yet been brought together into one coherent model centered on the enterprise user of green logistics services. This is precisely the point at which a conceptual contribution can be made.

5. RESEARCH GAPS AND THE POSITIONING OF THIS PAPER

Based on the literature review, the most meaningful research gaps can be summarized around context, integration, mechanism, implementation, digitalization, and context-specific evidence. Existing studies provide valuable fragments, but they do not yet explain how Vietnamese enterprises move from environmental awareness and economic evaluation to actual green logistics service use. Table 1 synthesizes the main gaps and clarifies how the present paper responds to them.

The core gap is not whether green logistics matters. That question has already been convincingly answered. The real gap lies in explaining when, why, and under what organizational and digital conditions enterprises translate green orientation into actual service adoption. This paper argues that the most productive way to address that gap is to build a model that is simultaneously behavioral, economic, institutional, and implementation sensitive.

Table 1. Main research gaps and the contribution of the proposed paper

Research gap	What the literature currently explains	Why this remains insufficient	How the proposed paper responds
Context gap	Most studies examine consumer green intention, provider-side green logistics, or broad green supply chain practices.	The user-side decision of enterprises that actually purchase and use green logistics services remains underexplored.	This paper places the unit of analysis at Vietnamese enterprises that buy logistics services and treats actual green logistics adoption as the dependent variable.
Theoretical integration gap	Behavioral, economic, institutional, and capability-based explanations are often studied separately.	A fragmented explanation cannot fully capture enterprise logistics decisions, which are simultaneously cognitive, economic, and operational.	The model integrates TPB, perceived benefit-cost logic, Institutional Theory, and Dynamic Capability/TOE reasoning.
Mechanism gap	Many studies report direct effects of environmental concern or external pressure on green outcomes.	Without a clear mechanism, it is difficult to explain why firms may support green ideas but fail to act on them.	Attitude and behavioral intention are modeled as the central sequential mechanism linking antecedents to adoption.
Intention-behavior gap	A substantial part of the literature stops at intention or at internal green practices.	In logistics, implementation often fails because intent must be translated into cross-functional and interorganizational action.	The model explicitly links intention to actual adoption and brings readiness into the implementation stage.
Digitalization gap	Digital transformation is often treated as a background condition or as a direct driver of performance.	This overlooks the possibility that digital capability changes how strongly intention becomes actual behavior.	Digital integration capability is proposed as a moderator of the intention-adoption relationship.
Vietnam evidence gap	Vietnamese studies are increasing but remain scattered across green orientation, knowledge, integration, digital transformation, and performance.	There is still no consolidated enterprise-level explanation of how Vietnamese firms move from green cognition to green logistics service use.	The paper proposes a context-sensitive framework tailored to Vietnamese enterprises and ready for future empirical testing.

6. PROPOSED RESEARCH MODEL

The proposed model treats green logistics service adoption as an enterprise-level use behavior in a business-to-business setting. In this paper, green logistics service adoption refers to the real organizational tendency to choose, prioritize, and maintain logistics services that reduce environmental harm through cleaner transport modes, green warehousing, digital documentation, better routing, and data-enabled coordination. This definition intentionally shifts the focus from general environmental orientation to concrete service use behavior.

Three core antecedents form the left-hand side of the model: environmental awareness, perceived benefits, and perceived costs. Environmental awareness captures the extent to which decision makers recognize the environmental relevance and strategic necessity of greener logistics choices. Perceived benefits reflect expected operational, market, compliance, and reputational gains. Perceived costs capture the financial, technological, and organizational burdens associated with adoption. These three variables are expected to influence firms first through attitude and then through behavioral intention.

Two organizational drivers complement this core logic. Institutional pressure represents the coercive and normative force generated by customers, regulators, supply chain partners, and market expectations. Green logistics readiness captures the enterprise's preparedness in terms of people, processes, systems, and resource availability. Readiness is expected to matter both for intention and for actual adoption because some firms may want to act but still lack the practical capacity to do so.

The final element is digital integration capability. This construct reflects the firm's ability to connect systems, data, workflows, and decision processes with external logistics providers. It is introduced as a moderator rather than as a simple direct predictor because the key issue is not only whether digital capability exists, but whether it enables firms to convert intention into implementation. In green logistics, that is a critical distinction. Two firms may express similarly positive intentions, yet the firm with stronger digital integration can more easily deploy paperless processes, data-based emissions tracking, route optimization, platform coordination, and collaborative planning with logistics partners.

This choice of moderator offers both theoretical and contextual value. Theoretically, it responds to the growing literature on digital capability and green transformation (Cheng et al., 2024; Qiao et al., 2023). Contextually, it fits Vietnam's logistics transition, where the gap between intent and execution is often shaped by the ability to integrate fragmented systems and coordinate across organizations. Compared with generic moderators such as firm size, digital integration capability is more closely aligned with the implementation reality of green logistics services.

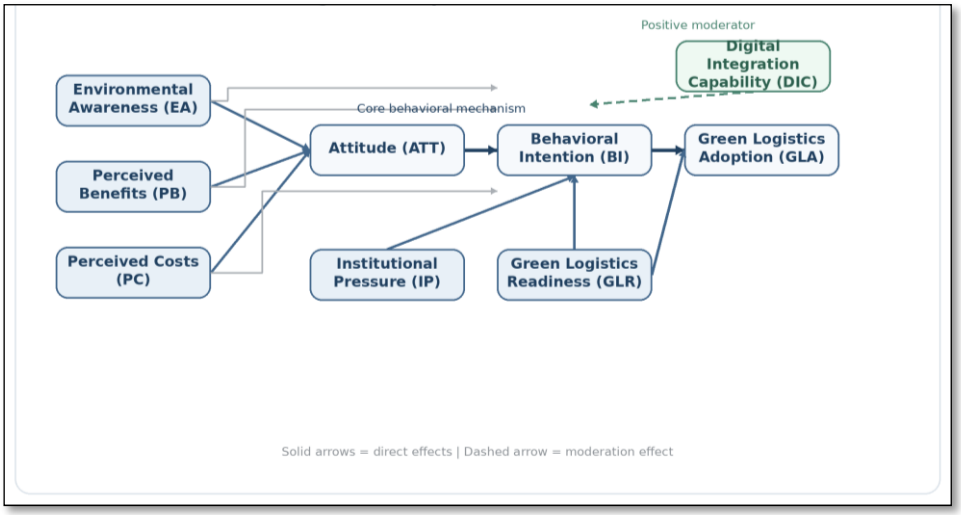

Figure 1. Proposed conceptual model of green logistics service adoption among Vietnamese enterprises

7. HYPOTHESES DEVELOPMENT

7.1. Environmental awareness and attitude/intention

Environmental awareness should strengthen a favorable evaluation of green logistics because firms that better understand environmental risk, customer expectations, and long-term sustainability pressures are more likely to see greener logistics choices as appropriate and strategically relevant. Earlier green behavior studies show that environmental concern and related cognitive variables positively shape evaluative responses and intentions (Paul et al., 2016; Yadav & Pathak, 2017). In organizational contexts, environmental proactivity also tends to emerge when managers recognize environmental issues as strategically consequential rather than peripheral (Gonzalez-Benito & Gonzalez-Benito, 2006; Hart, 1995). Therefore, environmental awareness is expected to improve both attitude and intention.

H1. Environmental awareness positively affects attitude toward the use of green logistics services.

H4. Environmental awareness positively affects behavioral intention to use green logistics services.

7.2. Perceived benefits and attitude/intention

Perceived benefits should reinforce both attitude and intention because firms are more likely to support green logistics when they associate it with operational efficiency, stronger customer relationships, improved export readiness, better reputational positioning, and long-term competitiveness. The literature on perceived value suggests that green behavior becomes stronger when actors see concrete gains rather than symbolic sacrifice (Yadav & Pathak, 2017). In the logistics field, improved green performance has also been linked with corporate goals and broader strategic advantages (Karaman et al., 2020; Sureeyatanapas et al., 2018; Tran, 2024).

H2. Perceived benefits positively affect attitude toward the use of green logistics services.

H5. Perceived benefits positively affect behavioral intention to use green logistics services.

7.3. Perceived costs and attitude/intention

Perceived costs are expected to work in the opposite direction. Even when firms recognize the importance of greener logistics, they may hesitate if adoption appears expensive, technically difficult, risky, or disruptive. Earlier adoption studies show that green practice uptake can be constrained by investment burdens, operational uncertainty, and resource limitations (Lin & Ho, 2011; Sureeyatanapas et al., 2018). In emerging markets, those barriers can be even more salient because many enterprises must balance sustainability goals against cost discipline and short payback expectations.

H3. Perceived costs negatively affect attitude toward the use of green logistics services.

H6. Perceived costs negatively affect behavioral intention to use green logistics services.

7.4. Attitude, intention, and actual adoption

Consistent with TPB, a more favorable attitude should strengthen behavioral intention, and stronger behavioral intention should increase actual adoption. This logic is widely supported in green behavior research, even though the strength of the intention-behavior link often varies across contexts (Ajzen, 1991; Paul et al., 2016; Yadav & Pathak, 2017). In the present study, this mechanism is essential because it clarifies that adoption is not treated as a purely structural outcome but as the result of a process moving from evaluation to commitment and from commitment to behavior.

H7. Attitude positively affects behavioral intention to use green logistics services.

H8. Behavioral intention positively affects green logistics service adoption.

7.5. Institutional pressure and green logistics readiness

Institutional pressure should positively influence intention because firms embedded in compliance-sensitive and customer-driven supply chains often respond to coercive and normative expectations before green action becomes fully internalized. Prior studies show that customer pressure, regulatory pressure, and institutional logics can meaningfully shape green supply chain behavior (Geng et al., 2024; Zhu & Sarkis, 2007). Green logistics readiness should also matter. Firms that

possess the necessary processes, knowledge, resources, and implementation structures are more likely to form realistic intention and more likely to carry out adoption in practice (Holt & Ghobadian, 2009; Le Viet & Dang Quoc, 2023; Pham et al., 2025).

H9. Institutional pressure positively affects behavioral intention to use green logistics services.

H10. Green logistics readiness positively affects behavioral intention to use green logistics services.

H11. Green logistics readiness positively affects green logistics service adoption.

7.6. Sequential mediation

This paper also expects the mechanism from environmental awareness and perceived benefit-cost evaluation to adoption to be largely indirect. In other words, the effects of the three antecedents should flow through attitude and behavioral intention before they become visible as actual use behavior. Mediation is especially plausible in green management research because many antecedents work first by shaping how firms interpret a green option and whether they commit to it before implementation occurs (Abu Seman et al., 2019; Le & Nguyen, 2024). A sequential mediation argument therefore adds theoretical depth to the model.

H12. Attitude and behavioral intention sequentially mediate the relationships between environmental awareness, perceived benefits, perceived costs, and green logistics service adoption.

7.7. Moderating role of digital integration capability

Digital integration capability is expected to strengthen the link between intention and actual adoption. The logic is straightforward: when a firm can digitally connect with logistics providers, share data in real time, coordinate workflows, and integrate operational systems, it faces fewer obstacles in implementing green logistics decisions. Recent research shows that digital capability supports green innovation, collaboration, and sustainable competitiveness (Cheng et al., 2024; Nhuong et al., 2026; Qiao et al., 2023; Van Hoang et al., 2025). Extending that insight, this paper argues that digital integration capability functions as an enabling condition that helps convert declared intention into real service use behavior.

H13. Digital integration capability positively moderates the relationship between behavioral intention and green logistics service adoption such that the relationship is stronger when digital integration capability is high.

Table 2. Summary of proposed research hypotheses

Code	Proposed hypothesis
H1	Environmental awareness positively affects attitude toward the use of green logistics services.
H2	Perceived benefits positively affect attitude toward the use of green logistics services.
H3	Perceived costs negatively affect attitude toward the use of green logistics services.
H4	Environmental awareness positively affects behavioral intention to use green logistics services.
H5	Perceived benefits positively affect behavioral intention to use green logistics services.
H6	Perceived costs negatively affect behavioral intention to use green logistics services.
H7	Attitude positively affects behavioral intention to use green logistics services.
H8	Behavioral intention positively affects green logistics service adoption.
H9	Institutional pressure positively affects behavioral intention to use green logistics services.
H10	Green logistics readiness positively affects behavioral intention to use green logistics services.
H11	Green logistics readiness positively affects green logistics service adoption.
H12	Attitude and behavioral intention sequentially mediate the relationships between environmental awareness, perceived benefits, perceived costs, and green logistics service adoption.

H13	Digital integration capability positively moderates the relationship between behavioral intention and green logistics service adoption such that the relationship is stronger when digital integration capability is high.

8. DISCUSSION AND EXPECTED CONTRIBUTIONS

The proposed framework contributes to the literature in three main ways. First, it shifts the focal outcome from general green orientation or internal green practice to enterprise-level green logistics service use behavior. This is theoretically important because service adoption in a business-to-business logistics setting is not equivalent to consumer green purchase intention and not identical to provider-side green initiatives. It involves collective decision making, cost-benefit evaluation, process coordination, and interorganizational implementation.

Second, the model integrates four perspectives that are often treated separately. TPB explains the behavioral mechanism. Perceived benefit-cost logic captures the economic rationality of firms. Institutional Theory explains why enterprises may feel pressure to move even when green preferences are not fully internalized. Dynamic Capability and TOE reasoning explain why some firms can implement what others only intend. This integrated structure is especially useful for studying green logistics in emerging markets where environmental ambition and operational constraint coexist.

Third, the paper contributes to the Vietnamese context by organizing a fast-growing but still fragmented body of evidence into a coherent conceptual agenda. Existing Vietnamese studies have already shown the relevance of green market orientation, green knowledge, customer integration, digital transformation, stakeholder involvement, and green innovation (Duzgun & Atay, 2025; Le & Nguyen, 2024; Ngo, 2022; Ngo, 2025; Pham et al., 2025; Vo & Nguyen, 2023). What this paper adds is an explicit mechanism linking those themes to green logistics service adoption from the enterprise user's perspective.

The managerial implications are also clear. For enterprise managers, the model suggests that green adoption programs should not rely on awareness campaigns alone. They must also build a convincing business case, reduce perceived implementation burdens, and invest in operational readiness and digital connectivity. For logistics service providers, the implication is that greener offerings should be bundled with implementation support, transparent data, measurable service benefits, and easier system integration. For policymakers, the framework highlights the value of standards, incentives, digital infrastructure, and sector-wide coordination mechanisms that reduce the perceived cost and complexity of greener logistics choices.

Because this is a conceptual paper, empirical validation remains a necessary next step. Future research can test the model through survey-based structural equation modeling, compare sectors with different logistics intensity, or examine whether export orientation, ownership type, or supply chain position changes the strength of the proposed relationships. Qualitative case studies may also be useful for refining how firms in Vietnam define green logistics services in practice and how they experience the transition from intention to implementation.

9. CONCLUSION

This paper set out to explain how Vietnamese enterprises may come to adopt green logistics services. By reviewing the contemporary literature and integrating behavioral, economic, institutional, and capability-based perspectives, it argues that green logistics adoption is best understood as a staged process. Environmental awareness, perceived benefits, and perceived costs shape attitude; attitude, institutional pressure, and readiness shape intention; and actual adoption depends not only on intention but also on practical readiness and digital integration capability. The central contribution of the article is therefore not an empirical finding, but a theoretically grounded model and a set of research hypotheses that future studies can test. In a context where Vietnam is simultaneously pursuing logistics competitiveness, environmental transition, and digital modernization, such a model offers a focused and relevant basis for doctoral research as well as for future academic publication. More importantly, it helps clarify that greener logistics adoption will not expand at scale

unless enterprises both want to act and are able to act.

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