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Collaborative Logistics Platforms in the Age of Blockchain: A Business Model in Crisis

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ABSTRACT

In the era of digital transformation, blockchain-based collaborative logistics platforms initially emerged as promising solutions to streamline inter-organizational exchanges. However, several major initiatives have recently faced critical crises, exposing the vulnerabilities of their business models. Addressing this issue, this study explores the factors that led to the collapse of TradeLens, a flagship platform developed by Maersk and IBM. Using stakeholder theory as an analytical framework, the study adopts a qualitative single-case study approach, combining ten semi-structured interviews with industry experts and an in-depth analysis of secondary sources. Thematic analysis reveals five critical dynamics: initial governance imbalances, asymmetric value capture, heightened coopetitive tensions, institutional rigidity, and a cumulative dynamic leading to crisis. The findings enhance the understanding of failures in collaborative blockchain ecosystems, highlighting the need for inclusive governance, equitable value creation, and strong institutional adaptability. From a managerial perspective, the research offers concrete recommendations for the sustainable design of blockchain logistics platforms. It also opens avenues for future research on adaptive governance and stakeholder salience dynamics in distributed digital environments.

Keywords: *blockchain governance, collaborative logistics platforms, stakeholder theory, supply chain digitalization, case study research, platform failure*

1. INTRODUCTION

Digital transformation has become a strategic imperative for the logistics sector, traditionally marked by fragmentation and heterogeneous inter-organizational processes. As highlighted by Rodrigue, the integration of digital technologies is reshaping logistics operations, necessitating a cohesive approach to manage complex supply chains. Hofmann and Rüsch (2017) further emphasize that Industry 4.0 technologies are pivotal in enhancing logistics efficiency and flexibility. In this context, blockchain-based collaborative platforms have emerged as innovative solutions, promising enhanced transparency, optimized traceability, and the dis-intermediation of transactions among stakeholders. Saberi *et al*. (2019) discuss how blockchain technology can revolutionize supply chain management by facilitating real-time monitoring, reducing fraud, and improving sustainability. By establishing a distributed and immutable ledger, blockchain aims to streamline information flows among carriers, ports, freight forwarders, and customs authorities. Theoretically, this should reduce logistical inefficiencies, accelerate transactions, and bolster trust within supply chains.

However, large-scale implementations reveal a more nuanced reality. Recent failures and strategic withdrawals affecting blockchain-based collaborative platforms, such as the closure of the Marco Polo Network and Contour in trade finance, the shutdown of the B3i insurance blockchain consortium, and the discontinuation of multiple port- and corridor-level blockchain pilots in the post-pandemic period, have raised fundamental questions about the economic sustainability and governance of large-scale collaborative blockchain infrastructures. Among the major initiatives that sought to operationalize blockchain-enabled collaboration within real logistics networks, TradeLens, co-developed by Maersk and IBM, stands out as a prominent and widely documented example. This blockchain platform illustrates significant challenges, including stakeholder adoption difficulties, coopetitive tensions, value creation asymmetries, and rigid governance structures. Beyond commonly cited technical or regulatory limitations, the economic viability of blockchain collaborative platforms is increasingly questioned. Despite their technological potential, these initiatives often struggle to establish sustainable business models capable of aggregating a critical mass of participants and generating sufficient network externalities for self-reinforcement.

While the technical capabilities of blockchain have been extensively discussed in the literature (Kouhizadeh, Saberi, & Sarkis, 2021), fewer studies have examined how governance asymmetries, stakeholder misalignments, and institutional rigidities contribute to the fragility of blockchain-based collaborative platforms. Most existing research emphasizes adoption barriers or operational efficiencies but overlooks the relational dynamics that underpin trust, engagement, and value distribution in multi-actor ecosystems. Empirical investigations of blockchain-enabled collaborations at scale also remain limited, particularly those analyzing institutional and governance mechanisms through real-world cases.

This leads to the central question guiding this article: Why do blockchain-based collaborative logistics platforms struggle to establish viable economic models despite their disruptive potential? To address this question, the present study draws on an in-depth qualitative case analysis of the TradeLens project, supported by semi-structured interviews with industry experts and stakeholders directly or indirectly involved in blockchain-enabled collaboration. The analysis is conducted through the lens of stakeholder theory, with the objective of elucidating the dynamics of power, legitimacy,

and value that underpin the observed failure of the collaborative model and of deriving theoretical and managerial insights for the future design of inter-organizational blockchain platforms.

2. LITERATURE REVIEW

2.1 Collaborative Logistics Platforms: A Business Model in Transformation

In a context where efficiency, transparency, and sustainability have become major strategic imperatives for supply chains, collaborative logistics platforms (CLPs) are emerging as an essential evolution (Mutamimah, Alifah, and Adnjani 2023). They are defined as interconnected digital ecosystems that connect various logistics actors (carriers, suppliers, distributors, etc.) to pool resources, optimize flows, and reduce costs (Kamble, Gunasekaran, & Arha, 2019; Treiblmaier 2019; Winkelhaus & Grosse, 2020). Unlike traditional logistics models, where each actor operates in isolation, these platforms promote operational transparency, optimization of available capacities, process automation, and the establishment of shared governance structures (Francisco & Swanson 2018; Yadav & Singh, 2020). This evolution fits within a historical dynamic of digital transformation: during the 1990s-2000s, Electronic Data Interchange (EDI) systems and Enterprise Resource Planning (ERP) marked the first wave of logistics digitalization, albeit confined to proprietary environments (Rodrigue, 2020). The 2010s witnessed the rise of cloud-based collaborative platforms and Software as a Service (SaaS) models, driven by actors such as GT Nexus and Transporeon, facilitating real-time and extended network flow management.

Today, the integration of disruptive technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), and blockchain is seen as a lever to strengthen traceability, automation, and security in logistics exchanges (Saberi *et al*., 2019). However, despite these technological advances, widespread adoption remains challenged by significant technological complexities and organizational barriers (Astuti & Hidayati, 2023). From an economic perspective, CLPs are mainly structured around three dominant models (Y. Wang *et al*., 2019): (1) the SaaS model, where users pay a subscription fee to access the platform's services (e.g., Transporeon); (2) the transactional model, based on usage fees and commissions per operation (e.g., Uber Freight); and (3) the marketplace model, which facilitates exchanges between multiple actors and is financed through intermediation fees or data monetization (e.g., CargoX). Each model presents specific strengths and vulnerabilities: SaaS ensures financial stability but requires a large user base; the transactional model offers flexibility but is highly volume-dependent; while the marketplace model requires balanced governance to maintain user trust (Babich and Hilary, 2020). Nevertheless, despite their potential, CLPs face persistent structural challenges. Resistance to data sharing remains a major barrier, as many actors view their logistics information as a strategic competitive advantage to protect (Manski 2017; Rejeb *et al*., 2021.). Moreover, sector fragmentation and a lack of interoperability between solutions hinder the realization of large-scale network effects (W. Wang *et al*., 2019). High membership costs and uncertainty over return on investment also act as deterrents, particularly for small and medium-sized enterprises. Finally, governance challenges especially the concentration of decision-making power among a few dominant actors can generate distrust among potential participants and undermine the collaborative momentum necessary for the success of these platforms (Treiblmaier, 2019).

In summary, collaborative logistics platforms represent a significant evolution in the logistics sector by fostering better coordination, more efficient resource utilization, and increased supply chain visibility (Guan *et al*. 2024; Nguyen *et al*., 2023). However, their economic viability remains fragile, hampered by structural tensions and incomplete adoption. In this context, a crucial question arises: why, despite the integration of emerging technologies such as blockchain, do collaborative logistics platforms struggle to consolidate a viable business model?.

2.2 A Technology That Raises More Questions Than It Solves?

In response to persistent fragmentation, inefficiencies, and lack of transparency in supply chains, blockchain has emerged as a promising technological enabler for transforming logistics operations (Saberi *et al*., 2019). Built on a distributed, immutable, and shared ledger, blockchain facilitates the secure recording of transactions without requiring centralized intermediaries. The technology offers multiple advantages. It enhances traceability and transparency among stakeholders shippers (Mahyuni *et al*., 2020), carriers, ports, and customs by ensuring that each transaction is securely logged and verifiable (Francisco and Swanson 2018; Kouhizadeh *et al*., 2021). Smart contracts allow automated execution of predefined logistics processes, reducing administrative delays and transaction costs. Additionally, by offering a synchronized shared ledger, blockchain can overcome IT fragmentation and streamline inter-organizational coordination (Treiblmaier, 2019). High-profile initiatives such as TradeLens and VeChain have attempted to showcase these benefits.

However, empirical evidence reveals a more nuanced picture. Pilot implementations have encountered significant structural barriers, including technological complexity, organizational inertia, and resistance to replacing legacy systems (Ran, Shi, & Geng, 2024; Rejeb *et al*., 2021. Despite its decentralized design, blockchain platforms are often governed by dominant actors, generating trust issues. TradeLens, for instance, was widely perceived as controlled by Maersk, leading to reluctance among competitors to participate and ultimately contributing to the platform's shutdown in 2023 (Jovanovic *et al*., 2022).

From an economic perspective, blockchain adoption entails substantial investment in integration, software development, and workforce training (Fosso Wamba, Queiroz, and Trinchera, 2020). For SMEs who form a large share of the logistics ecosystem such costs are rarely justified by immediate return on investment. Unlike SaaS-based platforms that benefit from cost sharing and gradual onboarding, blockchain infrastructures require complex technical customization with high upfront costs. Technical challenges also remain. Public blockchains suffer from scalability and performance limitations, while private or consortium-based platforms risk recentralizing control

(Casino, Dasaklis, & Patsakis, 2019). The lack of unified international standards and persistent legal uncertainty further hinder widespread adoption. Issues surrounding the enforceability of smart contracts, data protection, and legal liability create significant risk for firms seeking long-term integration (Hossain *et al*., 2020).

These constraints raise critical questions: Can blockchain be scaled without inclusive and balanced governance? Are the high implementation costs justified by measurable efficiency gains? Can blockchain truly integrate with existing infrastructures without introducing additional friction (Wang 2019)? Rather than being a self-sufficient disruptive force, blockchain increasingly appears to be a complementary technology, whose success depends on its alignment with other digital innovations (AI, IoT, SaaS) and, more importantly, on the design of transparent, inclusive, and adaptive governance models (Casino *et al*. 2019; Ran *et al*., 2024). Unless stakeholder trust and inter-organizational alignment are achieved, blockchain is likely to remain peripheral in the digital transformation of global supply chains.

2.3 Business Model Crisis in Collaborative Logistics Platforms: A Diagnostic Perspective

Despite the emergence of collaborative logistics platforms (CLPs) and the integration of disruptive technologies such as blockchain, IoT, and artificial intelligence, a structural crisis in their business models is becoming increasingly evident (Jovanovic *et al*. 2022; Rejeb *et al*., 2021.). These platforms, often promoted as enablers of transparency, efficiency, and disintermediation, struggle to secure widespread adoption and sustained engagement across highly fragmented logistics ecosystems.A central vulnerability lies in their dependency on strong network effects. CLPs derive value from the aggregation of diverse actors shippers, carriers, ports, and customs authorities but the heterogeneity of the sector impedes the emergence of a critical mass. The diversity of technological maturity, strategic priorities, and competitive logics among stakeholders creates high coordination costs and inhibits ecosystem consolidation (Babich & Hilary 2020; van Hoek, 2020).

Governance asymmetries further erode stakeholder trust. Many platforms are initiated by dominant players global shipping alliances or digital incumbents who retain control over infrastructure and strategic decision-making (Jovanovic *et al*. 2022; Kouhizadeh *et al*., 2021). Such concentration of authority fosters fears of value capture and data appropriation, particularly among smaller firms, thereby undermining the inclusiveness required for collaborative success (Queiroz and Fosso Wamba 2019; Rejeb *et al*., 2021.). Monetization remains a key challenge. While some CLPs explore subscription-based models or transaction fees, few have achieved revenue streams that are sufficiently robust to support innovation and operational scalability. In an industry characterized by tight margins, uncertain returns and vague value propositions deter participation (Yavaprabhas, Mehrdokht Pournader, & Seuring, 2023). Technological integration adds complexity. The need to interconnect CLPs with legacy systems ERP, TMS, WMS requires substantial investments, technical alignment, and stakeholder training (Queiroz & Fosso Wamba, 2019). These barriers are particularly acute for SMEs, reinforcing digital asymmetries across the ecosystem. Finally, entrenched cultural resistances persist. The logistics industry has long operated under a paradigm of data opacity and competitive protectionism. Concerns over data sovereignty, cybersecurity, and interoperability inhibit the willingness to participate in open collaborative models (Ran *et al*. 2024). Taken together, these structural issues suggest that the crisis of CLPs is not primarily technological, but rather institutional and relational. This view aligns with recent research on platform governance, which highlights that platform viability depends not only on technical infrastructure but also on credible, transparent, and adaptive governance mechanisms (Constantinides, Henfridsson, & Parker 2018; Hein *et al*. 2020; Tiwana, 2014). Without inclusive decision-making, fair value-sharing rules, and trust-building frameworks, platforms are unlikely to scale or endure.

Surprisingly, few studies have explicitly examined the relational architecture of CLPs how governance design, stakeholder salience, and power asymmetries shape collaboration outcomes in blockchain-based ecosystems. Most frameworks focus on adoption barriers, platform typologies, or technical protocols, neglecting the interplay of legitimacy, influence, and value perception that determines stakeholder engagement.

This article addresses this theoretical gap by introducing a stakeholder-theory-based conceptual model that maps how asymmetries in salience, value capture, governance, and adaptability jointly contribute to the fragility of collaborative business models. The next section outlines the theoretical foundations that support this approach.

3. THEORETICAL FRAMEWORK-UNDERSTANDING THE CRISIS OF COLLABORATIVE LOGISTICS PLATFORMS IN THE BLOCKCHAIN ERA: A STAKEHOLDER THEORY PERSPECTIVE

The growing fragility of blockchain-based collaborative logistics platforms (CLPs) requires a theoretical lens that goes beyond technical or operational explanations. These platforms operate within complex, multi-actor ecosystems involving shippers, carriers, ports, customs authorities, and digital providers actors whose interests often diverge and whose power relations are asymmetrical. In this context, Stakeholder Theory (Freeman, 1984) offers a relevant analytical approach to understanding the institutional tensions, coordination failures, and governance breakdowns that undermine platform viability (Donaldson & Preston 1995; Parmar *et al*., 2010).

Rather than treating business model failure as a purely technological mismatch, stakeholder theory frames it as a relational and governance failure, rooted in inadequate inclusion, unbalanced power, and weak accountability mechanisms. Its analytical focus on legitimacy, power, and

urgency helps explain how stakeholder mismanagement leads to disengagement, erosion of trust, and instability in digital collaboration ecosystems. The following analysis combines the foundations of stakeholder theory with recent advances in platform governance, in order to develop a conceptual framework for diagnosing stakeholder misalignments and their role in the structural fragility of blockchain-based collaborative platforms.

3.1 Stakeholder Theory: Foundations, Developments, and Analytical Scope

Stakeholder theory, initially proposed by Freeman (1984), redefines the firm not as a vehicle for shareholder value maximization, but as a nexus of relationships involving diverse actors employees, customers, regulators, suppliers, and communities whose interests must be considered for long-term success. This relational view has gained traction as organizations increasingly operate within interdependent, multi-actor ecosystems.

The theory evolved significantly with Mitchell, Agle, and Wood (1997) typology, which classifies stakeholders based on three key attributes: power, legitimacy, and urgency. This salience model provides a dynamic lens to analyze influence and participation in complex governance environments. It is particularly relevant to digital and decentralized platforms where stakeholder roles are fluid and shaped by technological and institutional shifts (Werner *et al*., 2021).

Donaldson and Preston (1995) further articulated three dimensions of stakeholder theory descriptive, instrumental, and normative thereby grounding it as both an ethical and performance-oriented framework. More recent developments, including the concept of shared value (Prahalad & Ramaswamy, 2004) and participatory governance (Freeman *et al*. 2010), emphasize co-creation, transparency, and resilience in stakeholder engagement.

While criticized for its conceptual breadth and limited operational guidance (Miles 2017), stakeholder theory remains a robust foundation for analyzing governance asymmetries in blockchain-based logistics platforms. Its capacity to illuminate issues of inclusion, power distribution, and legitimacy makes it particularly suited to investigating the institutional tensions that affect collaborative platform viability.

3.2 Stakeholder Salience Applied to Blockchain-Based Logistic Platforms

Building on the conceptual foundation established in the previous section, stakeholder salience theory provides a crucial interpretative lens for analyzing governance fragilities in blockchain-based collaborative logistics platforms (CLPs). In such ecosystems, the uneven distribution of power, legitimacy, and urgency among actors core attributes of salience (Mitchell *et al*., 1997) can destabilize collaborative dynamics and erode the platform's economic viability. In practice, dominant players such as platform initiators or major logistics firms often consolidate decision-making power, while marginalizing smaller yet legitimate actors like SME freight operators, regional ports, or customs authorities. This imbalance distorts value creation processes, weakens trust, and limits participation undermining the network effects necessary for the platform's scalability (Neville & Menguc 2006; Rikken, Janssen, & Kwee, 2019). Moreover, stakeholder salience is not static: it evolves with technological disruptions, institutional reforms, and market shifts. Platforms that fail to recognize emergent urgencies such as regulatory compliance, data integration needs, or changing user expectations develop rigid governance architectures ill-suited to adaptation (Dmytriyev & Freeman 2023; Ølnes, Ubacht, & Janssen, 2017).

Ultimately, the fragility of many CLPs lies less in technical shortcomings than in the mismanagement of stakeholder relationships. Ignoring evolving salience dynamics leads to declining legitimacy, disengagement, and, eventually, the collapse of collaborative value creation. A responsive and inclusive salience management approach is thus essential for ensuring both trust and sustainability in blockchain-based logistics ecosystems.

3.3 Analytical Framework of Power and Influence Relations: Identifying Business Model Vulnerabilities

To better understand the mechanisms underlying the crisis of business models in blockchain-based collaborative logistics platforms, it is essential to adopt a fine-grained framework for analyzing power and influence dynamics. These relationships are not peripheral artifacts; rather, they are central to a platform's capacity to generate shared value, evolve adaptively, and sustain the engagement of key stakeholders (Davidson, De Filippi, & Potts 2016; Dmytriyev & Freeman, 2023).

Building on recent advances in platform governance theory (Ølnes *et al*., 2017), this framework is structured around five interdependent dimensions, each of which constitutes a potential vulnerability when poorly managed. The first dimension relates to the distribution of technical power. In blockchain environments, control over core infrastructure such as validation nodes, source code governance, or interoperability standardsbecomes a major source of power. When this control is concentrated among a few technical initiators, it creates access imbalances, strategic asymmetries, and limits collective innovation, thereby undermining the network effects essential to long-term economic viability (Craglia *et al*., 2021).

The second dimension concerns formal and informal governance. Beyond official structures and statutes, informal dynamics such as tacit alliances, symbolic leadership, or personal networks significantly shape decision-making trajectories. When formal governance frameworks conceal opaque practices or informal dominance, stakeholder trust erodes, reducing active engagement and weakening platform adoption dynamics (Ølnes *et al*., 2017).

A third key axis lies in the creation and appropriation of value. The economic sustainability of a platform depends on its ability to orchestrate value creation across actors while ensuring a fair distribution of benefits. Perceived imbalances in value capture, especially when dominant actors benefit disproportionately, lead to gradual disengagement and reduce transaction density an essential condition for economic viability (Ritala *et al*., 2013)

Data governance is another critical dimension. Blockchain platforms generate new challenges related to data control, sharing, and secondary usage. Unequal access

Table 1 Summary of the Analytical Grid of Power Relations and Associated Risks

Critical Dimension	Risk in Case of Poor Management
Technical power distribution	Technological lock-in, decline in platform attractiveness
Formal and informal governance	Erosion of trust, withdrawal of key stakeholders
Value creation and appropriation	Progressive disengagement, weakening of network effects
Information and data governance	Perceived data capture, breakdown of cooperation
Adaptive capacity and evolutionary governance	Model obsolescence, inability to respond to crises

to or monetization of strategic data reinforces power asymmetries, fuels suspicion regarding the fairness of data exchanges, and undermines trust in the ecosystem (Hastig & Sodhi, 2020).

Lastly, adaptability and evolutionary governance represent a fundamental yet often overlooked factor. In fast-changing technological and regulatory environments, platforms must be able to revise their rules, integrate new entrants, and adjust their governance practices. Rigid governance that fails to incorporate contextual shifts reduces strategic agility and exposes the platform to accelerated obsolescence (Hastig & Sodhi 2020; Van Vulpen & Jansen, 2023).

A combined reading of these five dimensions (Table1) allows for a comprehensive diagnosis of distributed business model vulnerabilities. It also provides the necessary analytical foundation to rethink the design of collaborative blockchain platforms toward greater inclusiveness, resilience, and economic sustainability. In sum, the fragility of blockchain-based collaborative business models arises less from technical limitations than from the persistent failure to balance stakeholder interests, ensure inclusive governance, and adapt to evolving ecosystem dynamics. Sustained viability thus depends on proactive and responsive power management.

3.4 Conceptual Framework Proposition: A Relational Understanding of Blockchain-Based Collaborative Business Model Crises

In light of the preceding analyses, it becomes clear that the crisis affecting the business models of blockchain-enabled collaborative logistics platforms cannot be solely explained by technological limitations or economic inefficiencies. Rather, it originates from a deeper misalignment in the management of stakeholder relationships an issue rooted in asymmetries of power, legitimacy, and engagement. To address this complexity, we propose an integrative conceptual framework grounded in stakeholder theory, aiming to make explicit the relational mechanisms that gradually erode the economic viability of such platforms.

This framework is structured around three interdependent analytical levels, each capturing how micro-level imbalances can escalate into systemic breakdowns when left unaddressed. It builds on foundational insights from stakeholder salience theory (Mitchell *et al*. 1997) ,recent advances in platform governance (Ølnes *et al*., 2017), and contemporary debates on distributed value creation in digital ecosystems (Davidson, De Filippi, & Potts, 2018; Dmytriyev & Freeman, 2023).

Level 1: Stakeholder Salience Management (Micro-Level)

At the micro level, individual stakeholders are characterized by three core attributes: power, legitimacy, and urgency. Misrecognition or mismanagement of these attributes such as the dominance of powerful actors at the expense of legitimate but dependent ones creates early-stage instability. This initial imbalance undermines the platform's ability to sustain equitable and meaningful collaboration, especially when the voices of smaller or less visible actors are systematically marginalized.

Level 2: Relational Dynamics and Structural Tensions (Meso-Level)

At the meso level, these micro-level asymmetries manifest as structural tensions that progressively weaken the inter-stakeholder trust that is fundamental to the platform's network effects. These tensions include:

- Competitive collaboration dilemmas, where actors are required to cooperate while simultaneously protecting strategic interests.
- Uneven value capture, in which dominant stakeholders appropriate disproportionate benefits.
- Governance conflicts between formal mechanisms (e.g., official boards or statutes) and informal dynamics (e.g., symbolic leadership or behind-the-scenes alliances).
- Asymmetric access to information, which exacerbates power imbalances and reduces perceived fairness.

These tensions diminish engagement, erode the incentives for sustained cooperation, and constrain the platform's capacity to scale and adapt.

Level 3: Degradation of the Collaborative Business Model (Macro-Level)

At the macro level, the accumulation of unresolved tensions and relational dysfunctions leads to a systemic degradation of the platform's business model. This manifests in several interlinked ways: The erosion of network value, with declining attractiveness for new entrants and weakening ecosystem participation.

- Adaptive rigidity, reflecting the platform's failure to adjust to regulatory, technological, or market shifts.
- Loss of collective legitimacy, illustrated by the withdrawal of key institutional or strategic partners.
- Progressive economic decline, driven by shrinking transaction volumes, reduced stakeholder engagement, and a collapse in collective innovation potential.

Altogether, this conceptual model (Figure1) highlights a cumulative process in which relational imbalances, rather

than technical constraints, play a decisive role in triggering business model crises. It shifts the analytical lens from a technology-centered interpretation to one focused on governance, inclusion, and adaptive legitimacy as critical conditions for long-term sustainability in blockchain-based collaborative ecosystems.

3.5 Theoretical Propositions: Toward an Analytical Understanding of the Crisis in Blockchain-Based Collaborative Business Model

Building on the conceptual model (Figure1) outlined above, this section develops a series of theoretical propositions that explore how relational dynamics shape the structural fragility of blockchain-based collaborative logistics platforms. Rather than isolated observations, these propositions form part of an analytical narrative linking micro-level stakeholder interactions with macro-level business model vulnerabilities.

The first proposition concerns stakeholder salience. When platforms disproportionately empower dominant actors while overlooking legitimate yet less influential stakeholders such as regional ports or SME freight operators initial governance becomes unbalanced. This early misalignment in salience attributes (namely power, legitimacy, and urgency, as defined by Mitchell *et al*. (1997) weakens trust, undermines inclusive decision-making, and destabilizes the collaborative foundations of the business model.

Proposition 1 (P1): When stakeholder salience attributes are not adequately balanced, collaborative logistics platforms experience early instability that undermines long-term viability.

The second proposition addresses value capture. Blockchain platforms rely on the perception of fair benefit distribution to maintain stakeholder engagement. When dominant actors disproportionately appropriate created value, trust erodes and collaborative incentives weaken. As a result, the ecosystem's transaction density and network effects deteriorate over time (Neville & Menguc 2006; Ritala *et al*., 2013).

Proposition 2 (P2): The disproportionate capture of value by powerful stakeholders undermines cooperation and accelerates the decline of platform viability.

The third proposition explores the effect of competitive tensions. Platforms operating under a logic of coopetition where strategic competitors are asked to collaborate often struggle with underlying rivalries, fear of opportunism, and data sharing reluctance. These tensions fracture trust and limit the platform's ability to achieve critical mass (Neville, Bell, & Whitwell, 2011).

Proposition 3 (P3): Competitive tensions among stakeholders reduce mutual trust and hinder the development of strong network effects essential for platform sustainability.

The fourth proposition relates to adaptive governance. Blockchain platforms must remain responsive to evolving regulatory, technological, and institutional contexts (Davidson *et al*. 2018; Ølnes *et al*., 2017). However, rigid decision-making structures or exclusionary rules often prevent timely adaptation. This rigidity increases the risk of strategic obsolescence.

Proposition 4 (P4): Governance structures that fail to adapt to contextual change expose the platform to strategic obsolescence and reduced stakeholder engagement.

Finally, the fifth proposition highlights the cumulative nature of these dynamics. Salience imbalances, value asymmetries, distrust, and rigidity do not act in isolation; they compound over time, creating a systemic degradation of the platform's legitimacy and performance (Dmytriyev & Freeman, 2023; Van Vulpen & Jansen, 2023).

Proposition 5 (P5): The unresolved accumulation of stakeholder misalignments and governance rigidities leads to a systemic breakdown of collaborative business models.

Together, these propositions offer a relational theory of failure in blockchain-based logistics platforms. They underscore the importance of inclusive, flexible, and transparent governance architectures capable of navigating stakeholder complexity and sustaining collaborative value creation over time.

4. METHODOLOGY

A nuanced understanding of the relational, power-based, and governance mechanisms underlying the crisis of business models in blockchain-based collaborative logistics platforms requires a methodological approach capable of capturing the complexity of intersubjective dynamics. To this end, a qualitative research strategy based on semi-structured interviews was adopted. It targeted experts who were either directly involved with or closely familiar with the TradeLens platform, which is considered here as a paradigmatic case. This choice was intended to gather rich, contextualized, and reflective data, in alignment with the exploratory and explanatory nature of the theoretical propositions developed in this study.

4.1 Research Strategy

This study adopts a qualitative, single-case research design to explore the relational and governance mechanisms underlying the business model crisis in blockchain-based collaborative logistics platforms. Anchored in an abductive and interpretive epistemology, this approach seeks to generate theory from an in-depth, context-sensitive analysis of a revelatory case (Stake & Visse, 2023).

Case Justification – TradeLens as a Paradigmatic Example:

TradeLens, a blockchain-enabled logistics platform co-developed by IBM and Maersk, was selected as a critical case for four main reasons. First, it occupied a pioneering position in the digitization of maritime logistics using permissioned blockchain infrastructure. Second, it involved a complex constellation of stakeholders carriers, port authorities, customs, freight forwarders providing an ideal setting for stakeholder theory analysis. Third, its full lifecycle (2018–2022) allows for a longitudinal examination of business model evolution and breakdown. Finally, it offers strong empirical accessibility through public documentation and expert interviews, facilitating data triangulation and contextual depth (Jovanovic et al., 2022).

Business Model and Governance Configuration:

TradeLens aimed to create value by enabling secure and interoperable data exchange among supply chain actors,

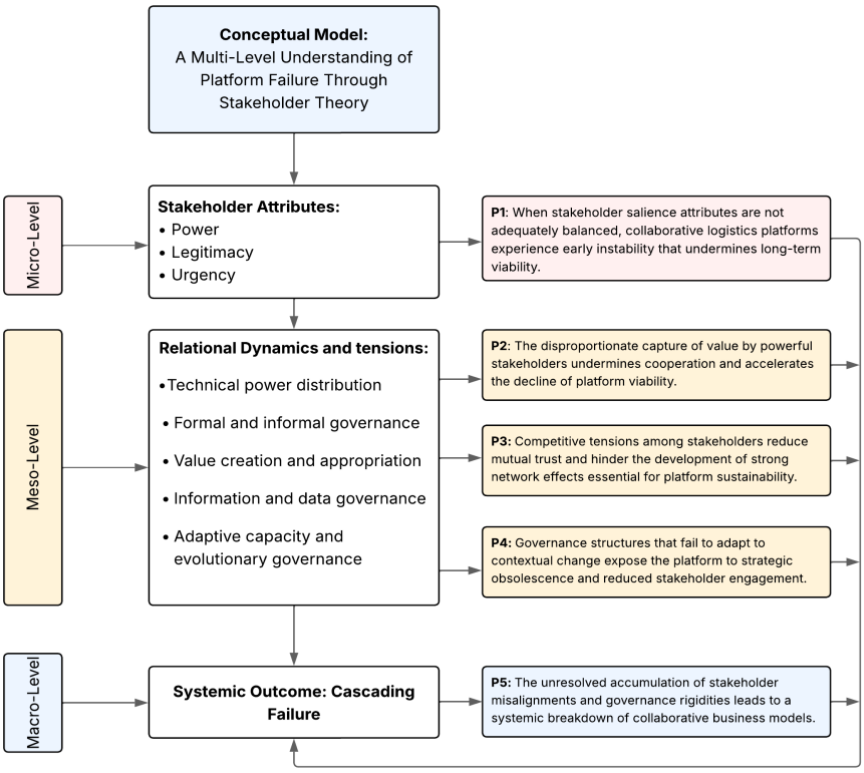

Figure 1 Conceptual Fra*mework Proposition*

with monetization based on membership fees and usage-based pricing. Initially governed by IBM and Maersk, the platform attempted a consortium transition that was perceived as delayed and insufficient. Persistent governance capture by Maersk eroded trust among competitors, limiting adoption and triggering structural disengagement. As such, TradeLens serves as a fertile empirical ground to examine how stakeholder misalignment and governance rigidity can undermine collaborative blockchain ecosystems.

4.2 Qualitative Research Design and Participant Profile

The empirical data collection was based on ten semi-structured interviews with a purposefully selected panel of experts directly or indirectly linked to the TradeLens initiative. Participants were selected according to a purposive theoretical sampling strategy, aiming to capture contrasted positions within the collaborative blockchain ecosystem in terms of power, dependence, and exposure to governance mechanisms. This qualitative approach was designed to capture the relational dynamics, power asymmetries, and governance mechanisms that shaped the platform's evolution and ultimate collapse. Participants were selected to reflect a diversity of roles across operational, strategic, technological, institutional, and academic domains, ensuring complementary perspectives (Table 2).

The number of interviews was determined according to the principle of theoretical saturation: data collection ceased once recurring themes emerged consistently and no new significant insights were being generated. Each interview, conducted via videoconference between March 2024 and March 2025, lasted between 45 and 60 minutes, was recorded with participant consent, and fully transcribed. To guide the inquiry, a semi-structured interview protocol was developed based on stakeholder theory and the salience model (Mitchell *et al*. 1997), covering four main themes: perceptions of power and influence, value creation and distribution, governance structures (both formal and informal), and adaptive capacity.

Data analysis followed an iterative thematic strategy inspired by (Braun & Clarke, 2021), involving open coding, theme consolidation, and theorization aligned with the conceptual model. Additional secondary sources official documents, industry reports, and press coverage were triangulated to contextualize findings and enhance validity. The theoretical propositions developed were not tested in a deductive manner but used as analytical scaffolding (Gioia, Corley, and Hamilton, 2013) to interpret the case study data. This abductive and reflexive strategy aligns with the principles of analytical generalization (Yin 2003), aiming not for statistical representativeness, but for conceptual insight into emergent and complex governance phenomena in digital, multi-stakeholder ecosystems.

The study protocol, including the interview procedure and data collection strategy, received formal approval from a university ethics committee. All participants were informed about the research objectives, their voluntary participation, and their right to withdraw at any time. Oral informed consent was obtained at the beginning of each interview, and no personally identifiable information was collected or disclosed. All data were anonymized during transcription and analysis to ensure confidentiality and compliance with research ethics standards.

Table 2 Profiles of Study Participants

Expert	Anonymized Profile	Primary Domain of Expertise
Expert 1	Blockchain project manager in a global logistics company	Development of collaborative blockchain platforms
Expert 2	Senior executive in a major shipping company	Digital adoption strategies in maritime transport
Expert 3	Senior consultant in digital transformation	Blockchain governance and supply chain integration
Expert 4	IT director of a major port authority	Port system interoperability and blockchain implementation
Expert 5	Innovation manager in a leading European port	Blockchain-driven logistics innovation
Expert 6	Expert in digital customs regulation	International standards and blockchain for customs processes
Expert 7	Analyst specializing in blockchain consortiums	Governance structures and multi-stakeholder coordination
Expert 8	Partnership manager in a global logistics group	Deployment of collaborative blockchain solutions
Expert 9	Academic researcher in decentralized technologies	Governance of digital commons in supply chains
Expert 10	Operations director of a blockchain logistics startup	Business model experimentation with blockchain technologies

5. RESULTS

The analysis of the ten semi-structured interviews conducted with experts who were either directly involved in or closely familiar with the TradeLens project reveals deep-seated structural imbalances within the platform. These qualitative insights, triangulated with secondary sources, strongly validate the relevance of the conceptual framework grounded in stakeholder theory and collaborative governance dynamics.

The findings particularly highlight that the concentration of decision-making power, asymmetries in value capture, and the lack of adaptive governance mechanisms were decisive factors in the progressive failure of the economic model. These dynamics align with the theoretical propositions developed earlier and further enhance the understanding of tensions specific to blockchain-based logistics ecosystems. Moreover, the analysis sheds light on the sequential articulation of these imbalances, suggesting a cumulative dynamic leading to the disintegration of the collaborative model. This section presents the key empirical results in relation to the theoretical propositions, illustrating each mechanism with representative excerpts from the interview corpus.

5.1 Stakeholder Salience Imbalances: Concentrated Power and Contested Legitimacy

A thorough analysis of the interview material reveals a critical initial imbalance in the stakeholder governance structure of TradeLens. From its inception, the project was widely perceived as being dominated by Maersk, the industrial co-founder alongside IBM. This perceived dominance, both on the technical level (control of the blockchain infrastructure and validator nodes) and the strategic level (definition of onboarding conditions, interoperability standards, and value-sharing mechanisms), fostered a strong sense of structural asymmetry within the ecosystem.

The perception of biased governance was clearly articulated by a senior executive from a global shipping company: “It was seen as Maersk’s project, not a neutral initiative… That discouraged other carriers from joining.” (Expert 2). Three main mechanisms of distrust emerged from this perception of imbalance:

- Strategic capture concerns: Several respondents expressed fears that Maersk might exploit the platform to gain access to sensitive competitive data, undermining inter-firm trust.
- Perceived marginalization in decision-making: Intermediate stakeholders, such as port authorities, freight forwarders, and non-founding carriers, felt they had no meaningful influence on the platform’s technological or economic trajectory.
- Reluctance to engage: In the absence of a governance model perceived as open, fair, and neutral, many actors either limited or postponed their involvement, thereby preventing the emergence of the network effects needed for platform viability.

These findings echo the core principles of stakeholder salience theory (Mitchell *et al*. 1997), which posits that sustainable governance requires a balanced recognition of power, legitimacy, and urgency among stakeholders. In the case of TradeLens, the concentration of power in the hands of Maersk was not accompanied by a collectively perceived legitimacy or an equitable acknowledgment of the strategic interests of other ecosystem participants. As a result, the platform failed to establish a collaborative governance structure perceived as fair and inclusive, a prerequisite for building trust within an inter-organizational blockchain ecosystem (Davidson *et al*., 2018). This initial imbalance created a climate of systemic distrust, preventing the formation of a critical mass of users and obstructing the

consolidation path essential to the long-term sustainability of the business model.

5.2 Value Capture and Progressive Disengagement

Following the initial governance imbalance, an additional dynamic emerged that further weakened the platform: the perception of economic asymmetry in value creation and capture. Analysis of the interviews reveals that many stakeholders perceived the value mechanisms within TradeLens as opaque and largely skewed in favor of the founding entities, Maersk and IBM. This sentiment was particularly strong among port and logistics actors, who felt that the economic incentives to join the platform were limited: "They wanted us to share our data, but without clear guarantees on how value would be created for us." (Expert 5). Similarly, several technology adoption leaders highlighted the platform's failure to demonstrate a balanced value proposition: "The prevailing impression was that we were contributing to enriching Maersk's system without receiving equivalent returns." (Expert 8).

Analytically, this situation exemplifies a failure to implement the principles of shared value creation as defined by Porter and Kramer. Their concept emphasizes that businesses can generate economic value in a way that also produces value for society by addressing its needs and challenges. While collaborative ecosystem theory underscores the importance of aligning individual and collective interests, TradeLens failed to establish this balance, leading to a misalignment of incentives.

The observed consequences were multifaceted:

- Reluctance to actively participate: Several experts noted that some registered members deliberately limited their operational involvement on the platform, preferring traditional channels to avoid sharing sensitive strategic information (Expert 2)
- Emergence of alternative strategies: In response, some actors invested in competing platforms or developed their own internal solutions to maintain economic autonomy (Expert 4).
- Weakening of network effects: Without widespread adoption and active engagement, TradeLens failed to trigger the positive externalities essential for consolidating its economic model (Expert 9).

In summary, the asymmetric value capture dynamic exacerbated the structural distrust established during the initial governance phase, fueling a spiral of progressive disengagement characteristic of failures in collaborative platforms with unbalanced governance.

5.3 Heightened Competitive Tensions

Following the stakeholder salience imbalances and asymmetries in value creation, the interviews reveal that the structural paradox of coopetition the need to collaborate among otherwise competing actors generated significant strategic tensions within the TradeLens ecosystem. Although blockchain was initially perceived as a potential enabler of secure cooperation, inter-organizational mistrust progressively prevailed over collaborative logics. Several experts from the logistics sector and digital transformation consulting (Experts 2, 3, and 8) emphasized that collaboration remained largely superficial, often masking protective strategies over commercially sensitive interests. As noted by a partnership manager at a major logistics company: "In theory, we collaborated, but in practice, everyone was protecting their own commercial interests." (Expert 8).

This phenomenon can be explained by several converging factors:

- Perceived asymmetry in governance: The widespread perception of Maersk's control over TradeLens amplified concerns about opportunistic use of shared data.
- Lack of contractual safeguards: Despite blockchain-based access rights and sharing protocols, the technical mechanisms were perceived as insufficiently robust to protect competitive interests (Experts 4 and 7).
- Historical industry rivalries: In the maritime sector, traditionally marked by oligopolistic competition (major shipping lines and strategic alliances), a horizontal culture of collaboration remained underdeveloped and fragile.

From a theoretical standpoint, this dynamic supports prior research on the risks of coopetition in collaborative platforms. Without robust institutional safeguards, collaboration among competitors may degenerate into "negative coopetition," where competitive behavior undermines collective goals (Hänninen, Smedlund, & Mitronen 2018; Ritala *et al*., 2013)

Consequently, persistent inter-firm mistrust:

- Limited the depth of data exchange, which was critical to TradeLens's added value proposition,
- Blocked interoperability standardization efforts, which were necessary to reach a functional critical mass,
- Further fragmented the logistics ecosystem, reinforcing the proliferation of competing and siloed digital solutions.

Rather than serving as a lever for cohesion, unregulated coopetition ultimately undermined the collective dynamics of TradeLens, accelerating the erosion of trust essential to the sustainability of its collaborative business model.

5.4 Governance Rigidity and Adaptive Inertia

The interview findings also highlight a structural rigidity in the governance of TradeLens that hindered its ability to adapt to technological, regulatory, and competitive developments. Although adaptive governance dynamics are widely recognized as critical to the resilience of collaborative blockchain ecosystems (Ølnes *et al*. 2017), TradeLens remained locked into an organizational architecture dominated by its founding entities, which limited its institutional flexibility.

Experts involved in the project's operational and regulatory aspects (Experts 4, 5, and 6) identified several critical shortcomings:

- Limited capacity for onboarding new participants: Admission processes were perceived as complex, opaque, and characterized by asymmetrical decision-making power, which discouraged the entry of independent or institutional actors.
- Rigidity in technological standards: Updates and functional evolutions of the platform required lengthy and centralized approvals, which clashed

with the need for rapid innovation in digital environments.

- Inertia in responding to regulatory pressures: Despite emerging legal requirements for improved logistics traceability, TradeLens demonstrated a limited capacity to quickly integrate these changes into its governance protocols and data architecture.

As one expert in digital customs regulation observed: "TradeLens governance was designed for its initiators, not to evolve with the changing needs of the market and public authorities." (Expert 6). Theoretically, this situation exemplifies an adaptive failure within the ecosystem (Teece 2018), where the absence of procedural flexibility and dynamic reconfiguration capabilities led to a structural freeze, preventing the platform from responding effectively to weak signals and evolving market conditions.

The consequences of this rigidity were manifold:

- Loss of attractiveness to new entrants seeking scalable and responsive solutions;
- Progressive obsolescence of the platform's technological standards;
- Reinforcement of exclusionary perceptions among external stakeholders.

In the medium term, this adaptive inertia effectively locked TradeLens into an ill-suited configuration, accelerating the decline of its collaborative economic model in a rapidly shifting digital and regulatory landscape.

5.5 A Cumulative Dynamic Leading to the Collapse of the Collaborative Model

A cross-analysis of the interview findings reveals that the previously identified factors imbalances in stakeholder salience, asymmetries in value creation, unmanaged competitive tensions, and governance rigidity did not emerge independently. On the contrary, they interacted in a cumulative and mutually reinforcing manner, progressively degrading the collaborative economic viability of the TradeLens platform. Several experts (notably Experts 1, 3, and 7) described a downward trajectory marked by a cascading series of negative effects:

- The initial governance imbalance instilled a structural mistrust toward the platform, limiting the engagement of key strategic stakeholders.
- This mistrust further fueled coopetitive resistance, amplifying the protection of commercial interests at the expense of the anticipated data flows.
- The absence of credible mechanisms for shared value creation exacerbated frustration, leading to a gradual disengagement of participating actors.
- Finally, the platform's inability to adapt its governance structure prevented an effective response to market shifts and efforts to restore trust.

As one blockchain project manager noted: "It was a combination: lack of inclusive governance, distrust over value, inability to evolve… In the end, it was too late." (Expert 1).

This sequence of cascading effects exemplifies what the organizational literature refers to as a negative path dependency, where suboptimal initial decisions combined with structural rigidities progressively undermine the potential for strategic recovery.

In the case of TradeLens, this cumulative dynamic prevented the platform from:

- Reaching a critical adoption threshold required to activate network externalities,
- Building a sustainable collaborative ecosystem based on open and inclusive standards,
- And ultimately, maintaining a self-sustaining business model at an industrial scale.

The platform's official closure, announced in 2022, thus appears as the outcome of a progressive, cumulative, and largely foreseeable failure one characteristic of digital ecosystems founded on poorly governed collaborative models. The thematic analysis of the interviews made it possible to illustrate and qualitatively illuminate the theoretical propositions formulated in the initial conceptual framework. In line with the exploratory nature of this case study, the objective was not to test these propositions in a strictly hypothetico-deductive sense, but rather to interpretatively confront them with the empirical observations drawn from the TradeLens case.

The empirical findings thus revealed:

- Interpretive validation of P1, with the identification of an initial governance imbalance characterized by concentrated decision-making power;
- Support for P2, through the widespread perception of an asymmetric appropriation of value;
- Confirmation of P3, illustrated by intensified competitive tensions hindering information sharing;
- Illustration of P4, through institutional rigidity that limited the platform's adaptive capacity;
- And finally, empirical grounding for P5, via the observation of a cumulative dynamic leading to the collapse of the collaborative business model.

This articulation between theoretical propositions and empirical results reinforces the relevance of the proposed conceptual model, while acknowledging the inherent limitations of an interpretive, single-case research design.

6. DISCUSSION

The examination of the TradeLens case reveals several underlying mechanisms that contributed to the breakdown of its collaborative business model. Anchored in stakeholder theory, the empirical results provide a renewed perspective on how power asymmetries, salience misalignments, and governance shortcomings shaped the platform's evolution. In particular, the results clarify how these governance imbalances translated into limited adoption, insufficient network effects, and ultimately an economically non-viable platform structure. This section discusses these results in relation to the proposed conceptual framework, drawing out their theoretical significance and managerial relevance. Specifically, it explores how the findings refine our understanding of stakeholder dynamics in blockchain-enabled ecosystems, contribute to the broader literature on platform governance, and inform the design of viable business models in coopetitive environments. Finally, it reflects on the study's methodological limitations and proposes avenues for future research. By explicitly linking the governance shortcomings observed in TradeLens to the erosion of network externalities and the absence of scalable

value creation, this discussion contributes to a deeper understanding of the structural fragility of collaborative blockchain initiatives and the conditions required for their sustainability.

6.1 Theoretical Contributions

This study provides key theoretical insights into the governance of blockchain-based collaborative logistics platforms. It confirms the relevance of stakeholder salience theory (Mitchell *et al*. 1997), showing that the concentration of decision-making power exemplified by Maersk's dominant role in TradeLens can erode collective legitimacy. The analysis further extends stakeholder salience theory by highlighting the critical importance of perceived technological fairness, particularly regarding control over the infrastructure and access to strategic data. It also demonstrates that expectations about value distribution, not only realized outcomes, play a decisive role in shaping stakeholder engagement in blockchain ecosystems. Furthermore, the findings enrich the understanding of the coopetition paradox by illustrating how unresolved competitive rivalries and persistent data-governance concerns weaken trust and discourage participation. In addition, the study emphasizes the importance of adaptive governance, revealing that institutional rigidity prevents platforms from adjusting to evolving technological, strategic, and regulatory conditions. Taken together, these elements contribute to a cumulative failure model that links governance imbalances, competitive tensions, disengagement dynamics, and systemic rigidity, offering an integrative explanation for the structural fragility of blockchain-based collaborative ventures.

6.2 Managerial Implications

Insights from the TradeLens case provide valuable managerial guidance for the design and governance of blockchain-based collaborative logistics platforms. First, it underscores the need for inclusive governance structures, requiring platform initiators to establish mechanisms that ensure meaningful participation from all stakeholder categories, particularly those with limited bargaining power. Transparent rules and explicit recognition of minority interests are essential for fostering legitimacy and preventing marginalization. Second, value creation and distribution mechanisms must be clearly articulated and perceived as equitable. Stakeholders need to identify tangible and fairly allocated benefits from their involvement, supported by transparent economic models and safeguards against potential opportunistic behavior from dominant actors. Third, coopetitive tensions require active management. Trust among competitors cannot be assumed; it must be supported through differentiated data-access systems, clear principles for ethical data use, and, when necessary, neutral arbitration mechanisms to ensure fair data governance. Fourth, institutional adaptability is crucial. To remain viable in evolving technological and regulatory environments, platforms must regularly review their governance rules, integrate new stakeholders in a structured manner, and maintain a flexible technical architecture. Failure to adapt exposes the platform to strategic obsolescence. Overall, the sustainability of blockchain-based collaborative platforms depends on four interrelated pillars, namely inclusive governance, fair value sharing, active trust management in coopetition, and institutional adaptability. The erosion of these pillars, as illustrated by TradeLens, ultimately contributed to the platform's collapse.

6.3 Study Limitations

The present qualitative single-case design entails several limitations that should be acknowledged to contextualize the study's contributions. First, the retrospective nature of the interviews may introduce biases, as participants' recollections are shaped by their roles, affiliations, and post hoc interpretations. While their insights are rich, they remain subjective and potentially selective. Second, focusing solely on the TradeLens platform restricts the generalizability of findings. Though it offers a highly relevant case, the conclusions drawn are analytically transferable rather than statistically representative of all blockchain logistics platforms. Third, despite triangulating primary interviews with secondary sources (e.g., reports, articles, public statements), the lack of access to internal strategic documents may have limited the analysis of deeper governance processes. Moreover, the qualitative design inherently prioritizes depth over breadth, which reinforces analytical rather than statistical forms of generalization. Lastly, stakeholder theory, though well suited to exploring power, legitimacy, and engagement, offers only a partial lens. It may overlook important factors like technological design, regulatory specificities, or cultural barriers to cooperation. Despite these constraints, the study provides a robust empirical basis for understanding governance dynamics in blockchain-enabled collaborations and highlights mechanisms that warrant further investigation across diverse settings.

6.4 Future Research Directions

The TradeLens case underscores several promising avenues for future research on collaborative blockchain platforms. First, comparative case studies could help identify the structural and strategic conditions that enhance or hinder platform viability across different logistics ecosystems. Additional inquiry is needed into institutional mechanisms that support agile governance in coopetitive environments, including flexible rule-making processes and dynamic approaches to stakeholder integration. Moreover, the development of quantitative or mixed-method tools capable of capturing changes in stakeholder salience over time would provide valuable support for strategic governance decisions. Emerging regulatory frameworks, such as the EFTI Regulation and the Data Act, also warrant closer examination due to their potential impact on data-sharing practices and inter-organizational platform models. Finally, longitudinal studies combining interviews, internal documentation, and field observations could offer deeper insights into how blockchain-enabled collaborative ecosystems evolve and adapt over time.

7. CONCLUSION

In the context of the growing development of blockchain-based collaborative logistics platforms, this research has sought to analyze the factors that explain the crisis and eventual collapse of one of the most emblematic initiatives in the field: TradeLens. By mobilizing stakeholder theory as the main analytical framework, the study has demonstrated how governance imbalances, coopetitive

tensions, asymmetries in value creation, and limited adaptive capacity cumulatively weakened the platform. The findings confirm that the success of a collaborative blockchain platform relies not only on technical robustness but more fundamentally on the ability to establish inclusive governance, to sustainably align stakeholder economic incentives, and to actively manage competitive tensions in a constantly evolving environment. In this regard, the study contributes to a deeper theoretical understanding of stakeholder salience dynamics in distributed digital ecosystems, while highlighting the critical role of adaptive governance mechanisms in ensuring the long-term viability of blockchain-based collaborative business models. From a managerial perspective, the lessons learned from the TradeLens case provide concrete recommendations for stakeholders involved in designing such platforms: integrating inclusive governance mechanisms from inception, making shared value creation models explicit, strengthening the protection of strategic data, and developing institutional capacities for agile adjustment. This study nonetheless acknowledges several limitations. The analysis is based on a single case and draws primarily on qualitative and retrospective data. Future research could benefit from comparative multi-case studies, longitudinal investigations, and the development of dynamic stakeholder salience metrics to strengthen and refine the proposed insights. Ultimately, this research offers a critical and nuanced perspective on the promises and pitfalls of collaborative blockchain platforms. It invites scholars and practitioners to move beyond the initial technological optimism and engage in a more strategic reflection on the political, economic, and institutional conditions necessary for their success.

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CONFLICT OF INTEREST

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the Issam Najati, upon reasonable request.

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