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Governing Within Semirigid Limits: Navigating the Centralization–Decentralization Paradox in Blockchain-Based Platforms

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ABSTRACT

Blockchain-based platforms can facilitate data sharing and coordination in interorganizational ecosystems by enabling secure, tamper-evident recordkeeping and streamlined, trust-minimized transactions across organizational boundaries. However, their decentralized architecture may conflict with the centralized control exercised by platform sponsors, giving rise to a centralization–decentralization paradox. This study explores how this paradox unfolds in a large, blockchain-based logistics platform that was ultimately discontinued. Through an in-depth, longitudinal case study, we identify three interrelated governance contradictions—regarding ownership, trust, and growth—that triggered destabilizing oscillations between centralized and decentralized governance modes. We introduce the concept of *semirigid limits* to capture the bounded flexibility within which governance can be made and adapted under such paradoxical conditions. Our findings show that the centralization–decentralization paradox is especially difficult to navigate when strategic boundary conditions—here, industry competition, fragmented coordination, and high interdependencies—are present. Our study contributes to the paradox and governance literature by theorizing how governance contradictions emerge and persist and by identifying the mechanisms that constrain alignment and adaptation. We also offer guidance for managers in regard to addressing the competing demands of centralization and decentralization in interorganizational platforms.

1 | Introduction

Centralization and decentralization present two opposing governance approaches. Centralization promotes organizational efficiency and alignment through hierarchical oversight (Hage and Aiken 1967), whereas decentralization fosters stability and adaptability through distributed authority (Reineke et al. 2025). These approaches thus address different governance demands but can become paradoxically entangled, especially in interorganizational ecosystems where interdependent yet hierarchically independent organizations collaborate to create value but also compete (Niesten and Stefan 2019; Sundaramurthy and

All authors contributed equally to this paper.

Summary

- We identify a centralization–decentralization paradox that emerges when decentralized blockchain technology is introduced into centrally governed platforms.
- We show that this paradox is shaped by three interrelated contradictions: ownership (centralized control vs. decentralized data), trust (sponsor reputation vs. system-based trust), and growth (sponsor-led adoption vs. ecosystem expansion).
- We argue that the paradoxical dynamics are more likely to escalate under conditions of high competition, fragmented coordination, and strong interdependencies.
- We demonstrate that governance choices under paradoxical conditions are constrained by semirigid limits that are socially constructed yet difficult to change.

Lewis 2003; Thomas and Ritala 2022). This centralization–decentralization *paradox*—defined as "contradictory, yet interrelated elements that exist simultaneously over time" (Smith and Lewis 2011, 382)—becomes salient in many blockchain-based interorganizational platforms (Goldsby and Hanisch 2022; Naef et al. 2024). Promising secure, peer-to-peer coordination without intermediaries, blockchain infrastructure appears to support decentralized governance (Lumineau et al. 2021; Schmidt and Wagner 2019). In practice, though, these platforms are often initiated by dominant firms that provide the strategic direction, technical expertise, and financial resources required for implementation while retaining significant control (Zhan et al. 2025). This contradiction presents a critical theoretical and practical dilemma: How can interorganizational platforms reconcile opposing governance demands that are simultaneously necessary yet difficult to integrate?

Extant research offers insights into both sides of the centralization–decentralization paradox but typically treats them as discrete or sequential choices. The platform literature emphasizes the benefits of centralized control by sponsors who serve as orchestrators by setting rules, managing participation, and ensuring alignment across users (Chen et al. 2021; Hunt et al. 2025). Conversely, blockchain studies highlight the advantages of decentralized governance in terms of transparency, trust, and distributed coordination (Hastig and Sodhi 2020; Hsieh and Vergne 2023; Schmidt and Wagner 2019; Zhao et al. 2022). However, most scholarship assumes that one model eventually dominates or evolves from the other (Cennamo et al. 2020; O'Mahony and Karp 2022), offering limited insight into what happens when both logics coexist. These hybrid designs, which are often found in blockchain-based platforms, generate persistent governance frictions that are not well theorized, especially in contexts where collaboration occurs without a formal hierarchy and where competitive dynamics further strain alignment (Provan and Kenis 2007; Radaelli et al. 2024; Shipilov and Gawer 2020).

To enhance understanding of the centralization–decentralization paradox, we conduct a longitudinal case study of ClearChain (pseudonym), a blockchain-based logistics platform codeveloped by a global shipping company and a technology provider. Drawing on 66 interviews and extensive archival material, we examine how governance contradictions emerged, escalated, and ultimately contributed to the discontinuation of the platform. Our analysis identifies three interrelated contradictions at the heart of the centralization–decentralization paradox: ownership, where the envisioned decentralized data control conflicts with the platform's exclusive sponsorship; trust, where blockchain's promise of system-based trust is questioned by the reliance on sponsor reputations; and growth, where the sponsor's strong network enables early adoption but ultimately delimits broader platform expansion. These interrelated contradictions triggered governance oscillations that created uncertainty and weakened the commitment of ecosystem members. We develop a conceptual model and theoretical propositions that explain when and why such contradictions can lead to governance instability, particularly under conditions of intense competition, fragmented coordination, and high interdependencies. Our findings reveal that while adjustments between governance poles are possible, they are constrained by *semirigid limits* that bound the space for organizational adaptation.

This study makes three contributions. First, we contribute to paradox theory by introducing the concept of *semirigid limits*, which define the negotiable yet bounded space within which governance decisions can be made and adapted, but not fully reconciled (Poole and van de Ven 1989; Smith and Lewis 2011; Sundaramurthy and Lewis 2003). This contribution enriches our understanding of persistent contradictions in multistakeholder systems, challenging optimistic views of "both/and" strategies as universally viable (Krautzberger and Tuckermann 2024). Second, we advance platform governance research by theorizing the mechanisms through which contradictory governance demands interact and potentially jeopardize platform continuity (Cennamo et al. 2020; Chen et al. 2021; Naef et al. 2024; Schmeiss et al. 2019). In doing so, we move beyond identifying empirical tensions to clarify the *strategic boundary conditions* (Busse et al. 2017; Pereira et al. 2019) under which the centralization–decentralization paradox likely escalates, namely, strong competition among ecosystem participants, fragmented coordination, and high interdependencies. We demonstrate how such conditions limit governance adaptability and amplify the effects of paradoxical situations. Finally, by focusing on a large-scale digital governance solution that was discontinued, we offer a rare and instructive perspective in operations management on the limits of digital transformation (Angelopoulos et al. 2023; Barbieri et al. 2021; Holmström et al. 2019).

2 | Theoretical Background

2.1 | Paradox Theory

Paradox theory has emerged as a powerful conceptual lens for explaining contradictory, interdependent, and persistent situations faced by organizations (Lewis and Smith 2022). Paradoxes consist of distinct and oppositional elements that inform and define one another and for which there is no reconciliatory resolution (Jarzabkowski et al. 2013). Paradox theory thus challenges traditional management theories that advocate for clear choices between conflicting demands, such as those found in contingency theory (Smith and Lewis 2011). Paradoxical situations occur along a broad spectrum of organizational phenomena, including profit versus social responsibility, conformity versus attention to

detail, and collaboration versus control (Deeds Pamphile 2022; Miron-Spektor et al. 2011; Sundaramurthy and Lewis 2003). These situations are so ubiquitous that scholars have argued that successful management relies on identifying and analyzing paradoxes and finding suitable responses (Kocabasoglu-Hillmer et al. 2023).

Paradox scholars have described paradoxes as "messy phenomena," and have called for research on the relationships and dynamics within paradoxes (Schad et al. 2016). Although these contradictions must be addressed simultaneously (Smith and Lewis 2011), scholars have developed several methods to do so (Poole and van de Ven 1989). Early research suggested that managers take an "either/or" approach to paradoxes, addressing the tensions at each "pole" to limit the risk of being trapped and focusing on one side (Thornhill and White 2007). More recently, scholars have argued that a "both/and" approach, which attempts to address tensions at either end of the paradox simultaneously to find synergies, is more appropriate (Smith and Besharov 2019). However, Krautzberger and Tuckermann (2024) critique the limitations of the "both/and" approach and the assumption that it is superior to the "either/or" approach. Instead, they argue that there are times when each approach is appropriate and that it is critical to understand the context in which each paradox is embedded rather than seeking generic solutions.

Given the intricacies of paradoxes, the prevailing view in the literature is that pragmatism offers the best chance of success by enabling organizations to adopt a flexible, context-specific approach that accounts for the nature of the paradox, the inherent features of the organization, and the specific sociomaterial context of the organization (Hahn and Knight 2021). Understanding organizational phenomena through a paradox lens acknowledges the dilemmas that managers often face in responding to conflicting demands that defy resolution. Building on this perspective, operations management scholars have increasingly applied paradox theory to examine topics ranging from foundational areas such as lean operations (Erthal et al. 2021) to emerging fields such as Industry 4.0 technologies (Dieste et al. 2022). Responding to calls for further research on contextualized paradox theory (e.g., Kocabasoglu-Hillmer et al. 2023), particularly in underexplored domains such as platform governance (Davies et al. 2021) and digital transformation (Angelopoulos et al. 2023), we seek to advance understanding of how platform sponsors manage a digital platform under paradoxical governance conditions.

2.2 | Centralization–Decentralization Paradox in Blockchain-Based Platforms

One particularly salient paradox—relevant across organizational contexts—exists between *centralization* and *decentralization*. Centralization involves concentrated authority, which typically promotes organizational efficiency and accountability (Hage and Aiken 1967). In contrast, decentralization features distributed authority, which often enhances local responsiveness and inventiveness (Eklund 2022; Lee 2024). Both approaches thus have distinct benefits but also limitations. More specifically, centralization offers a clear "chain of command" but can suffer from information overload and organizational rigidity, whereas decentralization fosters adaptability but may result in redundancies and diminished alignment (Reineke et al. 2025). Scholars have documented this challenge across a range of contexts, including strategic alliances, project management, and platform ecosystems (e.g., Albers et al. 2016; Joseph et al. 2016; Kretschmer et al. 2022; Vedel and Geraldi 2023).

Platform governance, which must address the competing demands of multiple actors, is inherently vulnerable to the centralization–decentralization paradox because platforms embed a distributed, market-like structure—such as app developers selling to users—within a hierarchical organization that retains ultimate control over access, rules, and coordination (e.g., Apple governing the iOS App Store). In traditional platforms, the sponsor (typically the owner) plays a central role in governance, acting as the focal intermediary that orchestrates interactions among participants (O'Mahony and Karp 2022). This central position grants platform sponsors considerable influence over the platform and its stakeholders (Lv and Schotter 2024; Rahman et al. 2024). For instance, platform sponsors are responsible for organizing exchanges, establishing rules, and overseeing interactions (Chung et al. 2024; Zhang et al. 2022). Additionally, they define participation requirements, enforce control mechanisms, and set incentives for users and complementors (Chen et al. 2022). As the platform's "trusted entity" and "court of appeal," sponsors retain primary authority as the network's central "governor" through their control over transactions. Notably, this prominent position does not grant platform sponsors unchecked authority, as their decisions may be resisted if complementors coordinate to challenge and oppose unpopular governance choices (Möhlmann et al. 2021; Ricart et al. 2020).

The introduction of blockchain technology as a means of governing platforms without intermediaries poses a fundamental challenge to the centralized platform model (Trabucchi et al. 2020). Blockchain's decentralized ledger system enables secure, peer-to-peer exchanges through interconnected, encrypted data blocks (Lumineau et al. 2021). With smart contracts, blockchain automates rule enforcement via algorithmic conditions, thus reducing the need for manual intervention and strengthening coordination (Halaburda et al. 2024; Murray et al. 2021). At the governance level, blockchains are useful because they decentralize control (Ziolkowski et al. 2020) and distribute data ownership (Tuladhar et al. 2024; Wang et al. 2021) across ecosystem participants. This allows for enhanced security, data tracking, and speed of contract settlement, which promise significant operational improvements (Kumar et al. 2020). The immutability of records and the ability to trace goods make blockchain particularly attractive in fragmented logistics networks where a central and trusted authority is absent (Ahmed et al. 2022). The decentralization induced by blockchain can also help distribute the benefits of using the platform, thus incentivizing organizations to join and contribute (Zhao et al. 2022).

The specific paradox in our case arises from the incompatibility between platforms' centralized governance and blockchain's decentralized, peer-to-peer structure, leading to significant governance contradictions. The paradox that we study emerges because centralized platform governance cannot coexist with the decentralization and associated benefits enabled by blockchain. In practice, however, these contradictory governance approaches

are often fused: A 2019 study by the University of Cambridge reported that 71% of all enterprise blockchain initiatives were orchestrated by a single founding firm, which fundamentally clashes with the concept of decentralized governance (Rauchs et al. 2019). Research on blockchain governance has started to investigate possible response strategies to this paradox. For example, Goldsby and Hanisch (2022) identify four discrete strategies that allow for varying degrees of decentralization in interorganizational blockchains. Similarly, Naef et al. (2024) highlight the centralization of control allied with the decentralization of oversight as a potential key to success. These perspectives placate platform sponsors' desire to control at the expense of some blockchain benefits, which Sydow et al. (2020, 1) reject, concluding that "to truly leverage blockchain technology, market and institutional actors need to collaborate to overcome the paradox of centrally legitimate, decentralized solutions." Therefore, the coexistence of centralized and decentralized governance raises questions about how effective governance can be maintained and what strategies might resolve these incompatibilities.

The theoretical puzzles emerging from the centralization–decentralization paradox concern various governance dimensions. On the one hand, centralized governance creates strong incentives for the platform sponsor, but the challenge lies in how to effectively distribute these incentives across the ecosystem (Wang et al. 2022). On the other hand, decentralized governance diffuses incentives (Chen et al. 2021), which can lead to a lack of investment in platform maintenance and improvement. Moreover, centralized governance typically locates trust in the platform sponsors, which necessitates that they can be trusted (Karunakaran 2022). In contrast, decentralized governance means that trust resides within the network as a whole (Lumineau et al. 2023), but this "trustless trust" can result in situations where trust erodes altogether (Werbach 2018). Additionally, centralized governance places coordination and control in the hands of a principal organizer (i.e., the platform sponsor), but this centralization means that the fate of the platform becomes closely tied to this organizer's actions and decisions (Kretschmer et al. 2022). If the organizer fails to act in the best interests of the network, the organizer's actions can jeopardize the entire platform. Conversely, decentralized governance distributes coordination responsibilities (Hsieh and Vergne 2023), but this design can lead to inefficiencies and challenges in achieving cohesive action. These opposing forces highlight the complexities and incompatibilities involved in balancing centralization and decentralization within blockchain-based platforms.

3 | Methods

3.1 | Research Design and Case Selection

Our primary objective is to advance theory on the centralization–decentralization paradox in blockchain-based platforms, a theoretically significant phenomenon that remains underexplored. To do so, we adopt a longitudinal single case study design, which is well suited for examining complex organizational processes in depth (Eisenhardt 1989; Voss 2009). The case of ClearChain represents an "extreme" and theoretically rich instance of governance problems in a blockchain-based platform. Most importantly, it reveals contradictions between centralized and decentralized governance that unfolded and escalated over time—capturing dynamic, processual elements likely to be overlooked in comparative or cross-sectional studies (Pinar et al. 2017). Additionally, we gained unusually deep access to internal documents, strategic deliberations, and retrospective reflections from multiple stakeholders, making the case "revelatory" in the sense that it offers insights into governance dynamics that are rarely available to researchers (Yin 2014). In line with process research traditions (Langley 1999), our approach enables fine-grained theorizing about how and why governance contradictions emerge, persist, and ultimately undermine interorganizational collaboration.

Our case, ClearChain, is an interorganizational logistics platform based on blockchain technology that aimed to address inefficiencies and a lack of integration in ocean shipping and ancillary transportation services. ClearChain is an intriguing case for three main reasons. First, ClearChain epitomizes the governance paradox between centralization and decentralization evident in the platform's structure. Initial funding and strategic control were concentrated in two organizations—the platform sponsors Aquatica and BlockCore (both pseudonyms)—despite their decision to use decentralized blockchain technology to share industry data without relying on a centrally controlled database, as the following quote demonstrates: "[I]t as a way of realizing decentralized coordination amongst parties without centralized control" (UID24). Second, although many organizations have adopted blockchain technology for a variety of use cases, ClearChain remains one of the largest attempts to use blockchain for a business case. By mid-2021, nearly 300 organizations were involved in the platform, including more than 10 ocean carriers and more than 180 ports and terminals. Nearly four billion events were tracked across more than 70 million containers, with an estimated 120 paying customers. Third, nearly all empirical cases investigating blockchain in the operations and supply chain literature analyze the successful adoption of this technology (e.g., Baharmand et al. 2021; Brookbanks and Parry 2022; Rogerson and Parry 2020; Ying et al. 2023). Although unforeseen during sampling, ClearChain's abrupt dissolution in 2023 provided a rare opportunity to theorize from a case that was discontinued.[1]

3.2 | Data Collection

From April 2020 to May 2023, three of the authors conducted 66 in-depth, semistructured interviews with respondents associated with ClearChain. Since the interviews took place during the COVID-19 pandemic, they were all conducted online through video conferencing software. The interviewees also shared presentations through these channels via screen sharing, which provided us with rich insights and helped us build a solid understanding of the case. The interviews lasted between 30 and 102 min. All but two interviews were recorded and then professionally transcribed. In the interviews for which we were not granted consent for audio recording, we took extensive notes, including verbatim quotations. Confidentiality was ensured to protect the interviewees and encourage them to speak freely. Our data collection followed three interview guides specific to the respondent organization.[2] The Appendix S1 includes these interview guides for reference. The details of our interviews are presented in Table 1 below.

TABLE 1 | Description of primary and secondary data.

Data sources and identifiers	Details on interviews and archival data
Platform sponsors (*S*) *n* = 19	Technology provider • 16 interviews with the technology provider (BlockCore) • Roles interviewed include a vice president, a senior director, a governance lead, commercial managers, offering managers, and onboarding managers Ocean carrier • 3 interviews with the sponsoring ocean carrier (Aquatica) • Roles interviewed include an onboarding manager, a product manager, and a communication manager
Platform users (*U*) *n* = 37	Shippers/Beneficial Cargo Owners (BCOs) • 5 interviews with shippers/BCOs • Roles interviewed include client representatives and senior managers Inland transport • 1 interview with inland transport • Role interviewed includes a director of network operations and planning Government authorities • 8 interviews with government authorities • Roles interviewed include a blockchain expert, a manager of communications and trade projects, and a director of business transformation Port/terminals • 13 interviews with ports/terminals • Roles interviewed include a director of business intelligence and innovation, a director of strategic technology, and a director of IT and digital Competing ocean carriers • 10 interviews with ocean carriers (competitors of Aquatica) • Roles interviewed include a head of strategy, a director of IT and digital, a global business transformation manager, a senior director of IT, and a director of global e-business
Competing platforms (*C*) *n* = 10	Competing technology providers • 10 interviews with platforms that compete with ClearChain • Roles interviewed include CEOs, a CDO, a founder and managing directors, a manager of operations and technology, and a marketing and customer relations manager
Archival data (*A*) 218 pages	Internal documents • 163 pages • Includes ClearChain solution briefs, messaging frameworks, and enablement for employees Press releases • 4 pages • Includes a ClearChain announcement indicating the public refusal of select ocean carriers to join Media article • 2 pages • Includes an opinion on fair competition in global shipping and ClearChain Newsletters • 25 pages • Includes ClearChain internal newsletters communicating the latest updates to employees and customers Online video presentation • 7 pages (transcribed) • Includes a ClearChain live product demo showcasing the features and functionalities of the solution Podcast • 7 pages (transcribed) • Includes expert commentary on ClearChain's impact on global logistics using blockchain Websites • 10 pages • Includes key content from the ClearChain website, including the decision to terminate the platform

Our case is particularly information rich, given that multiple groups of organizations were associated with ClearChain. Thus, to prepare a holistic representation of the case, we ensured that our interviews covered critical stakeholders of ClearChain: (1) the primary platform sponsors (*S*)—Aquatica and BlockCore; (2) the platform users (*U*), including intermediaries in the supply chain, such as customers (i.e., "beneficial cargo owners"), inland transportation companies, ports and terminals; (3) ocean carriers (including competitors of Aquatica) and government entities, which provided data to the platform in exchange for its use or which used services on the platform in exchange for a fee; and (4) competing platforms (*C*), including any other blockchain technology providers. Figure 1 visualizes the ClearChain ecosystem, while Tables 1 and A2 provide overviews of the interviews conducted and the supporting archival data.

We collected an additional 218 pages of archival data (*A*) from internal documents, media articles, press releases, conference attendance data, presentations, websites, and reports. These archival data were coded, analyzed, and compared with insights from our primary data via data triangulation techniques; a selection of the archival data was included in our findings. For example, one of our codes (B.1) related to the platform sponsors founding a joint venture in a "founder-based" governance mode, which was explained to us by interviewees (e.g., SID1) and which we verified with an online blog post from one of the platform sponsors that detailed the case for "founder-led" blockchain networks (AID12). Table 1 above also presents the rich secondary data that we used for data triangulation. A triangulated data collection strategy was used where we gathered primary data from semistructured interviews and after verifying the secondary case documentation.

We adopted various measures to ensure methodological rigor, as suggested by Barratt et al. (2011). To ensure *construct validity*, we compared different stakeholder perspectives by conducting interviews across various organizations involved with ClearChain. To the greatest extent possible, we conducted multiple interviews within each stakeholder group to capture diverse viewpoints and to further strengthen the robustness of our constructs. To ensure *internal validity*, we involved all four authors in data collection and analysis. This collaborative approach ensured a consistent interpretation of the data and reduced individual biases. To enhance *external validity*, we built on rich secondary sources (e.g., media reports and internal documents) to provide a comprehensive, outside-in description of the ClearChain platform while preserving the anonymity of the case. This approach aligns with Barratt et al.'s (2011) emphasis on generating contextually rich insights for case study research. Finally, we ensured *reliability* by transparently documenting our coding process and developing a clear data structure via ATLAS.ti qualitative software. These measures collectively enhanced the rigor and trustworthiness of our study. A summary of these efforts is provided in Table A1 in the Appendix S1.

3.3 | Data Analysis and Theory Building

3.3.1 | Overview of the Analytical Approach

We adopted an inductive approach to analyze the data and develop theoretical insights, guided by Braun and Clarke's (2006) six-phase method for thematic analysis. This approach has been widely applied in prior qualitative research, including in operations management (e.g., Hastig and Sodhi 2020; Roscoe

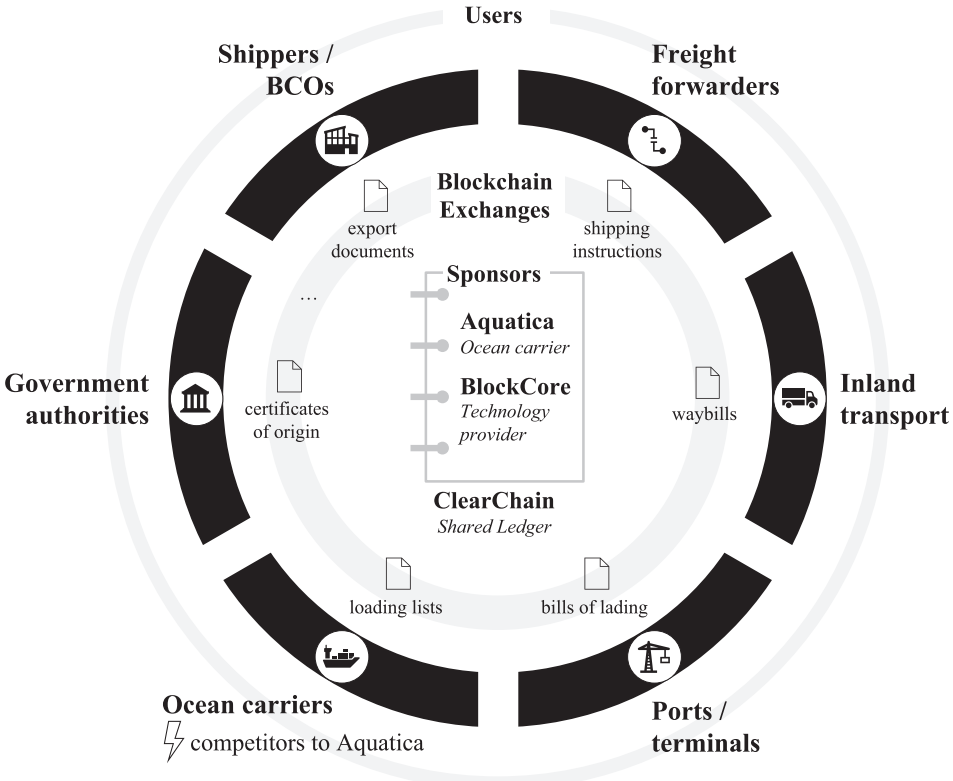

FIGURE 1 | Illustration of the ClearChain ecosystem.

et al. 2019). Braun and Clarke (2006) recommend (1) familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining themes, and (6) writing up the analysis. Given the inherent contradiction between the centralization of platform governance and the decentralization of blockchain governance (Chen et al. 2022; Chen et al. 2021), we used this structured method to identify related patterns and insights. To ensure thorough understanding, three of the authors read and reread the data during the first phase, working individually to avoid premature conclusions. This careful process allowed us to approach the data with fresh perspectives and greater reflexivity, which is particularly critical when analyzing the complexities of paradoxes in governance contexts.

3.3.2 | Coding Process and Theme Identification

In the second phase, the authors individually generated initial codes by highlighting similar statements across the data. To enhance reliability, these codes were retained only if they surfaced in at least two different sources. In the third phase, we began grouping, ungrouping, and regrouping these codes into clusters that we identified as theoretically related (Grodal et al. 2021). This iterative process enabled us to generate early themes, which reflected shared tensions and contradictions in the data. For example, one theme centered on the existence of trust contradictions, as indicated by responses such as "there needs to be some kind of trust before you start on a blockchain project together" and "I'm not sure

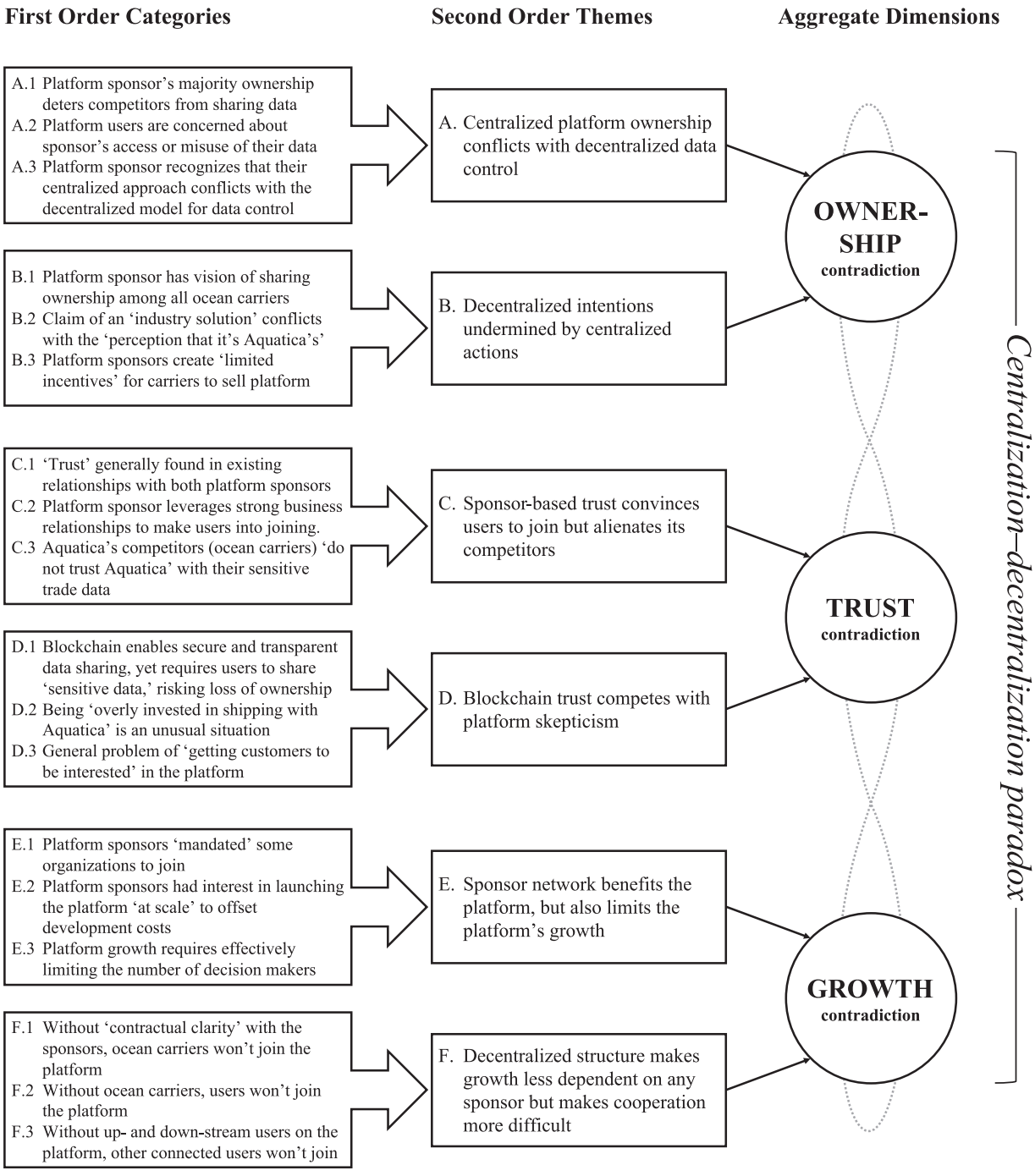

FIGURE 2 | Data structure related to the centralization–decentralization paradox.

if all the carriers really trust them with the data." The themes were then compared and refined collectively by the authors. Although we reached a consensus on most themes, reconciling second-order codes for two of the themes required extensive discussion. These collaborative efforts allowed us to arrive at a set of three abstract themes, which formed the foundation of our analysis.

3.3.3 | Finalizing Themes and Theorizing Paradoxes

The final stages of analysis involved naming the themes and writing up the results. A fourth author, who had not participated in earlier phases, provided an independent perspective to ensure the reliability and validity of the final themes. This external input was instrumental in naming the themes and aligning them with the theoretical constructs. Our approach follows prior research on paradoxes (e.g., Deeds Pamphile 2022; Jarzabkowski et al. 2022), focusing on the fundamental constituents of paradoxes: (1) coexisting contradictions, (2) persistence over time, and (3) their cognitive or social construction (Hargrave and van de Ven 2017; Lewis 2000). Using a longitudinal lens, we traced how latent contradictions sometimes became salient and proved persistent, as suggested by Hahn and Knight (2021). Quotes were grouped into "thick descriptions" (Smith 2014) to highlight nuanced dynamics, enabling us to theorize paradox emergence and evolution over time (Branicki et al. 2022). This dynamic perspective provides a richer understanding of the mechanisms driving dialectical shifts in platform governance (Lindgren et al. 2021). Figure 2 presents our final data structure, including the first-order categories, second-order themes, and aggregate dimensions.

4 | Findings

The themes generated by our analysis provide critical insights into the mechanisms behind the centralization–decentralization paradox in blockchain-based platform governance. By identifying the core contradictions of ownership, trust, and growth, we establish the foundational constructs constituting the broader paradox. Our findings reveal that, although individually manageable, these three underlying contradictions interacted in ways that amplified governance challenges, undermining stakeholder confidence and engagement. This interplay highlights how governance paradoxes destabilize platforms by creating uncertainty and weakening (resource) commitment. Furthermore, we theorize that these dynamics can be amplified by strategic boundary conditions, including industry competition, fragmented coordination, and interdependencies among stakeholders. In the following sections, we elaborate on these constituent parts and relationships in more detail to understand why ClearChain was discontinued despite the general recognition of its benefits.

4.1 | Three Constituent Parts of the Paradox: Ownership, Trust, and Growth

When ClearChain was first introduced, its two principal sponsors, Aquatica and BlockCore, positioned themselves firmly at the helm, reflecting a distinctly centralized governance approach. They sought to revolutionize global trade through a platform that they had independently financed and built. They were convinced that taking decisive action was "a good thing [...] because if we would've first started negotiation before building, then we would've gotten nowhere" (SID3). On the surface, operational successes with "billions of events going through the platform" (SID3) validated the sponsors' approach, but beneath the surface, things began to simmer:

> Aquatica and BlockCore owned the entity, and part of the missing alignment was that they insisted NOT to form a partnership. Some kind of equal partnership. They insisted that THEY would make all the decisions, and they would own it and pay for it.
>
> (UID29)

Tight control extended to the platform's contractual framework. Rather than enabling direct participation, prospective users "have to sign a contract with BlockCore and Aquatica, or with ClearChain" (SID4). This structure positioned ClearChain less as an industry-wide solution and more as an extension of its sponsors' existing operations, deterring broader engagement from potential users who sought a more neutral and "decentralized solution" (SID11). Indeed, many stakeholders held the view that an industry-wide data-sharing platform "has to be decentralized [...] because if it's not decentralized, we're back to the traditional database" (UID27). This foundational tension set the stage for a series of escalating conflicts over time.

4.1.1 | Ownership Contradiction

Tight levels of ownership were accompanied by strong, trusted relationships that Aquatica and BlockCore could leverage across the industry to improve the perception of the platform and to fuel growth. For example, as the sponsors explained, "the majority of, at least, customers and network members *already cooperate* with Aquatica" (SID10). BlockCore had many prior relationships that it built on as well, which is best demonstrated by archival data showing over 300 preselected organizations that BlockCore targeted for ClearChain (AID3; 1617). Finally, the trust placed in sponsors to manage the platform led to an increase in initial growth among parties who were familiar with the platform. As explained by the sponsors, "as part of their prior client relationship, Aquatica just asks them 'friendly' to connect to the platform and as Aquatica is an important client for them, they typically do that" (SID7). Therefore, from the outset, Aquatica and BlockCore chose to pursue a governance mode characterized by *centralization*, where ownership, trust, and growth required the sponsors to be central platform orchestrators. For each consistent part of the paradox (ownership, trust, and growth), Tables 2–4 below highlight further details with substantive evidence to illustrate the various governance conflicts within ClearChain.

4.1.2 | Trust Contradiction

The decision to start ClearChain with a centralized governance model was based on the assumption that the platform could be

TABLE 2 | Supporting quotes for ownership contradiction.

Coding	Supporting quotes
A. Centralized platform ownership conflicts with decentralized data control	• "I'm sure that as long it was labeled as an Aquatica cooperation with BlockCore, Aquatica with 51% share, nobody would give a competitor all his data." (UID13) • "Users could say, 'how can I be sure you don't touch my data. That Aquatica's people don't touch my data.'" (SID5) • "I'm more in favor of the decentralized solution where I control my information, and I control my documents. BlockCore is still a bit in the centralized mode—well, that remains to be seen. But that could be a differentiator, perhaps compared with other platforms that are just emerging." (SID11)
B. Decentralized intentions undermined by centralized actions	• "We've always looked at a foundation governance model, a foundation business model. But our idea has always been that the founders of the platform would be all the (ocean) carriers" (SID3) • "Because from a ClearChain perspective, we could very easily point to the terms of reference that we had with Aquatica and the way that we're building it and everything and we expounded in a very public way that, you know, this isn't an Aquatica thing to the benefit of Aquatica, it's an industry solution, blah blah blah... But trumping all of that sort of rational discussion was just this perception that: It's Aquatica's. And I compete with Aquatica, and why would I do that? It just doesn't feel right." (UID1) • "In my opinion, BlockCore and Aquatica made a big mistake in the way they set up the go-to-market model. And the mistake they made was that in order to maintain their control over their go-to-market model, they forgot about who actually knows the customers. It's the carriers' salesforces. And they left the carriers with only pretty limited incentives to put any efforts to their salesforces actively selling and promoting ClearChain. It's just simply not in the carriers' interest." (SID6)

TABLE 3 | Supporting quotes for trust contradiction.

Coding	Supporting quotes
C. Sponsor-based trust convinces users to join but alienates its competitors	• "You can take very big steps very quickly because you already start out from a position of trust. And there needs to be some kind of trust before you start on a blockchain project together." (CID1) • "So, for example, Aquatica of course is now connecting all their terminal companies. There's a kind of peer pressure because most of the terminals work with Aquatica, Aquatica is the biggest customer for them, so if Aquatica says, 'you join,' they join." (SID3) • "The problem with Aquatica is that they are Aquatica. [...] I'm not sure if all the carriers really trust them with the data [...], or if they want to be in a bus with Aquatica in the driver's seat." (UID5)
D. Blockchain trust competes with platform skepticism	• "A lot of people don't understand blockchain, as you probably have seen. I think that there is an understanding that it's intended to address the trust factor. And I think that that message has resonated pretty well in the marketplace. And I think that the ocean carriers themselves are much more comfortable retaining control of their sensitive trade documents than pushing them onto some central platform. So, I think that it has gone a long way to addressing some of the fundamental trust issues with regard to some of the more sensitive data." (SID9) • "You know, the clients, if anything, just want to see more ocean carriers, and they want to see them right now. It's definitely a platform that until you reach that economy of scale of over 50% of the container traffic, it just doesn't have a ton of value, unless you're overly invested in shipping with Aquatica, which seems like an unusual situation. It's really still an experiment for most end-users." (SID11) • "ClearChain in my view is generally a lot better than anything else that has existed. But because everyone in the market is so used to these promises of 'the next revolutionary supply chain management tool,' they have heard it all before. And now it's like crying wolf. When somebody comes on and there actually is something that is all the lot better, everybody just associates it with their not particularly positive experiences of the past. So, the problem that Aquatica and BlockCore have got is getting customers to be interested in using it." (UID5)

TABLE 4 | Supporting quotes for growth contradiction.

Coding	Supporting quotes
E. Sponsor network benefits the platform but also limits the platform's growth	• "So, having the Aquatica companies in was easy because Aquatica was the launching client, they brought their [terminal names]. Others were difficult to convince. So, that's a challenge. And then the real challenge is in convincing the competitors of Aquatica to join." (SID5) • "A lot of the networks we build are only financially viable if they launch at scale, which makes them so very tough business models to develop." (SID1) • "The moment you choose a foundation governance model, that means that the founders are kind of the platform. If you do not put an advisory board to kind of check or give input that exists of all the other networking parties, because you, of course, cannot start saying, 'we do a foundation model and everybody that joins will become a founder,' because then you'll go nuts." (SID3)
F. Decentralized structure makes growth less dependent on any sponsor but makes cooperation more difficult	• "They've signed up for a letter of intent to join, but in post-negotiations, [as] I call it, there's a lot of things to agree on. For example, 'This IT platform will be important now for us, as well. So, if there's a functionality change, how will we decide? Will it be a majority decision? Will I have a veto right? How do we do this?' And that is just one example." (SID5) • "ClearChain relied on having all the major ocean carriers working together and collaborating and investing equally into this platform, but nobody was pulling their weight and I think this issue went on for several years and Aquatica was almost like the only carrier really pushing toward the development of ClearChain, whereas the other carriers, naturally I guess, would prefer to invest their resources into something that will bring them ahead in the market rather than benefit their competitors." (SID18) • "If not all my partners are on the platform, then there has to be a link to that. But they've just created what they call a client partner. So, if I'm XYZ, a global shipper and I have ABC and CDF supply chain providers that board members we call them, then I would say, 'hey, you can join and just contribute the data I need from you. You don't have to contribute all your data.' So, they are piecing it together in the most logical way there is to do that as they're proving it and gaining confidence in the industry." (SID16)

scaled more quickly in this way. First, the sponsors assumed that the industry was too fragmented and that, as intermediaries, they could bring parties together with a custom-built solution that solved many problems in global trade. In the words of the sponsors, "we have networks that are founder-led, where there is one really strong party, [and] they are going to require everyone else to do it regardless" (SID1). Second, the platform sponsors believed that they had the industry knowledge, disposable capital, and technical capabilities to build such a far-reaching industry solution without outside assistance. Platform users acknowledged that "ClearChain is generally a lot better than anything else that has existed" (UID5), and many saw value in the blockchain foundation, which "gives that authentic and trusted source" (SID16) and promised to reduce disputes and compliance costs by ensuring data authenticity (SID4). The platform's blockchain features aimed to foster trust by anchoring data directly to their origin and offering auditability to regulatory authorities (UID2; SID4).

However, these technological assurances could not offset the deeper trust concerns arising from ClearChain's centralized control structure. While blockchain was seen as a tool for ensuring data accuracy, it did not address the strategic mistrust between competitors, especially over who controlled the infrastructure. As one informant noted, "there is an understanding that blockchain is intended to address the trust factor" (SID9), but this understanding did not extend to trusting the intent of the sponsors. Once ClearChain scaled beyond its initial partners, the value of broader participation declined, as many actors feared data misappropriation: "ocean carriers do not trust them [Aquatica and BlockCore] with the data" (UID5), fearing that "other members on the network might get access [to the data]" (SID16). This strategic mistrust led stakeholders to "contribute the absolute bare minimum" and, instead, to "appropriate ClearChain-generated data" for their own "visibility systems" (SID13). Thus, by retaining privileged positions in the network, the sponsors unintentionally undermined the trust that they sought to build, reinforcing doubts about the platform's strategic intentions and discouraging meaningful engagement by complementors.

4.1.3 | Growth Contradiction

The platform's growth and value proposition depended crucially on broad industry support, which proved to be a limiting bottleneck. The platform conceptually promised an ecosystem where each stakeholder, whether a port, a terminal, a client, or an ocean carrier, could access tailored features based on its role. In doing so, the sponsors believed that they could reap significant financial rewards if they owned and controlled the platform, as they could equally tap into profits shared among otherwise dispersed groups of organizations. As one competing ocean carrier asserted, "Aquatica also had huge ambitions. They thought this was going to make them a huge amount of money" (UID29). By 2021, some ports had begun to disengage from ClearChain, although the reasons remain somewhat unclear. A contributing factor may have been the limited functionality available at that stage of the platform's development. While the platform sponsors had ambitions for

advanced, blockchain-specific features such as a digital bill of lading, these were not yet implemented. As one user put it, "You can't say, 'Pay now, and later we'll give you additional functionalities'" (SID27). This comment reflects a broader concern voiced by some customers who were asked to adopt and pay for a platform whose initial capabilities overlapped with existing tools or freight forwarding services. While sponsors such as BlockCore had the technical capacity to deliver more advanced functionalities, their deployment was delayed by the need to first establish sufficient user adoption to enable end-to-end traceability. Without this critical mass, it proved difficult to justify or scale new features. The platform's growth was further complicated by the dual pressures of needing to expand quickly through Aquatica's commercial networks while managing skepticism from competitors wary of Aquatica's dual role as both platform co-owner and market rival.

4.2 | Governance Oscillations Between Contradicting Centralized and Decentralized Poles

In the ClearChain case, we observed various governance oscillations as the platform sponsors, Aquatica and BlockCore, attempted to address issues arising from various incompatibilities concerning ownership, trust, and growth (see Tables 2–4) but did not fully recognize the centralization–decentralization paradox. These oscillations between centralization and decentralization occurred at different times and with varying intensities and were driven by the uncertainty of the platform owners, who appeared to not have a "clear end goal" (SID10) in mind. As one competitor commented on the challenges of such blockchain projects, "we don't have a recipe written out that's going to guarantee to bake the same thing all over again" (CID1). Governance oscillations occurred as the platform sponsors built on a centralized approach (e.g., a tight ownership structure, relying on trusted relational ties to spur growth), started emphasizing a decentralized model (e.g., a partnership agreement working in collaboration with other ocean carriers, blockchain architecture based on transparency and system trust) and then reverted back to the original centralized approach (e.g., a sales model operated by the ClearChain founders, a blockchain system with central nodes). In the words of a BlockCore onboarding lead, "we've adapted. We've changed our model, not changed our approach, and then incorporated that change and then moved forward" (SID8).

The persistent governance contradictions stemmed from the sponsors' simultaneous need to assert control and promote adoption in a fragmented, competitive industry. However, their reluctance to relinquish control, given their strong investment in the platform, alienated key participants, while decentralized adjustments did not resolve ownership, trust, or growth contradictions. The sponsors were acutely aware of the challenges associated with launching an industry-wide platform of ClearChain's scale, and they recognized the necessity of thorough preparation. One of the sponsors recalled several of these challenges, saying that "because we're doing something new, we're working with blockchain, we're building standards for an industry that doesn't have standards right now, we're transforming how they exchange information with each other, we're breaking down the silos between two organizations that, in some cases, work together, in other cases are competitors with each other" (SID8). In addition, efforts were made to demonstrate that the "benefits of that use case are a common tax" (UID1), even though "they [platform users] all value different things" (SID7), as reflected in internal documents showing seven user groups and the benefits for each of them (AID3, 7). One sponsor described these efforts as exhaustive, stating that "[W]e tried. We tried hard. We went out, and we used every angle that we could" (SID17).

4.2.1 | Ownership Oscillations

Despite "a long history of trials" to determine the best ownership and investment model (SID5), the sponsors felt compelled to adjust the initial centralized model in response to criticism from industry peers, reflecting the sponsors' struggle to reconcile the competing demands on ClearChain's governance model. On the one hand, the platform sponsors wanted to recover their investment rapidly through the platform, which warranted centralized ownership in a joint venture model between the two sponsors. On the other hand, the platform sponsors realized that recouping their investments would be impossible without collaborating with ocean carrier competitors, who would bring in more business through container traffic, which later led to decentralized ownership through an "equal partnership" (UID5). As documented in an internal memo, "responding to industry feedback, BlockCore and Aquatica have revised the approach and are proceeding under a 'collaboration agreement,' which offers greater flexibility and responsiveness to industry feedback" (AID3; 2). This feedback and need for adjustment are epitomized in the following quote, which illustrates the initial deep-seated skepticism of many competing carriers toward ClearChain's ownership model, which in turn proved a major stumbling block for cooperation:

> When Aquatica and BlockCore started, they, in our view and I think in all other carriers' views, made the same mistake as all the others who previously tried to own it and become dominant themselves: 'This is OURS; we're putting investment into it, we should have all the say and want you, [ocean carrier competitors] and other carriers to just use it and pay us to use it.' And we said, 'f*** you.' Of course, we said it more politely than that. Of course, we thought about it, and then said, 'nope.' We're not going to play your game, where you set the rules, where you make all the money.
>
> (UID5)

One notable adjustment was an attempt to modify the original centralized ownership model by granting competing ocean carriers "founder status," which in theory granted them equal say regarding the platform. The switch to a coowned and comanaged platform was an important concession to key industry players, especially some skeptical ocean carriers, as the following quote explains:

> They [Aquatica and BlockCore] realized they have to bring in partners. And then they made a significantly changed offer to give other carriers much more say, and it was much [...] more of a partnership. And that is what broke the dam, as it were, and what made it acceptable for the other carriers to participate.
>
> (UID5)

This change reflected the sponsors' recognition that achieving widespread adoption required active collaboration among key industry players. As one interviewee explained, "ClearChain relied on having all the major ocean carriers working together and collaborating and investing equally into this platform" (SID18). By offering shared ownership and decision-making authority, the sponsors hoped to alleviate concerns about Aquatica's dominance, which discouraged other ocean carriers competing with Aquatica from wanting to make financial contributions.

4.2.2 | Trust Oscillations

In terms of trust, blockchain was heralded as an ideal solution to address the fundamental trust issues between users when sharing data over a digital platform. Blockchain technology emerged as a pivotal force in rebuilding trust through its decentralized, system-based approach. An informant from the main ocean carrier competitors emphasized this point, stating that "Does the fact of having our own node increase our confidence that data will not be accidentally or deliberately misused? Yes, it does increase that confidence" (UID6). Similarly, some ClearChain customers noted that they were able to "trust the [blockchain] system" (UID4), thus enabling them not to spend time conducting manual and burdensome follow-ups with carriers. Even Aquatica's competitors saw the blockchain as a cornerstone for solving salient trust issues in the global trade industry: "Currently, for the problem of sharing data in a manner where you don't have to trust the platform, blockchain solves it the most elegantly" (CID3).

Despite the decentralized architecture of the platform, the platform sponsors maintained central "ClearChain" nodes on the blockchain, which undermined the trust that this architecture was meant to create. As one project manager at ClearChain explained, "they [platform sponsors] utilize what we call the 'ClearChain node.' And they [platform users] use that node versus them paying for their own node, at this point. So, they have transactions on the platform but, again, under the platform node, versus the other foundational carriers are paying to support their own node" (SID14). Retaining central nodes and providing exclusive access to selected user groups to pay for and maintain their own nodes (i.e., foundational ocean carriers) created a semi-distributed system that conflicted with the promised merits of blockchain's decentralized architecture. This spurred concerns that users would have to share their sensitive trade data over a central ClearChain node controlled by a single entity. A manager at a border services organization explained this issue as follows:

> Behind the scenes, both Aquatica and BlockCore actually control the entire platform. So, it's not just a matter of relinquishing some control. If you're a competitor to Aquatica, how comfortable would you be on a platform controlled by your competitor?
>
> (UID17)

These dynamics embedded contradictions at the heart of the platform's trust architecture. While blockchain was intended to build trust through decentralization, the sponsors' continued control over key nodes reproduced the very power asymmetries that the technology was meant to eliminate. This tension between technological promise and governance reality ultimately eroded the confidence of critical stakeholders and weakened the foundation for sustained collaboration.

4.2.3 | Growth Oscillations

The back-and-forth between centralized and decentralized governance was also reflected in the platform's growth strategies. Initially, the growth model was driven by BlockCore and Aquatica. BlockCore perceived impartiality as a technology provider, and its industry contacts became a key asset. For instance, the company leveraged "prior client relationships" (UID7) to "explain the value, the business case" and "the whole technical architecture" (UID5). Similarly, Aquatica was able to leverage its existing industry ties to win early adopters. However, the growth model heavily centered on Aquatica and BlockCore soon turned out to be detrimental to further growth, as the exclusive rights to sell ClearChain to new customers gave the other ocean carriers no incentive to drive the platform's growth themselves. Instead of involving more stakeholders in promoting ClearChain, the market model relied on Aquatica's salesforce to sell a highly complex solution:

> They built up a big salesforce, and it just didn't deliver. To be honest, because if you're selling the wrong thing to the wrong customers, you can be the most brilliant salesperson in the world—you're not going to succeed. So, they then ramped down the salesforce, so sales were then left to the Aquatica line shipping salesforce.
>
> (SID29)

While ClearChain's partnership agreement became more collaborative with regard to ocean carriers, it continued to exclude these carriers from participating in ClearChain's growth and the financial rewards that came with selling the platform. Unsurprisingly, ocean carriers competing with Aquatica considered the sales model of ClearChain deficient, as they had neither the incentives nor the capabilities needed to sell the solution. In the words of an ocean carrier competitor,

> Why on earth should we divert our 1.300 salespeople away from trying to get boxes onto ships, which is what their job is, to be trying to sell this additional thing, which is really quite complicated for a shipping salesperson to understand. It is not selling boxes onto ships from A to B. That's their job, that they know

> how to do. But the argument of how this ability will help you? That's a totally different sell.
>
> (UID29)

Contradicting this centralized sales model that centered on the sponsors, the sponsors had, however, introduced a more decentralized "client–partner model," which allowed ClearChain's existing client base to bring in partners with whom the sponsors did not hold a direct relationship.

> In order to really reach that economy of scale, [...] our clients can bring their partners directly to use the platform for their benefit. Even if that partner may not be, let's say, wanting to contribute broadly to ClearChain, we enable our clients who have business relationships with other partners to bring them in, operating on that client's behalf, to fill that gap that that would otherwise exist.
>
> (SID2)

The client–partner model was an approach especially targeted at freight forwarders, who were at risk of being disintermediated through ClearChain's native functionalities such as container tracking: "We introduced a business model where you could essentially come on to ClearChain and bring your freight forwarder with you" (SID3). However, since the client–partner model lacked financial incentives and depended on an already limited set of initial clients, the sponsors remained predominantly reliant on their own resources to expand the network.

Reliance on the sponsors' networks to drive adoption ultimately became the very delimiter of the platform's growth. By focusing sales efforts on Aquatica and BlockCore, ClearChain unintentionally disincentivized broader participation from other key stakeholders—particularly ocean carrier competitors—who were neither empowered to shape the platform's value proposition nor included in its potential upside. As a result, the growth model reinforced existing power asymmetries and did not generate the collective momentum needed for ecosystem expansion.

4.2.4 | Strategic Boundary Conditions

Fueling the paradoxical dynamics was the fact that the platform was introduced in an environment where strategic boundary conditions amplified the consequences of the sponsors' governance decisions by several orders of magnitude. In this case, the global trade industry was characterized by high competition (e.g., among ocean carriers), fragmented coordination (e.g., using freight forwarders as intermediaries), and interdependencies (as is common in supply chains where large buyers can exert power over smaller sellers). As one stakeholder put it, when "competition grows, there's less collaboration" (UID15), which undermines the very premise of a collaborative platform. In addition, Aquatica's powerful standing in global trade meant that many platform users (e.g., customers, inland transport companies) were dependent on it, which Aquatica could leverage to mandate that certain users join ClearChain. A transport company director told us the following:

> Most people joined ClearChain because they were mandated to do so. Aquatica made it clear: If you want our business, you have to be part of ClearChain. That is how both we and [the railway company] came to the table with ClearChain. Our investment in having our team collaborate with ClearChain and sharing our data stemmed from that mandate. The port operators had a similar experience. They were also mandated: If you want my vessels to call your port, then you must use ClearChain.
>
> (UID15)

The downside of mandating that users join was that it was a strategy that could not be applied to Aquatica's competitors (i.e., other ocean carriers) and that it required the focal sponsor to orchestrate growth in isolation, thus requiring substantial resources and coordinated efforts. Hence, choosing to introduce ClearChain in this competitive, fragmented and interdependent environment with a centralized governance approach enabled early adoption but later alienated competitors, as the sponsors underestimated the bargaining power of key industry players and thus had to assume the entire burden of growing ClearChain.

Finally, the governance oscillations that occurred created uncertainty among users and mistrust among future cosponsors (i.e., other ocean carriers), and further growth became an illusion. Once the original intentions of the sponsors to introduce ClearChain had been communicated to the industry, the sponsors could not reverse the course of events. When the sponsors then started adjusting their strategy and decentralizing platform control, their actions immediately complicated decision-making. The Head of Strategy at an ocean carrier asserted the following:

> It took a year and a half to two years to negotiate the agreement that would be signed by these other carriers with Aquatica and BlockCore, about how the organizational entity would work. And the reason it took two years is because the other carriers thought that what Aquatica and BlockCore had done was not particularly clever. And particularly, the fact that it wasn't a proper partnership.
>
> (UID29)

The governance oscillations between decentralizing the platform and reverting to the sponsors' centralized control to address emerging problems and finance the platform created a paradoxical spiral in which the sponsors were unable to escape, ultimately culminating in the discontinuation of the platform.

4.3 | Platform Discontinuation

Our case study illustrates how oscillations between centralized and decentralized approaches represented attempts to address a fundamental governance paradox. While the interviewees suggested alternative governance structures—such as a co-funded partnership, a nonprofit model, or a consortium—they would not have resolved the centralization–decentralization

paradox. As one informant noted, "We could have built a more open, not-for-profit platform—well, there are plenty of alternatives—and then used this or that company to develop the [platform] solutions" (UD11). However, such alternatives likely would have triggered new tensions. Had the sponsors chosen a decentralized model from the outset, early-stage collaboration might have quickly degenerated into sluggish decision-making and funding challenges owing to diffuse ownership and a lack of clear accountability. As the CEO of a competing blockchain platform (WorldShipper) explained, "One reason blockchain consortia are hard to do: It is very hard to get a critical mass of entities to agree on a course of action consistently. [...] It is very hard to maintain a consistent course of action if you do not have a separate and independent entity to take charge" (CID3). Despite WorldShipper's non-profit structure and avoidance of power imbalances, its governance remained a "work in progress" (CID3).

These challenges underscore the point that ClearChain's initial centralized structure was not inherently flawed—it enabled critical early-stage alignment. As one stakeholder emphasized, "In the beginning, if there is not one party or two that start and push, it just doesn't work. [...] I have not seen a blockchain, yet, without at least a founder model in the beginning" (SID3). However, our data also point to a missed opportunity: ClearChain did not engage critical stakeholders—especially competing ocean carriers—at an early-stage, which hampered trust-building and undermined buy-in. As one executive observed, "The challenge for ClearChain is getting buy-ins from their competitors. So, I don't think they've been able to [...] come up with a value proposition that gives them an edge" (SID16). The absence of these actors in the design phase limited the legitimacy and sustainability of the platform. As one expert explained, "It's really important that you have all of the founding members together when you're doing this to create buy-in [...] and they own this as one group" (SID1). In short, "getting people to get on board" early (SID16) is critical to building trust, aligning incentives, and enabling a governance design that can accommodate paradoxical demands over time.

ClearChain's challenges in navigating competing governance demands were shaped by its inability to manage persistent contradictions amid a complex stakeholder environment. Paradox management in such settings occurs at the intersection of the paradox constituents (here, ownership, trust, and growth), adaptive oscillations (here, between centralization and decentralization), and relevant strategic boundary conditions (here, high competition, fragmented coordination, and high interdependencies). These strategic conditions shaped how governance decisions were interpreted, and they constrained the space for stable arrangements. ClearChain was introduced into an environment where participants had to collaborate without a formal hierarchy while also competing commercially. As a BlockCore sales representative put it, "Even though people are talking about ecosystems, working together and networks, you can see that very soon, competition and money get in the way of vision and networking" (SID3). Over time, concerns emerged that the platform, although technically promising, did not evolve into a truly industry-owned solution. As one observer noted,

> Technically, the solution could be a good platform, but it will require governance that makes it an industry platform and not just a platform for ClearChain and BlockCore. And this is the weakness we're currently seeing in many of these initiatives, as each individual project claims to offer an industry platform that they themselves control. This is selfcontradictory.
>
> (AID6)

Despite numerous attempts by Aquatica and BlockCore to accommodate the demands of (prospective) platform users, ClearChain could not effectively navigate the centralization–decentralization paradox. ClearChain was consistently perceived as an Aquatica-driven solution rather than as a genuine industry solution, which undermined its legitimacy. One interviewee noted how ClearChain operated "as a central database governed by a few big players. Where did the blockchain go? It got lost" (SID15). This perception discouraged platform users from contributing financially to the shared costs, as many believed that their valuable data constituted a sufficient contribution. Moreover, blockchain technology, which is designed to enable decentralization, was viewed by many participants as little more than an alibi. The platform's ownership structure, heavily skewed toward Aquatica and with BlockCore "hosting the system" (UID6), contradicted the decentralized ideals that it purportedly represented. As one digital trade lead with the World Economic Forum stated, "Technology can only take you so far, especially in global trade where relationships and incentives are complex" (AID16).

The tipping point occurred in November 2022, when Aquatica, frustrated with bearing the financial and strategic burden of an industry project that lacked sufficient ecosystem support, unilaterally decided to shut down ClearChain. Not only did this decision take many stakeholders by surprise, but it also confirmed skeptics' fear that Aquatica retained firm control over the platform and, thus, possessed the unilateral authority to terminate it without consultation (Hanisch 2025). As one news outlet reported, "It seemed the platform was having some difficulty in attracting other carriers in the shipping industry, [...] perhaps because it was too closely associated with Aquatica itself" (AID13). The platform users whom we interviewed after discontinuation were astonished by the demise of the platform, as "it was very abrupt, and we all know very little information about it" (UID18). Moreover, scholars who had studied earlier stages of the case "did not expect discontinuation" (AID14), mostly because global shipping is a large market. Scholars have also explained the discontinuation by arguing that large organizations such as Aquatica want to retain control over "their blockchain" (AID15), posing an inherent contradiction to the decentralized nature of the technology. The platform's inherent governance contradictions—namely, retaining versus sharing ownership, creating versus undermining trust, and attracting versus alienating participants—reflected the broader centralization–decentralization paradox that precluded the "optimal governance model" that the sponsors sought but could not obtain.

5 | Discussion

Although platform and operations management research has extensively explored interorganizational governance dynamics, much of this work centers on the centralized control exercised by platform sponsors (Huber et al. 2017; Kretschmer et al. 2022; Rietveld et al. 2020) and network orchestrators (Roehrich et al. 2023; Tannir et al. 2024). In contrast, less is known about what happens when centralized and decentralized governance models coexist and interact. The literature typically treats centralization and decentralization as distinct design choices or sequential stages (Radaelli et al. 2024; Reineke et al. 2025); however, blockchain-based platforms often try to blend elements of both (Goldsby and Hanisch 2022; Naef et al. 2024), leading to friction and instability (Ziolkowski et al. 2020). Our study addresses this theoretical gap by examining how the centralization–decentralization paradox unfolds in an interorganizational blockchain-based platform and identifying both the boundary conditions of the governance contradictions and the mechanisms through which the situation can escalate and culminate in platform discontinuation. In doing so, we offer new insights into how governance contradictions are experienced and managed—or left unresolved—in large-scale interorganizational collaborations.

5.1 | Theoretical Implications for Governance and Paradox Research

First, we use the insights derived from our analysis to develop a systematic and generalizable model (Figure 3) of the centralization–decentralization paradox, showing when and why it can endanger a platform's continuity. Our study can help explain how the centralization–decentralization paradox can lead to platform discontinuation when "pull factors" draw the governance structure toward either centralized or decentralized approaches, neither of which adequately addresses the "inherent tension between the different participant types" (SID7). Blockchain-based platforms often gain early traction through centralized governance where focal sponsors coordinate development, ensure operational alignment, and provide financial resources (Lacity 2018; Tuladhar et al. 2024; Ziolkowski et al. 2020). However, these same factors can spark governance conflicts as platforms mature (Choi et al. 2001). Participants may seek shared ownership while withholding resources, competitive dynamics may hinder collaboration, and lead sponsors may face increasing distrust (Goldsby and Hanisch 2022). These tensions can trigger shifts between centralized and decentralized governance, thus contributing to further governance instability and uncertainty. Our model distills these insights into a conceptual framework that applies not only to blockchain-based systems but also to interorganizational platform governance more broadly.

Figure 3 illustrates the boundary conditions that make the centralization–decentralization paradox difficult to manage. On the one hand, high competition among participants can spur protective behaviors that discourage collaboration, such as data sharing, especially when participants perceive that the "benefits [...] are very narrowly experienced by a small segment of an ecosystem, yet a broad ecosystem requires to be engaged" (UID1). On the other hand, fragmented coordination, which is common in logistics and global trade settings, further reduces the clarity of governance responsibilities and accountability. Finally, interdependencies compound these challenges, as collaboration not only requires aligned incentives but also introduces fears of free-riding, as participants may struggle to perceive individual value from collective efforts: "I give you data, you give me value, but I want also money" (SID5). These dynamics intensify governance instability and reinforce defensive strategies. Although blockchain promises transparency and accountability, these promises are not self-fulfilling; without critical mass and credible governance, the infrastructure cannot overcome misaligned interests. The boundary conditions that surfaced in our study are not limited to our context—they represent structural challenges that are relevant to a wide range of interorganizational arrangements, including consortia (Hacker et al. 2023), strategic alliances (Zeng and Chen 2003), and digital ecosystems (Wareham et al. 2014).

Despite blockchain's potential to stimulate trust through decentralization, it cannot fully compensate for a lack of trust—or outright mistrust—in a platform sponsor. This issue aligns with broader conversations in the literature about achieving optimal trust in interorganizational relationships (Stevens et al. 2015). In many industries, essential participants such as

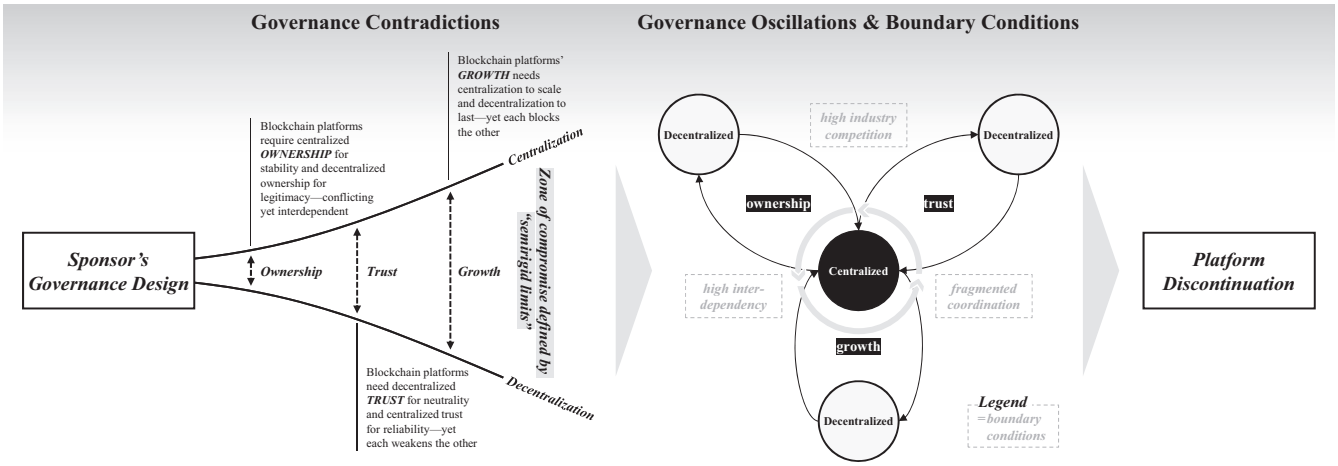

FIGURE 3 | Mid-range theory of governance instability in blockchain-based platforms.

suppliers or service providers are reluctant to share data under a governance model dominated by a single sponsor whom they perceive as a competitor (Huo et al. 2014; Klein and Rai 2009). In the ClearChain case, "from the start, getting Aquatica competitors on the platform was seen as key to make this thing work" (SID7). However, their participation was hindered by concerns over data misuse and unequal influence: "All kinds of mitigations to prevent Aquatica being treated differently from the other ocean carriers... Data access, all kinds of audits, auditing mechanisms have been put in place" (SID7). As a BlockCore operations manager explained, "it really is a 'chicken-and-egg' problem, and that's exacerbated by the fact that it's a network" (SID6). We synthesize these insights into a generalizable proposition that links the governance paradox to platform continuity:

Proposition 1. *The centralization–decentralization paradox cannot be fully resolved. It is particularly likely to lead to platform discontinuation when strategic boundary conditions—specifically, high industry competition, fragmented coordination, and high interdependencies—are present, as these conditions intensify competing governance demands that hinder the emergence of stable governance arrangements.*

Second, our paper contributes to paradox theory by demonstrating how persistent contradictions between centralization and decentralization can destabilize platform governance, particularly in blockchain-based networks. Paradox theory emphasizes that tensions between opposing forces are both interdependent and unavoidable, requiring strategies to accept, confront, and transcend these contradictions (Smith and Lewis 2011). Unlike typical paradox studies that focus on organizational ambidexterity or stability–change dynamics (Schad et al. 2016), our study highlights the unique challenges that blockchain platforms pose in requiring both decentralized *and* centralized governance. This context reveals that governance paradoxes can remain latent but surface as salient issues when stakeholder interests and structural dependencies collide. Our findings extend paradox theory by illustrating how insufficient recognition and tolerance of the centralization–decentralization paradox can create uncertainty, weaken commitment, and inhibit operational effectiveness. This underscores the point that addressing paradoxes requires more than structural balancing—it also requires early stakeholder alignment and coherent trust-building mechanisms. As a governance expert noted, "a problem that I often see is that networks don't really know what they want to be when they 'grow up.' Because the network might be too broad, and it becomes hard to manage" (SID1). By applying paradox theory to platforms with disruptive technologies, our study enriches the understanding of governance paradoxes and highlights the importance of accepting inherent irresolvable contradictions in industry ecosystems and finding stability in paradoxical situations (Putnam et al. 2016; Sugiyama et al. 2024).

In particular, we introduce the concept of *semirigid limits*, which describe the bounded yet flexible space within which organizations can make and adapt governance choices under paradoxical conditions. These limits reflect socially constructed bounds—shaped by power asymmetries, historical decisions, and stakeholder narratives—that constrain paradox navigation. While organizations can move between centralized and decentralized modes, these adjustments provide only temporary relief because the core contradiction remains unresolved. Semirigid limits differ from general flexibility in that they define a contested, negotiated space, not an open field of options. Although such boundaries are not permanently fixed, they cannot be easily redrawn at will without triggering new conflicts or resistance. This bounded flexibility helps explain why paradox responses often stall or oscillate rather than converge. Thus, semirigid limits encapsulate the idea that while paradoxes such as centralization–decentralization impose socially constructed boundaries on (governance) choices, these boundaries ultimately define the negotiable space "in between." Theoretical approaches that rely on "either/or" or "both/and" logics to address paradoxes underestimate the frictions that these limits create (Krautzberger and Tuckermann 2024). This point highlights the bounded flexibility that organizations have in negotiating and framing paradoxical situations. One manager described how these semirigid limits defined the *compromise zone* where negotiations took place:

> Each of the different carriers had different things that were important to them... What ended up happening as an unintended consequence of having them all around the table at the same time was everybody defaulted to the lowest common denominator... You just default to the most conservative case, and everybody does that on all the issues. So, your zone of compromise in the middle gets further and further apart, as each of the issues aren't debated on their individual merit, but they defaulted to the most conservative case, which made things difficult.
>
> (UID1)

The idea of semirigid limits highlights the adaptive bounds that organizations encounter when navigating embedded contradictions and the challenges of disentangling intertwined issues (Pradies et al. 2021; Smith and Lewis 2011). In the ClearChain case, the platform sponsors attempted to identify the optimal governance solution within the perceived bounds of centralized and decentralized governance to accommodate stakeholder pressures. However, these limits were likely too narrowly defined by various stakeholders, making compromise challenging and hindering their ability to develop tolerance for the paradox. Additionally, the oscillation between governance modes introduced further uncertainty and instability; as the governance model evolved, persistent contradictions and changes continued to erode engagement and governance clarity. The adaptive bounds imposed by this semirigidity require blockchain-based platforms to operate within their constraints to achieve "workable certainty" (Lüscher and Lewis 2008), thus creating a liminal space for ongoing sensemaking, adjustment, and compromise without reaching full alignment.

Proposition 2. *Governance under paradoxical conditions operates within "semirigid limits" that define the negotiable yet bounded space within which governance decisions can be made and adapted. When stakeholders fail to recognize and agree on*

these limits, repeated shifts between centralized and decentralized governance approaches can create uncertainty, undermine coherence, and hinder the development of credible and viable governance arrangements.

5.2 | Contributions to Blockchain and Platform Research

Our study advances understanding of how decentralized and centralized governance approaches interact in blockchain-based platforms (Cennamo et al. 2020; Chen et al. 2021). Responding to calls to "investigate the digital governance mechanisms influencing the supply chain actors' participation on a (blockchain-based) digital platform" (Rosca et al. 2022, 1953), we extend discussions in operations management (Marques et al. 2024; Naef et al. 2024) by addressing the governance challenges that blockchain introduces in interorganizational contexts (Jensen et al. 2019; Jovanovic et al. 2022; Lacity 2018). Specifically, our case study challenges the notion that "blockchain governance represents a self-contained and autonomous system of formal rules" (Lumineau et al. 2021, 506). Instead, we demonstrate that traditional, often centralized governance structures remain necessary, as fully decentralized models dilute investment incentives and control over network growth. While blockchain offers generic governance benefits such as improved information processing and lower transaction costs (Halaburda et al. 2024; Schmidt and Wagner 2019; Sternberg et al. 2021; Tuladhar et al. 2024), our findings show that these benefits are insufficient to create the necessary stakeholder alignment in interorganizational ecosystems. The governance contradictions observed in enterprise blockchains are not confined to this specific context; rather, they extend more broadly to decentralized networks. In such networks, governance often recentralizes around powerful actors, such as miners and validators in crypto networks and Decentralized Autonomous Organizations (Goldberg and Schär 2023; Hsieh and Vergne 2023; Zhang and Ramesh 2024; Zhao et al. 2022). As a result, our conceptual model holds relevance for blockchain and platform research more generally.

5.3 | Contributions to the Understanding of Strategic Boundary Conditions

Our analysis of the platform's inability to sustain a stable governance model is linked to several strategic boundary conditions—that is, the "where" and "when" that determine the viability of governance approaches (Busse et al. 2017; Mahdiraji et al. 2023). First, *industry competition* can exacerbate paradoxical situations in which firms are expected to collaborate while simultaneously competing, including through the platform itself. Unlike Tuladhar et al. (2024), who studied a noncompetitive blockchain setting, we find that competition constrained trust and undermined collective commitment. Second, *fragmented coordination* can further erode the collective resolution of paradoxical situations when stakeholders are loosely coupled or are even disinterested in parts of the ecosystem. While combining centralized and decentralized elements may strike a pragmatic balance (Naef et al. 2024), we show that ambiguity in roles and rules inhibits effective orchestration, making paradox management fragile and reactive. Third, *stakeholder interdependencies*—the complexity of aligning diverse and interconnected participants—limited governance flexibility. Differing priorities among actors deterred decentralization and reinforced control by the platform sponsors. These conditions reveal that the coexistence of centralization and decentralization is not simply a design choice; rather, it is a structurally bounded process shaped by the interplay of the strategic tensions inherent in platform ecosystems.

5.4 | Managerial Implications

For managers launching interorganizational platforms—whether blockchain based or not—it is essential to anticipate the centralization–decentralization paradox from the outset and plan proactively for its consequences. Our findings show that unresolved tensions around ownership, trust, and growth can destabilize governance through repeated oscillations. To mitigate this issue, we recommend three practical actions: (1) *Engage key stakeholders early*, especially those with divergent interests, to establish shared ownership and build legitimacy across the ecosystem; (2) *design trust-building mechanisms*, such as transparent decision rights, data access protocols, and shared incentives, to reduce suspicion and promote participation; and (3) *align growth strategies with governance design*, ensuring that those expected to scale the platform have both the incentives and capabilities to do so. These efforts will inevitably be constrained by *semirigid limits*—practical boundaries shaped by prior choices, power dynamics, and partner expectations. Managers should recognize that perfect governance balance is unlikely, and instead, they should pursue *workable certainty* within these limits. Moreover, in highly competitive, fragmented, or interdependent environments, governance adaptations must be especially deliberate, as external conditions will amplify internal tensions. Thus, a governance approach that is characterized by foresight and inclusivity is critical for platform viability.

5.5 | Future Research Opportunities

Our study offers a foundation for a targeted future research agenda that deepens understanding of governance in interorganizational platforms and ecosystems. First, future research could explore the centralization–decentralization paradox in a broader range of platform contexts by using quantitative methods to assess the broader performance implications of governance design, such as governance stability, stakeholder inclusion, and platform survival (Cennamo et al. 2020; Goldberg and Schär 2023). While our findings are grounded in a single case, they yield testable propositions that can be operationalized across multiple network contexts. Second, unpacking how founder characteristics influence blockchain governance would be valuable (Zhan et al. 2025). Our study highlights the role of dominant sponsors, yet firms differ significantly in size, resource endowment, and strategic preferences. These differences likely shape governance choices, stakeholder alignment, and the ability to manage persistent contradictions. Future work could examine how sponsor identity and heterogeneity influence governance trajectories and ecosystem outcomes. A third avenue

relates to the interplay between digital and analog forms of governance (Hanisch et al. 2023). As digital governance increases the scale of collaboration, it may complement—or in some cases replace—traditional governance mechanisms such as contracts, relational trust, and administrative control. Studying how the scalability afforded by digital governance interacts with the increasing complexity of governing larger and more diverse platform networks would be valuable.

6 | Conclusion

Our in-depth study of a large blockchain-based platform sheds light on a critical governance paradox arising from the introduction of decentralized technology into a centralized platform environment. We contribute to both governance and paradox theory by highlighting the semirigid nature of paradoxes and the necessary but often futile governance responses to navigating emerging ownership, trust, and growth contradictions. Regarding theory, our findings extend paradox theory by showing that (sometimes unrecognized) governance contradictions can undermine a platform's stability and how conditions such as competition among ecosystem participants, fragmented coordination, and high interdependencies can amplify these effects. We also advance governance scholarship by theorizing how hybrid governance designs can become unstable when paradoxes are mismanaged. Regarding practice, managers should be aware of the existence of a centralization–decentralization paradox at the outset to address potential conflicts and their operational and governance implications early on. Additionally, managers should understand that mere industry leverage and financial scale do not guarantee success when the latter depends on the cooperation of many stakeholders with divergent interests. Thus, our findings underscore the importance of governance that is characterized by foresight and that balances the respective benefits and challenges of centralized and decentralized governance approaches in regard to achieving strategic and operational goals.

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Endnotes

[1] In Figure A1 of our Appendix S1, we provide a timeline of the key events surrounding ClearChain between its announcement in 2018 and its discontinuation in 2023, and includes available data on the number of platform participants over time.

[2] Six interviews were conducted in French. We translated these interviews into English while preserving the original meaning of the interviewees' quotes.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.