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Declaration

“On my honor as a student of the University of Vienna, I submit this work in good faith and pledge that I have neither given nor received unauthorized assistance on it.”

Signed: (Aleksa Radusinovic)

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About AI usage within this thesis

I acknowledge the use of generative artificial intelligence (AI) tools, specifically ChatGPT (OpenAI), during the preparation of this master's thesis. These tools were used solely as supportive instruments for language editing, improving writing style, grammar and spelling review, summarizing selected sources, assisting in the organization and structuring of certain sections of the thesis, and facilitating the review of relevant literature.

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Abstract

The development of digital platforms has significantly transformed contemporary business organization by shifting economic activity from traditional firm-centered models toward digitally mediated ecosystems based on interaction, interdependence, and value co-creation among multiple actors. Within such environments, governance mechanisms play a central role in coordinating relationships between platform owners and external participants, shaping the functioning, stability, and growth of platform ecosystems. The aim of this thesis is to analyze how governance structures within digital platform ecosystems coordinate relationships between platform owners and platform participants, and to examine how these ecosystems relate to broader concepts of interorganizational networks. The study applies a qualitative research approach based on a semi-systematic literature review, drawing on academic sources related to digital platform ecosystems, platform governance, platform architecture, and interorganizational network theory. The analysis combines conceptual interpretation, thematic analysis, and comparative conceptual analysis, together with an illustrative case application of the Apple App Store ecosystem, to identify dominant governance mechanisms and examine their role in structuring ecosystem relationships in practice. The findings indicate that digital platform ecosystems function as hybrid organizational forms in which coordination is achieved through a combination of formal governance rules, technological architecture, algorithmic mechanisms, access regulation, and strategic balancing between openness and control. While digital platforms share important characteristics with traditional interorganizational networks, they also differ due to the central role of platform owners and the influence of digital infrastructure in shaping participation and coordination. The study concludes that governance mechanisms represent a key organizational link through which digital platform ecosystems coordinate decentralized interactions, regulate participant behavior, and sustain value creation in contemporary digital business environments.

Keywords: digital platform ecosystems; platform governance; interorganizational networks; ecosystem coordination; platform architecture

Abstract

Die Entwicklung digitaler Plattformen hat die moderne Unternehmensorganisation erheblich verändert, indem sie die wirtschaftliche Aktivität von traditionellen, unternehmenszentrierten Modellen hin zu digital vermittelten Ökosystemen verlagert hat, die auf Interaktion, Interdependenz und gemeinsamer Wertschöpfung zwischen mehreren Akteuren basieren. In solchen Umgebungen spielen Governance-Mechanismen eine zentrale Rolle bei der Koordination der Beziehungen zwischen Plattformbetreibern und externen Teilnehmern und beeinflussen so die Funktionsweise, Stabilität und das Wachstum von Plattformökosystemen. Ziel dieser Arbeit ist es, zu analysieren, wie Governance-Strukturen innerhalb digitaler Plattformökosysteme die Beziehungen zwischen Plattformbetreibern und Plattformteilnehmern koordinieren und wie diese Ökosysteme mit breiteren Konzepten interorganisationaler Netzwerke in Beziehung stehen. Die Studie verwendet einen qualitativen Forschungsansatz, der auf einer semi-systematischen Literaturübersicht basiert und sich auf akademische Quellen zu digitalen Plattformökosystemen, Plattform-Governance, Plattformarchitektur und der Theorie interorganisationaler Netzwerke stützt. Die Analyse kombiniert konzeptionelle Interpretation, thematische Analyse und vergleichende Konzeptanalyse sowie eine illustrative Fallstudie des Apple App Store-Ökosystems, um dominante Governance-Mechanismen zu identifizieren und deren Rolle bei der Strukturierung von Ökosystembeziehungen in der Praxis zu untersuchen. Die Ergebnisse zeigen, dass digitale Plattformökosysteme als hybride Organisationsformen fungieren, in denen die Koordination durch eine Kombination aus formalen Governance-Regeln, technologischer Architektur, algorithmischen Mechanismen, Zugangsregulierung und strategischem Ausgleich zwischen Offenheit und Kontrolle erreicht wird. Während digitale Plattformen wichtige Gemeinsamkeiten mit traditionellen interorganisationalen Netzwerken aufweisen, unterscheiden sie sich auch durch die zentrale Rolle der Plattformbetreiber und den Einfluss der digitalen Infrastruktur auf die Teilnahme und Koordination. Die Studie kommt zu dem Schluss, dass Governance-Mechanismen eine zentrale organisatorische Verbindung darstellen, durch die digitale Plattformökosysteme dezentralisierte Interaktionen koordinieren, das Verhalten der Teilnehmer regulieren und die Wertschöpfung in modernen digitalen Geschäftsumgebungen aufrechterhalten.

Schlagwörter: digitale Plattformökosysteme; Plattform-Governance; interorganisationale Netzwerke; Ökosystem-Koordination; Plattformarchitektur

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1. Introduction

1.1 Overview of the Topic and the Core Problem

Over the past decade, the global economy has increasingly moved away from traditional pipeline business models toward more dynamic digital platform ecosystems. Compared to traditional firms that rely on ownership of physical resources and hierarchical control structures, digital platforms function as coordinators of complex networks of independent actors. These actors are developers, service providers, complementors, and users who collectively create value within a shared platform environment.

This transformation has significantly changed the way firms organize economic activity. Instead of internalizing operations, platform owners orchestrate interactions between participants through technological infrastructure and governance mechanisms. As argued by Tiwana (2014) and Jacobides et al (2018), digital platforms function as ecosystems where value creation depends on coordinated relationships between platform owners and external actors.

Nevertheless, this development also creates a theoretical gap between traditional interorganizational networks and digital platform ecosystems. The research on strategic alliances, joint ventures, and business networks has long examined how firms coordinate across organizational boundaries, whereas digital platforms introduce new forms of coordination based on algorithms, digital infrastructure, and platform governance.

The most important issue here is to understand how these governance mechanisms structure the relationship between platform owners and participants. Platforms must balance openness to attract participants with control mechanisms that maintain stability and value creation within the ecosystem. As a result of this, platform management becomes a central element in organizing modern interorganizational networks.

This thesis aims to examine how governance mechanisms coordinate relationships within digital platform ecosystems and explores how these relationships resemble or differ from traditional interorganizational networks.

1.2. Objective and Research Question

In this thesis, the main goal is therefore to analyze in detail how governance structures within digital platform ecosystems coordinate the relationships between platform owners and platform participants. More specifically, the goal is to understand how these governance mechanisms shape interorganizational relationships and ecosystem participation within digital platform ecosystems.

Given that digital platforms do not act as isolated firms but as orchestrators of networks of partners and complementors, examining the relationship between platform governance and interorganizational networks is of great importance and crucial for understanding the functioning of digital ecosystems.

Based on these aims, the core research question guiding this study is: How do governance mechanisms within digital platform ecosystems coordinate relationships between platform owners and platform participants?

In order to support this central question, the study will also explore the following sub-questions:

- What governance mechanisms do digital platforms use to coordinate external actors?
- How does platform ecosystem architecture influence the interaction between platform owners and complementors?
- In what ways do digital platform ecosystems resemble or differ from traditional interorganizational networks?

Through answers to these questions, the goal is to contribute to the understanding of platform ecosystem governance and the role of networks in digital business environments.

1.3 Research Methodology

This thesis is based on a qualitative research approach and applies a semi-systematic literature review as the primary methodological framework. Such an approach is appropriate because the research problem is predominantly conceptual and theoretical in nature, focusing on the relationship between digital platform ecosystems and interorganizational networks rather than on quantitative measurement or statistical testing. The aim of the methodological approach is to examine, interpret, and synthesize existing academic knowledge in order to develop a deeper understanding of governance mechanisms, coordination structures, and actor relationships within contemporary digital platform ecosystems.

A literature review was selected because the research topic integrates several closely related fields, including digital platform ecosystems, platform governance, platform architecture, and interorganizational network theory. This approach enables the systematic examination of relevant literature, identification of recurring theoretical themes, comparison of different perspectives, and development of a comprehensive conceptual understanding of the research problem.

The literature search was conducted through academic databases including Web of Science, Scopus, and Google Scholar. The search process relied on combinations of keywords such as digital platform ecosystems, platform governance, platform architecture, interorganizational networks, platform participants, ecosystem coordination, complementors, and platform ownership. These keywords were selected because they correspond directly to the conceptual focus of the study.

The review primarily focuses on academic literature published between 2010 and the present, reflecting the rapid development of research on digital platforms and ecosystem governance during this period. The inclusion criteria were based on academic relevance, theoretical contribution, focus on governance and coordination mechanisms, and conceptual alignment with digital platform ecosystems or interorganizational networks. Sources lacking direct relevance to the research objectives, duplicate publications, non-academic materials, and studies with limited theoretical contribution were excluded. The analytical process involved several interconnected stages. First, the selected literature was reviewed and organized according to its relevance to the main research themes. Second, the literature was grouped into broader conceptual categories, including

governance structures, ecosystem coordination, actor relationships, platform architecture, and participant interaction. Third, a comparative conceptual analysis was conducted in order to examine similarities and differences between digital platform ecosystems and traditional interorganizational networks, with particular attention to governance mechanisms, coordination processes, and organizational structures. Fourth, the findings were synthesized using meta-narratives, which enable the integration of diverse research traditions and theoretical perspectives into a coherent understanding of the research problem. Building on this synthesis, the identified theoretical insights were further interpreted and structured into a broader conceptual framework that directly addresses the central research question.

To complement the theoretical discussion, the study also includes an illustrative case application of the Apple App Store ecosystem. This example serves to demonstrate how governance mechanisms, platform ownership, complementor participation, architectural design, and the balance between openness and control operate within a real-world digital platform environment.

The findings derived from conceptual interpretation, thematic analysis, comparative conceptual analysis, and the illustrative case application are integrated into a broader conceptual framework that contributes to understanding how governance mechanism structure relationships within contemporary digital platform ecosystems.

2. Digital Platform Ecosystems

Digital platforms represent a distinctive organizational form that facilitates interaction among different groups of users through a shared technological infrastructure (Yablonsky, 2018). In contrast to traditional firms, which create value through linear value chains, digital platforms generate value by enabling exchanges among participants (Trabucchi et al., 2022). Their role is not based on producing goods or services directly, but on creating conditions in which other actors can participate in the process of value creation. Tiwana (2013) further explains this model by emphasizing the importance of platform architecture and governance mechanisms in coordinating activities and maintaining system functionality. In this sense, the value of digital platforms arises from their capacity to organize, structure, and facilitate interactions among multiple participants rather than from direct production itself.

A comprehensive understanding of digital platforms requires moving beyond the platform as an isolated entity and considering the broader ecosystem in which it operates. Platforms function within networks of interdependent actors whose activities, resources, and relationships collectively shape value creation. Jacobides et al. (2018) describe platform ecosystems as structures characterized by the simultaneous presence of competition and collaboration, while Adner (2017) emphasizes that platform success depends on the ability to align the interests of diverse participants. As a result, platforms serve as coordination hubs that connect resources and activities extending beyond the boundaries of a single organization. This ecosystem perspective broadens the analytical focus by highlighting the interdependencies and interactions that sustain platform functioning over time.

Platform ecosystems include multiple categories of actors, each performing specific roles within the broader system. The platform owner typically establishes standards, governance rules, and the technological infrastructure that enable the ecosystem to function, whereas complementors contribute additional products and services that enhance the overall value of the platform (Kauschinger et al., 2022). Gawer (2014) notes that platform owners must continuously balance openness and control, while Boudreau (2010) argues that governance decisions directly affect the innovative capacity of the ecosystem. Unlike traditional hierarchical organizations, coordination within platform ecosystems is not achieved through direct managerial authority alone, but through a

combination of technical standards, governance arrangements, and organizational mechanisms that regulate interactions among participants.

Network effects represent one of the defining characteristics of digital platforms because the growth of one group of users increases value for others, creating conditions for self-reinforcing ecosystem expansion (Evans & Schmalensee, 2016). McIntyre and Srinivasan (2017) further argue that sustaining such growth requires careful management of relationships among ecosystem participants, since excessive control may constrain innovation, whereas excessive openness can threaten quality and system stability. For this reason, digital platforms should be understood as complex organizational arrangements that require continuous coordination, governance, and alignment of participant interests. This perspective highlights that digital platforms are not merely technological systems, but broader organizational ecosystems shaped by interaction, interdependence, and governance processes.

2.1 Definition and Core Characteristics of Digital Platforms

The concept of digital platforms in contemporary literature is used to describe a specific organizational and technological model that enables interaction between different groups of users. Unlike traditional firms that operate through a linear value creation process, digital platforms act as intermediaries that connect supply and demand within a unified digital environment. Digital platforms are defined as business models that facilitate exchanges between interdependent groups of users, while the platform itself provides the infrastructure and rules governing interaction (Hein et al., 2020). Tiwana (2013) emphasizes that platforms are not merely markets, but complex systems that integrate technological architecture and governance mechanisms in order to coordinate the activities of different actors.

One of the fundamental characteristics of digital platforms is their multi-sided nature. Platforms connect at least two distinct groups of users, such as producers and consumers, developers and end users, or service providers and clients. This multi-sidedness enables value creation through interaction rather than production, which represents a key distinction from traditional organizational models. Rochet and Tirole (2003) were among the first to highlight the importance of such market structures, while more recent research, such as that by Eisenmann et al. (2011), further elaborates how platforms leverage this interdependence for scaling and growth. It is precisely this characteristic that allows

digital platforms to rapidly expand their operations without a proportional increase in resources.

Another key characteristic of digital platforms is their reliance on network effects. Network effects occur when the value of a platform increases as the number of users grows, with each additional participant enhancing the platform's attractiveness to others. Network effects, in both their direct and indirect forms, serve as one of the core mechanisms that contribute to the expansion and evolution of platform ecosystems (Evans & Schmalensee, 2016). McIntyre and Srinivasan (2017) emphasize that managing network effects requires careful balancing between attracting new users and maintaining the quality of interactions, as uncontrolled growth can lead to a decline in overall platform value.

In addition to network effects, digital platforms are characterized by a high degree of modularity and openness. The technological architecture of a platform enables external actors to develop complementary products and services that can be integrated into the existing system. Tiwana (2013) highlights that modular architecture fosters flexibility and innovation, while Gawer (2014) emphasizes that platform openness plays a crucial role in attracting complementors. However, this openness must be carefully managed in order to ensure system stability and prevent potential misuse.

Furthermore, digital platforms are characterized by a specific mode of governance that differs from traditional hierarchical models. Instead of relying on direct control, platforms employ a combination of formal rules, technical standards, and algorithmic mechanisms to coordinate participant behavior. Platforms do not merely facilitate exchanges but also create rule-based structures that organize interactions among participants (Boudreau & Hagiu, 2009). In this context, governance mechanisms contribute to sustaining a balance between the need for coordination and the promotion of innovation (Jacobides et al., 2018). For this reason, digital platforms can be understood as hybrid organizational forms that combine elements of both markets and hierarchies, thereby creating a new way of organizing economic activity. This combination of technological, organizational, and governance characteristics distinguishes digital platforms from traditional business models and explains their growing importance in the contemporary digital economy.

22 Platform Ecosystems and Value Creation

The concept of platform ecosystems represents a key approach to understanding how digital platforms operate and create value in the modern economy. Unlike traditional firms that generate value through internal activities, platform ecosystems are based on interactions between different, interdependent actors. In this sense, a platform does not represent merely a technological infrastructure, but also an organizational structure that enables coordination and collaboration among participants. Jacobides et al. (2018) emphasize that ecosystems encompass a set of complementary activities that collectively contribute to value creation.

One of the fundamental characteristics of platform ecosystems is their openness to external actors. Unlike closed organizational systems, platforms enable the participation of a large number of independent partners who contribute to the development and expansion of the ecosystem. This aspect is particularly highlighted in the study by Autio et al. (2018), who point out that digital platforms create conditions for decentralized innovation, where complementors play an active role in developing new products and services. Nambisan et al. (2019) argue that such ecosystems enable the combination of diverse resources and knowledge, significantly increasing the innovation potential compared to traditional organizational models.

Value creation in platform ecosystems is based on interactions between participants, with the platform acting as an enabler of these interactions. Rather than engaging in direct production, the platform facilitates the connection between supply and demand, as well as the exchange of information and resources. Cusumano et al. (2019) emphasize that platforms create value through the orchestration of ecosystems, where the platform owner establishes rules and infrastructure that enable efficient coordination. On the other hand, Hein et al. (2020) point out that value does not emerge automatically, but depends on the quality of interactions and the platform's ability to stimulate active participation from users and complementors.

An important element in the process of value creation is represented by network effects, which further reinforce the dynamics of platform ecosystems. As the number of participants increases, the potential for interaction also grows, leading to an exponential increase in platform value. Successful platforms are able to capitalize on these effects through the scaling of their activities, while managing network effects requires strategic

balancing between growth and control (Cennamo, 2021). If this balance is not maintained, the platform may lose its attractiveness or stability, which negatively affects the overall ecosystem.

In addition, platform ecosystems enable value creation through complementarity among different actors. Complementors develop products and services that expand the platform's functionality and increase its value for end users. Shipilov and Gawer (2020) emphasize that this interdependence between actors is crucial for understanding how ecosystems function, as the value of one participant depends on the activities of others. Similarly, Kapoor (2018) highlights that the success of innovation within an ecosystem depends on coordination among different complementary components, which further complicates the management process.

It is also important to note that value in platform ecosystems is not measured solely through financial outcomes, but also through the platform's ability to generate long-term sustainability and innovation. Digital platforms enable continuous evolution by adapting to user needs and changes in the environment. Trabucchi and Buganza (2020) point out that platforms must continuously develop their models in order to remain competitive, while Rietveld and Schilling (2020) emphasize the importance of strategically managing relationships among actors. It is precisely this dynamic nature that makes platform ecosystems one of the most significant phenomena in contemporary business, as their ability to coordinate interdependent actors and continuously generate value distinguishes them from more traditional organizational models.

23 Key Actors: Platform Owners and Participants

Understanding digital platforms requires a detailed analysis of the key actors involved in the functioning of platform ecosystems. In the broadest sense, these ecosystems consist of platform owners, who manage the infrastructure and rules, and various participants, or platform participants, who create and exchange value within the system. This division of roles enables a separation between governance and value creation functions, which represents one of the fundamental differences compared to traditional organizational models. As emphasized by Cusumano et al. (2019), the platform owner acts as an orchestrator, while participants contribute to content, innovation, and the overall development of the ecosystem.

The platform owner represents the central actor within the ecosystem, as they are responsible for the design and management of the platform. Their role includes the development of technological infrastructure, the definition of interaction rules, and the establishment of standards that enable the system to function. Tiwana (2013) highlights that the platform owner must balance control and openness in order to foster innovation while maintaining system stability. This balance is further emphasized by Boudreau (2010), who shows that excessive control can limit the creativity of complementors, while excessive openness can lead to fragmentation and a loss of quality. For this reason, the platform owner assumes a complex role as both regulator and coordinator, managing the interests of multiple actors.

One of the key responsibilities of the platform owner is managing access to the platform and defining the conditions under which participants can engage within the ecosystem. This function involves decisions about who can access the platform, under what conditions, and in what ways they can contribute to value creation. Cennamo (2021) emphasizes that these decisions have a direct impact on the structure and development of the ecosystem, while Rietveld and Schilling (2021) highlight that effective access management can enhance the platform's competitive advantage. In this way, the platform owner not only regulates interactions but also actively shapes the dynamics of the ecosystem.

On the other hand, platform participants represent a broad range of actors who use the platform for different purposes. These participants may include end users, developers, content creators, as well as service providers who contribute to the functionality of the platform. Autio et al. (2018) point out that participants play a crucial role in generating innovation, as they are responsible for developing complementary products and services that expand the platform's capabilities. Nambisan et al. (2019) further emphasize that interactions among participants constitute the primary source of value in platform ecosystems, meaning that their activity directly influences the success of the platform.

A specific category of participants consists of complementors, who develop additional products and services compatible with the platform. Their role is essential for the expansion of the ecosystem and the enhancement of its attractiveness. Gawer (2014) emphasizes that complementors enable platforms to extend their functionality without the need for internal development of all components, while Kapoor (2018) highlights that the success of innovation within an ecosystem depends on coordination among different

complementary elements. This interdependence creates a complex network of relationships in which the success of one actor depends on the activities of others.

The interaction between platform owners and participants is based on a combination of formal and informal coordination mechanisms. Platform coordination is shaped through both structured and socially embedded mechanisms, where formal arrangements rely on predefined rules, contractual frameworks, and technical requirements, while informal coordination emerges through shared norms, user expectations, and patterns of behavior within the community. Research suggests that coordination within digital platforms is most effective when formal and informal mechanisms operate together (Hein et al., 2020), while de Reuver et al. (2018) highlight the additional role of algorithm-based systems in organizing and regulating interactions among participants. These mechanisms enable platforms to scale their activities and manage large numbers of participants without relying on direct control.

An important aspect of the relationship between platform owners and participants concerns the distribution of value. Although participants contribute to value creation, the platform owner often holds a dominant position in its distribution. Due to their intermediary role, digital platforms are often able to appropriate part of the value created by ecosystem participants, which may strengthen their influence and contribute to unequal power relationships within the ecosystem (Kenney & Zysman, 2016). For this reason, increasing attention is being paid to issues of fairness and the long-term sustainability of relationships among actors.

In addition, the dynamics of the relationship between platform owners and participants are not static, but evolve over time. As the platform grows, changes occur in both the structure of relationships and the way the ecosystem is governed. Platforms in their early stages of development often favor openness in order to attract users, while in later stages they increase control to maintain quality and stability (Bonina et al., 2021). This evolution further complicates the role of the platform owner, who must continuously adapt strategies in response to ecosystem development.

The relationship between platform owners and participants represents a central element of how digital platforms function. The long-term viability of a platform is shaped by its capacity to accommodate the needs of different stakeholders while maintaining efficient coordination across interconnected activities. As highlighted by Shipilov and Gawer (2020), it is precisely this interaction among actors that enables the integration of

interorganizational network theory with platform ecosystem research. Therefore, the analysis of key actors not only contributes to a deeper understanding of platforms but also provides a foundation for further research on the relationships between different organizational forms in the digital economy, particularly in understanding how governance and coordination emerge within digitally mediated ecosystems.

24 The Role of Complementors in Platform Ecosystems

Within digital platform ecosystems, complementors occupy a central role in the process of value creation and expansion. Unlike traditional organizational models, where most activities are concentrated within a single firm, platform ecosystems rely on a network of independent actors who contribute to the development of products and services. Complementors are precisely those actors who develop additional functionalities, applications, or content that build upon the core platform. As emphasized by Gawer (2014), platforms enable external innovators to participate in the value creation process, significantly increasing their innovative capacity. Similarly, Cusumano et al. (2019) highlight that complementors represent a key source of differentiation and competitive advantage for platforms.

One of the primary functions of complementors is to extend the functionality of the platform through the development of complementary products and services. This process allows platforms to meet diverse user needs without requiring the internal development of all components. Tiwana (2013) points out that the modular architecture of a platform enables this form of collaboration by clearly defining the boundaries between the core system and additional components. Kapoor (2018) further emphasizes that the success of innovation in platform ecosystems depends on coordination among different complementary elements, implying that complementors are not merely independent actors but part of a broader interdependent structure.

In addition to their functional contribution, complementors play an important role in generating network effects, which are essential for platform growth. As the number of complementors increases, so does the number of available products and services, making the platform more attractive to end users. Interactions among different participant groups create the conditions through which platform ecosystems generate value, while complementors play an active role in shaping innovation, strengthening ecosystem

expansion, and influencing the future development of the platform (McIntyre & Srinivasan, 2017).

However, the relationship between the platform owner and complementors is not always straightforward and often involves various challenges. The platform owner controls the infrastructure and rules, while complementors depend on access to this infrastructure in order to develop their products. Research suggests that the extent to which a platform remains open can significantly influence the innovative activity of complementors (Boudreau, 2010). At the same time, overly strong control mechanisms may reduce their motivation to engage and contribute within the ecosystem (Cennamo, 2021). On the other hand, a lack of control can lead to issues such as low quality or ecosystem fragmentation. For this reason, managing the relationship with complementors represents one of the key challenges for platform owners.

Digital platforms provide complementors with access to resources and markets that would otherwise be difficult to reach, thereby encouraging the development of new ideas and solutions. Autio et al. (2018) point out that platforms enable decentralized innovation, where different actors can simultaneously develop new products and services. Nambisan et al. (2019) further emphasize that this model allows for the combination of diverse sources of knowledge, leading to faster and more efficient innovation processes.

However, innovations generated by complementors often depend on the stability and predictability of the platform. If the platform owner changes rules or technical standards, complementors may face significant risks. Rietveld and Schilling (2021) emphasize that trust between the platform owner and complementors is a key factor for long-term collaboration, while Hein et al. (2020) highlight that transparency in platform governance can reduce uncertainty and encourage active participation. This dynamic demonstrates that the relationship between actors is not purely technical, but also a social and organizational phenomenon.

In addition to innovation, complementors play a significant role in the differentiation of platforms. Different platforms may rely on similar technologies, but they differ in the number and quality of complementary products and services. Research indicates that a strong ecosystem of complementors can enhance a platform's competitive position, particularly when the range and quality of complementary offerings add value to users (Cusumano et al., 2019). In addition, Kapoor and Agarwal (2017) suggest that users' platform preferences may be shaped by the availability of complementary innovations,

which can ultimately influence market performance.

Despite their importance, complementors often occupy a subordinate position in relation to the platform owner. The platform owner has the ability to change rules, introduce new standards, or even enter into direct competition with complementors. Platforms may use data on complementor activity to develop their own products, which can lead to conflicts within the ecosystem. Kenney and Zysman (2016) point out that such asymmetries of power may affect the long-term sustainability of relationships among actors.

Furthermore, the role of complementors in platform ecosystems can be understood as a dynamic and evolving process. As the platform grows and develops, the role of complementors and their relationship with the platform owner also change. Platforms adopt different strategies toward complementors at different stages of development, while continuous adaptation represents a key factor for long-term ecosystem success (Trabucchi & Buganza, 2020). This variability further highlights the complexity of platform ecosystems and the importance of complementors as their integral component.

3. Platform Governance and Architecture

The governance of digital platforms represents one of the key elements of their functioning, as it determines how relationships between different actors within the ecosystem are coordinated. Unlike traditional organizations that rely on hierarchical control, platforms employ specific governance mechanisms that combine formal rules, technical standards, and algorithmic processes. As emphasized by Tiwana (2013), platform governance encompasses a set of decisions and rules through which the platform owner defines the conditions of interaction among participants, while de Reuver et al. (2018) highlight that platform governance is a complex process that involves balancing control and the autonomy of actors.

Platform governance largely depends on establishing the conditions under which actors can enter, participate in, and contribute to the ecosystem (Gorwa, 2019). Decisions regarding access and participation are shaped by the platform owner, whose governance choices influence how the ecosystem develops and how interactions unfold among participants. These decisions also affect the balance between openness and control, which has important implications for innovation and system performance. Boudreau (2010) argues that more open platforms can stimulate creativity and encourage the emergence of new solutions, whereas Cennamo (2021) notes that insufficient control may create risks related to quality and coordination. For this reason, governance rules must be designed in a way that supports platform development while maintaining the overall stability of the ecosystem.

In addition to formal rules, technical mechanisms play an important role in platform governance by enabling the coordination of a large number of participants. These mechanisms include algorithms, interfaces (APIs), and standards that define how actors communicate and exchange data (Pujadas et al., 2024). Hein et al. (2020) emphasize that digital platforms use technological infrastructure as a means of governance, while Gawer (2014) highlights that platform architecture directly influences the possibilities for interaction among actors. In this way, governance and architecture are not separate concepts, but interconnected elements that jointly shape the functioning of the ecosystem.

The technical architecture of a digital platform serves as the foundation for its operation by enabling system coordination, scalability, and interactions among ecosystem

participants (Makani & Jangampeta, 2024). Through a modular design, platforms make it possible for external actors to develop additional products and services without altering the core system, which increases adaptability and supports innovation. Tiwana (2013) explains that modularity creates a distinction between core functions and complementary elements, whereas Baldwin and Woodard (2009) note that such an approach enables different components of the system to evolve simultaneously. Although platforms may allow external participation, strategic control over critical architectural elements typically remains with the platform owner, enabling them to influence the direction and development of the ecosystem.

The relationship between governance and architecture is particularly evident in the way platforms balance openness and control (Schmeiss et al., 2019). Open platforms enable broad participation by complementors, which can lead to rapid growth and innovation, while more closed platforms retain greater control over quality and direction of development. Eisenmann et al. (2011) point out that the choice between openness and closedness represents a strategic decision that depends on platform objectives, and successful platforms manage to find an optimal balance between these approaches.

Another important aspect of platform governance relates to managing relationships among different groups of participants (Janowski et al., 2018). Digital platforms bring together participants with different objectives and expectations, making conflicts inevitable and highlighting the need for effective mechanisms to manage and resolve them. Rietveld and Schilling (2021) emphasize that the platform owner must actively manage these relationships to ensure the long-term sustainability of the ecosystem, while platform success depends on the ability to balance the interests of different stakeholders. These mechanisms include not only formal rules, but also reputation systems and algorithmic processes that influence participant behavior.

It is important to emphasize that platform governance is not a static process, but continuously evolves in response to changes in the environment and within the ecosystem itself. As platforms grow and attract an increasing number of participants, the complexity of governance increases, requiring the adaptation of existing mechanisms. Cennamo and Santalo (2019) point out that platforms must develop dynamic governance strategies to remain competitive, while de Reuver et al. (2018) emphasize the importance of flexibility in the design of governance structures. This ability to adapt represents one of the key factors for the long-term success of digital platforms.

Platform governance and architecture form the foundation of how digital platforms function, as they define how interactions are coordinated and how value is distributed within the ecosystem. Their interdependence indicates that platform governance cannot be analyzed separately from technological aspects, but rather as an integrated process that encompasses both organizational and technical dimensions. This approach enables a deeper understanding of the complexity of platform ecosystems and provides an important conceptual foundation for examining how coordination and governance operate across different organizational forms.

3.1 Concept of Platform Governance

The concept of platform governance represents one of the central issues in contemporary literature on platform ecosystems, as it refers to the way in which rules, structures, and coordination mechanisms among different actors are defined (Mukhopadhyay & Bouwman, 2019). Unlike traditional organizational models that rely on hierarchical or market-based mechanisms, platforms develop hybrid forms of governance that combine elements of both approaches. Tiwana (2013) argues that platform governance establishes the rules that determine participation, regulate relationships among ecosystem members, and shape the way value created on the platform is shared. Similarly, de Reuver et al. (2018) describe platform governance as a multifaceted system that must achieve a balance between encouraging innovation and maintaining effective control over the ecosystem.

One of the key elements of platform governance is the definition of rules for access and participation. The platform owner has the ability to determine the criteria for the entry of new actors, as well as the conditions under which they can operate within the system (Cutolo & Kenney, 2021). This control over access enables platforms to shape the structure of their ecosystems and influence their development. According to Boudreau (2010), a more open platform environment may encourage greater innovative activity and attract a larger number of participants. However, if openness is not balanced with adequate control, platforms may encounter difficulties related to system quality, coordination, and overall stability.

Platform governance is not limited to regulating access, but also shapes the conditions under which participants interact within the ecosystem. This includes a range of technical, procedural, legal, and contractual arrangements that help organize exchanges among

actors and reduce coordination challenges. Hein et al. (2020) note that effective platform functioning depends on combining different governance mechanisms that support coordination in complex digital environments. Through these arrangements, platforms create predictable conditions for interaction and reduce uncertainty among participants. Consequently, governance shapes not only the limits of participant behavior but also the ways in which ecosystem actors interact, cooperate, and engage in value-creating activities.

An important aspect of platform governance also concerns the distribution of value within the ecosystem. Platforms enable value creation through interactions among participants, but the way in which this value is distributed depends on the decisions of the platform owner (Tan et al., 2020). Platforms often retain a significant portion of the generated value by leveraging their central position within the ecosystem, and this asymmetry may lead to unequal relationships among actors (Kenney & Zysman, 2016). Therefore, platform governance cannot be viewed solely as a technical or organizational process, but also as a matter of power and control within the digital economy.

Platform governance is distinguished by the use of algorithmic mechanisms that oversee and manage interactions within the ecosystem. Unlike traditional organizations, where control is exercised through managerial decisions, digital platforms increasingly rely on algorithms to regulate user behavior. Gillespie (2018) points out that algorithms play a crucial role in content moderation and in determining the visibility of information, while Pasquale (2015) emphasizes that such systems may be opaque and difficult to understand. This dimension of platform governance raises new questions related to accountability, transparency, and the ethics of governance.

In addition to formal and algorithmic mechanisms, informal aspects such as behavioral norms and reputation systems also play an important role in platform governance (Gritsenko & Wood, 2022). Platforms often use user ratings and feedback as a way to regulate the quality of interactions. Within digital platform ecosystems, reputation systems function as governance mechanisms that encourage trustworthy behaviour while reducing the need for centralized oversight (Rietveld & Schilling, 2021). These mechanisms complement formal rules and allow for more effective governance of large numbers of actors. An additional aspect of platform governance concerns the management of competing interests and disagreements that may emerge among participants within the ecosystem. Because digital platforms bring together actors with

different goals, expectations, and interests, disagreements can emerge and require mechanisms for coordination and resolution. Eisenmann et al. (2011) argue that platform owners must navigate these competing interests in a way that preserves ecosystem continuity and long-term viability. Similarly, Cennamo and Santalo (2019) suggest that ineffective responses to such conflicts may weaken user engagement and reduce the overall value of the platform.

Another important aspect of platform governance relates to its evolutionary nature. As platforms grow and develop, their governance mechanisms also change. Platforms in early stages of development often favor openness in order to attract users, while in later stages they increase control to maintain quality and stability (Benlian et al., 2015). This strategic shift requires flexibility and adaptability, further complicating the governance process.

In contemporary literature, increasing attention is also being given to the institutional aspects of platform governance. Platforms do not operate in isolation but are part of a broader regulatory environment that includes legislation, market institutions, and social norms. Van Dijck et al. (2018) point out that platforms are having an increasing impact on social and economic processes, which calls for appropriate regulation, while Kenney and Zysman (2020) emphasize that platform governance must be understood within the broader context of the digital economy. This approach highlights that platform governance should be understood as a concept that goes beyond the organizational level and encompasses the wider ecosystem.

3.2 Governance Mechanisms in Digital Platforms

Governance mechanisms in digital platforms represent concrete instruments through which platform governance is implemented and relationships among different actors within the ecosystem are coordinated (Chen et al., 2022). While the concept of platform governance refers to the broader framework of rules and principles, governance mechanisms represent the operational level at which these rules are enacted in practice. Tiwana (2013) points out that these mechanisms include a set of technical, organizational, and institutional tools that enable the platform owner to manage interactions, with their primary function being to ensure a balance between openness and control in platform ecosystems.

The most important management mechanism is related to access rules. The platform owner defines who can access the platform, under what conditions, and in what ways they can participate in the ecosystem. These rules may be restrictive or open, depending on the platform's strategy. Boudreau (2010) demonstrates that greater openness fosters innovation and increases the number of complementors, while Cennamo (2021) emphasizes that excessive openness may lead to challenges related to quality and coordination. For this reason, in order to maintain a balance between control and growth, platforms use selective access criteria.

In addition to access, an important governance mechanism consists of rules governing interactions among participants. These rules define how actors communicate, exchange resources, and carry out transactions within the platform. The use of standardized interactions allows digital platforms to coordinate the activities of numerous participants efficiently. Technical protocols and standardized interfaces provide the foundation for coordinating participant interactions by defining how communication and exchanges take place throughout the platform ecosystem (Gawer, 2014; Hein et al., 2020). In this way, platforms do not only manage access, but also the very manner in which value is created and exchanged.

One important feature of digital platform management is algorithm-based systems that aim to help and facilitate the process of organizing and managing interactions among users. Through automated processes, platforms can influence how content is distributed, monitor user activity, and coordinate interactions on a large scale (Gorwa et al., 2020). Gillespie (2018) argues that algorithms have become central to content moderation and to shaping the overall user experience, while Pasquale (2015) warns that these systems often operate in ways that are not fully visible to users, raising concerns about transparency and accountability. Although algorithmic systems have certain limitations, they remain essential for managing the complex interactions that occur within large and continuously growing platform ecosystems.

Reputation systems represent another important governance mechanism that enables decentralized quality control. Digital platforms influence participant behaviour through reputation mechanisms based on ratings, reviews, and user feedback. By making information about previous interactions available, these systems help participants make more informed decisions and foster trust across the platform ecosystem (Helberger et al., 2018; Rietveld & Schilling, 2021). This mechanism is particularly important in the

context of platforms that connect unfamiliar actors, as it helps reduce risk and uncertainty.

Platform governance also includes coordinating the activities of complementors that contribute products and services to the ecosystem. To influence their development and ensure compatibility with the platform, platform owners establish technical requirements, provide development guidelines, and define operational limitations where necessary. Tiwana (2013) emphasizes that effective management of complementors enhances the innovative potential of the platform, while Kapoor (2018) points out that misalignment between different components may compromise the functionality of the entire system. For this reason, platforms often develop sophisticated coordination mechanisms that ensure alignment among different actors.

Governance in digital platforms also involves decisions about how economic benefits generated within the ecosystem are allocated among participants. Platform owners establish the monetization framework by defining how revenues generated within the ecosystem are allocated among participants, using mechanisms such as commissions, transaction fees, and other pricing models. Because platforms occupy a central coordinating position, they often have significant influence over these allocation processes, which may create unequal power relationships among ecosystem actors (Kenney & Zysman, 2016). For this reason, the way financial benefits are distributed can have important implications for the long-term balance and stability of the platform ecosystem.

Beyond economic aspects, governance mechanisms also include the regulation of participant behavior through legal and institutional frameworks. Platforms define terms of service, behavioral rules, and sanctions for violations. Platforms are playing an increasingly important role in regulating the digital space, and private platforms are increasingly taking over functions that were traditionally within the domain of public institutions (Suzor, 2019). This dimension further complicates the understanding of governance mechanisms, as it involves a broader societal context.

One of the challenges in implementing governance mechanisms is managing conflicts between different groups of participants. The diversity of interests among platform participants increases the likelihood of conflicts, making effective resolution mechanisms an essential component of platform governance. Eisenmann et al. (2011) emphasize that the platform owner must balance the interests of different stakeholders to ensure ecosystem stability, while Cennamo and Santalo (2019) highlight that ineffective conflict

management may lead to user loss and a decline in platform value. This function further underscores the complexity of platform governance.

Governance mechanisms within digital platforms continuously adapt to changes in both the external environment and the evolving conditions of the platform ecosystem. Flexibility represents a key factor for the long-term success of platforms (Trabucchi & Buganza, 2020). This dynamic nature highlights that governance mechanisms must remain responsive to changing ecosystem conditions in order to sustain platform stability and long-term growth.

3.3 Balancing Openness and Control

One of the central challenges in the governance of digital platforms is managing the relationship between openness and control, as both dimensions shape platform development, innovation capacity, and long-term ecosystem performance (Costa & Matias, 2020). Digital platforms depend on the participation of external actors such as users, developers, and complementors, which requires a certain degree of openness in order to stimulate activity and ecosystem growth. At the same time, platforms cannot function effectively without governance mechanisms that preserve coordination, quality, and system reliability. Because of this, platform owners continuously face the challenge of balancing these two opposing but interdependent principles. Tiwana (2013) argues that platform success depends on the ability to combine innovation-enabling openness with governance structures that maintain system order and coordination.

Openness in digital platforms refers to the extent to which external participants are allowed to access the platform, contribute new products or services, and engage in ecosystem activities. A more open platform can attract a broader range of actors, encourage experimentation, and support the emergence of diverse innovations. Boudreau (2010) demonstrates that openness may increase the number of complementors and stimulate the development of new solutions, while Autio et al. (2014) highlight that open environments support decentralized innovation by allowing different actors to contribute knowledge and resources. This creates opportunities for platforms to expand their functionality and respond more quickly to changing market conditions.

Despite these advantages, openness also creates governance challenges. Allowing a large

number of external actors to participate may increase uncertainty and make it more difficult to maintain quality, security, and consistency across the ecosystem. Inadequate governance mechanisms can negatively affect platform performance by increasing the risk of technical failures, reducing the quality of complementary products and services, enabling inappropriate use of platform resources, and weakening the consistency of ecosystem standards (Evans, 2012). Cennamo (2021) notes that excessive openness may reduce coordination capacity, while Rietveld and Schilling (2021) emphasize that insufficient control can weaken user trust. For this reason, openness alone is not sufficient; it must be accompanied by mechanisms that regulate participation and preserve ecosystem stability.

Control, in this context, refers to the ability of the platform owner to shape participation, regulate interactions, and define the conditions under which ecosystem development takes place. Platform owners rely on governance frameworks that combine operational rules, technical requirements, and monitoring practices to preserve ecosystem quality and ensure that participant activities support the platform's overall strategic objectives. However, stronger control may also reduce flexibility and discourage complementors from participating if governance becomes overly restrictive. Tiwana (2013) and Kapoor (2018) suggest that rigid governance structures can limit experimentation and slow down the introduction of new innovations. This indicates that control, while necessary, can also weaken some of the advantages associated with open platform ecosystems if applied excessively.

The relationship between openness and control is not fixed, but often changes as platforms evolve. In the early stages of development, platform owners may rely on more open governance strategies in order to attract users, complementors, and ecosystem activity. During the early stages of platform development, governance typically emphasizes attracting participants and strengthening network effects, while maintaining a relatively open environment that supports ecosystem expansion (Blaschke & Brosius, 2018). As the platform becomes larger and more complex, however, governance priorities may shift toward stronger control in order to preserve quality, coordination, and long-term stability.

In more mature stages of platform development, stricter governance mechanisms are often introduced to manage increasing complexity. As governance becomes more structured, platform owners may introduce stricter participation requirements, higher quality expectations, more rigorous technical specifications, and enhanced oversight of

participant activities. Cennamo and Santalo (2019) argue that such governance adjustments may improve platform efficiency and reliability, although they may also create dissatisfaction among complementors if they perceive governance as too restrictive. This makes governance transitions particularly sensitive, as platform owners must strengthen coordination without undermining ecosystem participation.

Platform architecture also plays an important role in balancing openness and control. A modular platform design allows external actors to contribute innovations while preserving control over the core system. Tiwana (2013) explains that separating core functions from complementary components makes it possible to support ecosystem flexibility without compromising the integrity of critical platform elements. In this way, technical design becomes an important governance tool that helps reconcile openness with control.

Governance mechanisms beyond technical architecture also contribute to maintaining this balance. Rules, standards, reputation systems, and algorithmic processes help coordinate interactions among a large number of actors and reduce uncertainty in ecosystem participation. Hein et al. (2020) emphasize that combining different governance mechanisms improves coordination in complex digital environments, while de Reuver et al. (2018) highlight that governance effectiveness depends on their proper implementation. Such mechanisms allow platforms to manage complexity while maintaining a degree of openness toward ecosystem participation.

Another important issue relates to power distribution within the ecosystem. Because platform owners define rules and control critical infrastructure, they often occupy a dominant position in relation to complementors and other participants (Van der Vlist, 2022). This concentration of authority may create asymmetries in influence and decision-making, affecting relationships within the ecosystem. Establishing transparent governance practices therefore becomes important not only for coordination, but also for maintaining trust and long-term collaboration among participants.

The balance between openness and control also has direct implications for innovation. Open environments may encourage diversity of ideas and experimentation, but they can also complicate the coordination and integration of innovations. Nambisan et al. (2019) argue that successful platforms are those that adapt governance strategies in flexible ways, combining openness with mechanisms that preserve system coherence. As digital environments continue to evolve, platform owners must adjust governance arrangements in response to technological change, shifting user behavior, and ecosystem complexity.

Rietveld and Schilling (2021) emphasize that such adaptability is essential for sustaining long-term platform success.

3.4 Platform Architecture and Modularity

Digital platforms depend on a technical structure that determines how the system operates and how different parts of the platform interact with one another. This structure is usually referred to as platform architecture, but its significance goes beyond technical design because it also affects how participants cooperate, innovate, and exchange value within the ecosystem. Rather than being a purely engineering concept, platform architecture has strategic importance because it shapes the way a platform grows and coordinates activities among multiple actors. Tiwana (2013) explains that architecture includes the structural organization of the platform, technical rules, and standards that make interactions possible, while Baldwin and Woodard (2009) emphasize that architecture also determines which parts of the system remain under the control of the platform owner and which parts can be opened to external participants.

A defining feature of many digital platforms is modularity. In simple terms, modularity means that a platform is divided into separate components that can function independently but still remain connected to the overall system. This design makes it possible for different actors to contribute to platform development without having to manage or understand the entire infrastructure. Saadatmand et al. (2019) note that such separation allows external participants to create complementary products more efficiently, while Baldwin and Clark (2000) argue that modular systems generally improve flexibility and support innovation. Tiwana (2013) similarly suggests that modular design allows several parts of the platform to develop simultaneously, which increases the speed of experimentation and technological improvement.

This technical arrangement is particularly important in platform ecosystems because it allows the core system to remain stable while external actors contribute new functionalities. Instead of developing every product or service internally, the platform owner can create a technical foundation upon which complementors build additional applications, services, or content. Such a model increases diversity within the ecosystem and reduces the need for centralized innovation. It also creates opportunities for external actors to participate in value creation without directly controlling the core infrastructure

of the platform.

The relationship between modularity and openness is especially important in digital platform ecosystems. Platforms often use standardized interfaces, such as APIs, to allow external actors to connect their products or services to the system. These interfaces act as technical bridges between the platform core and complementary innovations. Gawer (2014) points out that interfaces create opportunities for coordination between the platform owner and complementors, while de Reuver et al. (2018) suggest that their design can directly affect the extent to which innovation is encouraged within the ecosystem. If interfaces are designed in a restrictive way, innovation opportunities may be limited, if they are too open, coordination and control may become more difficult.

A critical issue in platform architecture is deciding which components belong to the platform core and which can be developed externally. Core functions usually include elements that are essential for system stability, security, and overall coordination, while complementary functions are left to external actors (Ghazawneh & Henfridsson, 2013). This distinction is important because poorly defined boundaries may create technical conflicts, inefficiencies, or coordination problems within the ecosystem (Kapoor, 2018). When boundaries are clearly established, however, platforms can benefit from both openness and stability at the same time.

Modular design also contributes to scalability, which is one of the reasons why digital platforms are able to expand rapidly. As participation grows, platforms can increase capacity and introduce new functionalities without redesigning the entire system. Evans and Schmalensee (2016) note that scalability is one of the main characteristics that distinguishes successful digital platforms from more rigid organizational models. In dynamic digital environments, the ability to grow without major structural disruption represents a major strategic advantage. Architecture also influences how innovation unfolds within platform ecosystems. The modular design of digital platforms enables changes and experimentation to be introduced within individual components without disrupting the stability or operation of the platform as a whole. Autio et al. (2014) emphasize that digital platforms create conditions for decentralized innovation, while Nambisan et al. (2019) suggest that combining contributions from multiple actors can lead to the development of new forms of value. This means that architecture does not simply support platform functioning, it also affects the way innovation is generated and integrated into the ecosystem.

At the same time, modularity can create challenges. As the number of participants and components increases, coordination becomes more complex and interdependencies become harder to manage. Hein et al. (2020) argue that digital platforms require governance mechanisms capable of organizing interactions across increasingly complex systems. Without effective coordination, a modular architecture may lead to fragmentation, inconsistency, or inefficiency rather than flexibility.

Another issue concerns control over architectural decisions. Even though platforms may invite external innovation, the platform owner generally retains authority over critical technical components. Boudreau (2010) suggests that such control can influence the innovative freedom of complementors, while Cennamo (2021) warns that excessive restrictions may reduce ecosystem creativity. This indicates that technical openness alone does not guarantee innovation; architectural decisions must also create sufficient space for external actors to contribute meaningfully.

Platform architecture also has organizational consequences because technical design affects how relationships among participants are structured. The organization of system components influences patterns of collaboration, coordination, and interdependence within the ecosystem. Shipilov and Gawer (2020) argue that platforms can be understood not only as technological systems, but also as specific forms of interorganizational networks in which architecture shapes the relationships between actors.

Finally, platform architecture is not static. As platforms grow, face new challenges, or respond to technological change, their architecture often evolves. Trabucchi and Buganza (2020) emphasize that successful platforms continuously adapt their technical structure in order to support expansion and innovation. This ongoing evolution highlights that architecture is not simply a technical foundation established at one point in time, but a dynamic element that changes alongside the ecosystem itself. In this sense, platform architecture and modularity remain essential for understanding how digital platforms combine technical organization, innovation, and ecosystem coordination over time.

3.5 The Relationship between Architecture and Governance

Digital platforms cannot be understood only through their technical structure or only through governance mechanisms, because these two dimensions function together and influence one another throughout the life of the ecosystem. Architecture determines how

the system is technically organized, while governance defines the rules under which participants interact, contribute, and use platform resources. Contemporary platform research emphasizes that these dimensions are deeply connected rather than separate, since technical design often affects governance possibilities, while governance decisions can influence the future development of the technical system (Jovanovic et al., 2022; Tiwana, 2013).

The technical structure of a platform creates opportunities but also sets limits for participant behavior. The design of interfaces, the separation of core and complementary components, and the organization of system functionalities determine how external actors can interact with the platform. Baldwin and Woodard (2009) argue that modular systems allow flexibility because different parts of the platform can evolve independently. However, flexibility alone does not guarantee effective coordination. When multiple actors contribute to a shared ecosystem, technical openness must be accompanied by governance arrangements that reduce uncertainty and organize participation. In this sense, architecture creates possibilities, but governance determines how those possibilities are used in practice.

Governance, on the other hand, does not operate in isolation from technical design. Rules, standards, and procedures are often embedded in the architecture itself, meaning that technical systems become instruments through which governance is exercised. Gawer (2014) highlights that platform owners use governance arrangements to shape ecosystem participation and define acceptable forms of interaction, while Hein et al. (2020) emphasize that technical and organizational mechanisms are increasingly integrated in digital environments. This means that governance is not simply imposed externally, it is often implemented through the design of the platform itself. An important issue in this relationship concerns the definition of boundaries within the ecosystem. Platform owners must decide which parts of the system remain under centralized control and which parts can be opened to external contributors. These decisions affect innovation opportunities, coordination capacity, and long-term ecosystem development. Tiwana (2013) argues that such boundary choices influence the strategic direction of the platform, while Kapoor (2018) notes that unclear or poorly aligned boundaries may create coordination problems. The technical architecture makes separation possible, but governance determines the conditions under which these boundaries function effectively.

The connection between architecture and governance is especially visible in the

management of openness and control. A platform may be technically designed to allow broad participation through interfaces and modular structures, but governance mechanisms determine the extent to which participants can actually use these opportunities. Eisenmann et al. (2011) suggest that openness may accelerate growth and ecosystem activity, but without governance structures, such openness may create coordination difficulties. This shows that technical design and governance cannot produce effective outcomes independently; they must operate in alignment.

Architecture and governance also influence the distribution of authority within the ecosystem. Because platform owners usually control critical infrastructure, they are able to shape participation and define strategic priorities for other actors. Jacobides et al. (2018) note that control over technical architecture may create strategic advantages, while governance mechanisms reinforce these power relationships by defining the rules of participation. This means that the structure of the platform is not neutral, but can shape the balance of influence among ecosystem participants.

Algorithmic systems further demonstrate the close relationship between technical design and governance. In digital platforms, algorithms are used not only as technical tools, but also as mechanisms that shape visibility, interactions, and user experiences. Gillespie (2018) points out that algorithms influence participant behavior through automated processes, while concerns about transparency and accountability show that governance decisions are increasingly embedded in technical systems. This demonstrates that platform governance is often exercised through architecture itself rather than through external managerial intervention alone.

Innovation within platform ecosystems also depends on this relationship. Modular architecture may create opportunities for external actors to develop new products and services, but governance mechanisms determine how such innovations are evaluated, integrated, and coordinated within the ecosystem. Nambisan et al. (2019) argue that decentralized innovation in digital platforms requires coordination among multiple actors, and such coordination depends on both technical design and governance arrangements. Without alignment between these dimensions, innovation may become fragmented or difficult to integrate into the platform.

As platforms expand, both architecture and governance evolve in response to new challenges. Technical structures may be redesigned to support scalability, while governance arrangements may become more complex in order to coordinate growing

ecosystems. Trabucchi and Buganza (2020) emphasize that successful platforms adapt continuously rather than relying on fixed organizational models. This suggests that architecture and governance are dynamic elements that develop together as ecosystem conditions change.

The relationship between architecture and governance is therefore central to understanding digital platforms as complex organizational systems. Technical design creates the structural basis for interaction, while governance provides the mechanisms through which these interactions are coordinated and regulated. Their interdependence affects innovation, power distribution, ecosystem stability, and long-term platform development, making their alignment essential for the successful functioning of digital platform ecosystems.

4. Interorganizational Networks

The contemporary business environment is increasingly characterized by the interconnection of organizations through various forms of collaboration that transcend the boundaries of individual enterprises. Organizations today rarely function as completely closed systems; instead, they establish relationships with external actors for the exchange of resources, knowledge, technology, and information. In contemporary organizational theory, interorganizational networks represent an important framework for understanding such relationships, as they enable the analysis of the ways in which different actors cooperate and coordinate their activities in pursuit of shared interests, with authors such as Shipilov and Gawer (2020) emphasizing that these forms of interconnection are becoming increasingly significant under conditions of growing market complexity.

Unlike traditional business models based on hierarchical control and the internal organization of activities, interorganizational networks involve relationships in which different actors retain their autonomy while developing a certain degree of interdependence through collaboration and coordination. Such relationships may be formal or informal, short term or long term, and their significance becomes particularly evident in sectors where innovation, flexibility, and speed of adaptation are crucial for competitiveness. Contemporary research shows that network forms of organization enable more efficient use of resources and easier adaptation to environmental changes, which is why they have become an important subject of study in the fields of strategic management and organizational theory (Sarta et al., 2021).

The particular value of interorganizational networks lies in the fact that they provide organizations with access to knowledge, capabilities, and resources that often exceed the capacities of an individual enterprise. Through such forms of interconnection, organizations can enhance their innovative potential, develop new competencies, and improve their market position. Kujala et al. (2021) point out that issues of coordination, power distribution, and the alignment of interests represent key challenges in the functioning of network structures.

4.1 Definition and Theoretical Foundations

Interorganizational networks represent a specific form of organizational interconnectedness in which multiple independent organizations establish collaborative relationships in order to achieve goals that would be more difficult to accomplish individually. Unlike classical organizational models, in which activities are primarily coordinated within a single organization or through market transactions, interorganizational networks are based on more stable relationships of interdependence, collaboration, and resource exchange. In contemporary literature, this concept is regarded as one of the key frameworks for understanding how organizations operate under conditions of increasing complexity, with Rusanen et al. (2014) emphasizing that network relationships represent an important mechanism for accessing resources, knowledge, and innovations that exceed the capacities of an individual enterprise.

A fundamental characteristic of interorganizational networks lies in the fact that organizations enter into collaborative relationships without losing their own organizational autonomy. This means that network participants remain legally and structurally independent, while developing various forms of coordination that enable the alignment of activities and the joint creation of value. Such relationships often involve the exchange of information, technology, knowledge, human resources, or market access, which gives networks particular strategic value. As Dignum and Dignum (2012) emphasize, the essence of network logic lies not merely in the connectedness of actors, but in the structure of relationships that shape organizational behavior and influence their opportunities for action.

The theoretical foundations of interorganizational networks have developed through several different approaches in organizational theory and strategic management. One important theoretical direction is based on the understanding that organizations do not possess all the necessary resources and are therefore dependent on cooperation with other actors. Contemporary authors who develop this perspective emphasize that network relationships represent a mechanism for overcoming the limitations of individual organizations and provide access to complementary resources and capabilities, which significantly affect organizational competitiveness and long term development (Jordão et al., 2020).

A significant theoretical contribution to the understanding of interorganizational

networks is also provided by the relational perspective, which starts from the premise that competitive advantage does not arise exclusively from an organization's internal capabilities, but also from the quality of the relationships it develops with other actors (Zakrzewska-Bielawska & Lewicka, 2021). In this sense, networks are not viewed merely as structures of interconnectedness, but as spaces in which new value is created through collaboration, knowledge exchange, and mutual trust.

The theoretical understanding of interorganizational networks is often based on their position between markets and hierarchies as two traditional mechanisms for organizing economic activities. While markets imply relationships based on transactions, and hierarchies imply internal control within an organization, interorganizational networks represent a hybrid organizational form that combines elements of both systems (Grolman et al., 2025). For this reason, network forms of organization have become particularly significant in environments that require flexibility, coordination, and long-term collaboration at the same time.

Another important aspect of the theoretical foundations of interorganizational networks concerns the structure of relationships and the distribution of power within the network. Organizations within networks do not always participate from equal positions; rather, certain actors may occupy more central roles, have greater access to information, or exert stronger influence over decision making processes. Such asymmetries affect the functioning of the network and represent an important subject of analysis in contemporary network theory, since the structure of relationships often determines not only the flow of resources, but also the distribution of benefits among participants (Zhu et al., 2026).

Interorganizational networks should therefore not be understood merely as ordinary forms of collaboration between organizations, but as complex structures in which relationships, coordination, resources, and power are interconnected. Such a theoretical foundation enables a deeper understanding of the ways in which network forms of organization function in the contemporary business environment and provides an important framework for analyzing their connection with digital platform ecosystems.

4.2 Forms of Interorganizational Relationships

Interorganizational relationships may take different forms depending on the degree of formalization, the duration of collaboration, the distribution of resources, the level of interdependence, and the strategic objectives that organizations seek to achieve. This diversity represents one of the fundamental characteristics of interorganizational networks, as organizations do not always establish identical forms of collaboration, but instead develop relationships adapted to specific business needs and environmental conditions. Interorganizational relationships may encompass a wide spectrum of connections, ranging from relatively informal and short term forms of cooperation to deeply integrated strategic partnerships, with each of these forms carrying specific advantages, limitations, and coordination mechanisms (Gulati et al., 2012).

One of the most significant forms of interorganizational relationships is represented by strategic alliances, which involve collaboration between two or more organizations in order to achieve common strategic goals, while each party retains its own legal and organizational identity (Russo & Cesarani, 2017). Such forms of cooperation most often develop in situations where organizations seek to combine resources, access new markets, share risks, or accelerate innovation development. Their specificity lies in the fact that collaboration is not based solely on transactional exchange, but on shared strategic interests and the development of long term relationships.

A particular form of interorganizational relationship is represented by joint venture arrangements, which imply a deeper degree of collaboration, as organizations jointly establish a new entity for the purpose of carrying out specific business activities (Albers et al., 2016). Unlike strategic alliances, where organizations cooperate without creating a new organizational structure, joint venture models involve a higher degree of integration, joint investment, and shared control over the new business venture. Such relationships are often used in international business, technology industries, and projects requiring substantial investments, as they enable risk sharing and the combination of different competencies. Lioukas and Reuer (2015) point out that joint ventures represent a particularly sensitive form of cooperation, since the success of such relationships largely depends on the alignment of partners' interests and the effective distribution of managerial authority. Among the most common forms of interorganizational relationships are partnerships based on contractual cooperation, which are less integrated than joint venture arrangements but often carry considerable strategic significance. Such

relationships may include licensing agreements, franchise systems, outsourcing arrangements, technology contracts, or various forms of business partnerships based on formal contractual obligations (Azis et al., 2023). Their advantage lies in the fact that they enable a relatively high degree of collaboration without the need for deeper structural integration. In this way, organizations can gain access to resources or markets while retaining a greater degree of autonomy, which contemporary research recognizes as a significant advantage in dynamic industries.

An important form of interorganizational relationship also develops through supply chain relationships, which represent a specific network of interconnectedness among manufacturers, suppliers, distributors, and other business actors. Although these relationships were long viewed primarily as logistical and operational mechanisms, contemporary literature increasingly analyzes them as complex interorganizational networks in which the quality of collaboration, trust, and information exchange have a direct impact on the efficiency of the entire system (Gupta, 2024). Successful relationships within supply chains depend not only on formal contracts, but also on the ability of organizations to develop stable mechanisms of coordination and mutual trust.

Collaborative networks also occupy an important place in contemporary business, as they are not based exclusively on formal contractual relationships, but on broader forms of cooperation among organizations that jointly participate in the development of innovations, knowledge, or new business solutions. Such networks are particularly present in high technology sectors, research and development, and industries that require intensive knowledge exchange. Their specificity lies in the fact that value arises from mutual interconnectedness and the combination of different competencies, rather than solely from traditional economic exchange. As Phelps and Heidl (2013) emphasize, such forms of collaboration often enable organizations to generate innovations more quickly and gain easier access to new knowledge.

One of the increasingly significant forms of interorganizational relationships in the contemporary economy is represented by clusters and ecosystem forms of interconnectedness, in which a larger number of organizations, institutions, and complementary actors operate within a broader network environment. Unlike classical bilateral relationships, collaboration here is distributed among a greater number of participants, and value emerges through the combination of different activities, knowledge, and resources. According to Granstrand and Holgersson (2020), collaborative

relationships play a fundamental role in innovation ecosystems because they facilitate the exchange of knowledge and the development of broader support networks. It is important to emphasize that forms of interorganizational relationships differ not only in terms of the degree of formality or the structure of collaboration, but also in the distribution of control, the level of risk, the intensity of resource exchange, and the duration of relationships. Some forms of collaboration are primarily operational in nature, while others carry deep strategic significance and involve long term interdependence among organizations.

4.3 Coordination Mechanisms in Interorganizational Networks

One of the fundamental coordination mechanisms in interorganizational networks is represented by formal mechanisms, which include contracts, prescribed procedures, technical standards, defined roles, and institutionally established rules of collaboration (Cricelli & Grimaldi, 2010). These mechanisms are particularly important in situations where it is necessary to clearly define the rights, obligations, and responsibilities of participants in order to reduce uncertainty and limit potential conflicts. Formal coordination becomes especially significant in complex networks involving a larger number of organizations, as it provides a certain degree of predictability and stability in relationships. Research (Cao & Lumineau, 2015) shows that formal mechanisms alone are not sufficient, but that they represent an important foundation for organizing collaboration in complex interorganizational structures.

In addition to formal mechanisms, relational coordination mechanisms also play a significant role, as they are based on trust, reputation, shared norms, and developed interpersonal and interorganizational relationships. In contemporary literature, trust is often viewed as one of the most important prerequisites for successful collaboration, as it enables the reduction of transaction costs, facilitates information exchange, and increases the willingness of organizations to engage in long term cooperation (Carnauba et al., 2020). Trust does not replace formal mechanisms, but in a large number of cases it significantly contributes to the more efficient functioning of network structures, with the quality of relational ties often having a direct impact on the success of coordination in interorganizational relationships. Coordination based on shared goals and the strategic alignment of interests also plays an important role in interorganizational networks. Organizations participating in a network do not collaborate solely for the operational

exchange of resources, but also for the achievement of broader strategic objectives that require a certain degree of alignment. When there is a clearly defined shared interest among actors, the coordination process becomes more stable and effective. Conversely, misaligned goals may lead to conflicts, opportunistic behavior, and the weakening of network relationships. For this reason, strategic alignment is recognized in contemporary research as an important coordination mechanism in network structures (Lumineau & Oliveira, 2018).

A particular aspect of coordination relates to central actors or intermediary organizations, which in certain networks assume the role of coordinators. These actors may have greater access to information, resources for mediation, or institutional authority that enables them to influence the functioning of the entire network. In contemporary network theory, such positions are often analyzed as crucial for the stability and efficiency of network relationships, as they facilitate the connection of different participants and reduce coordination costs (Gustafsson et al., 2017). Therefore, the role of central coordinators may be of decisive importance in complex network structures involving a large number of actors and a high degree of interdependence.

44 Governance Structures in Business Networks

Business networks, as complex forms of interorganizational interconnectedness, do not function solely on the basis of spontaneous collaboration among actors, but require certain governance structures that enable the coordination of activities, decision making, the distribution of responsibilities, and the resolution of potential conflicts (Krystallis et al., 2025). For this reason, the issue of governance in business networks represents one of the key aspects of their functioning. Unlike classical organizations, in which governance is generally centralized and hierarchically organized, business networks involve multiple independent actors, which requires the development of specific governance structures adapted to the network logic of organization.

One of the fundamental characteristics of governance structures in business networks is that they must ensure a balance between the autonomy of individual organizations and the need to coordinate joint activities. Network participants retain their own organizational goals and independence, but at the same time there is a need for certain

governance mechanisms that enable joint decision making and guide the network as a whole. This challenge is particularly pronounced in complex networks involving a larger number of actors, diverse interests, and a high degree of interdependence. As Cristofoli and Markovic (2016) point out, governance in network structures does not imply control alone, but above all the organization of relationships among independent organizations that must operate with a certain degree of alignment.

In the literature, one of the most frequently analyzed models is decentralized governance, in which decisions are made by network participants themselves through joint processes of coordination and negotiation. This model most commonly appears in smaller networks characterized by a high degree of trust and a relatively balanced distribution of power among participants. The advantage of this approach lies in the fact that it enables greater involvement of actors in decision making processes and strengthens the sense of shared responsibility. On the other hand, decentralized structures may become inefficient in networks involving a larger number of actors, as the process of reaching agreement may be slow and organizationally demanding (Klijn et al., 2025). The success of such models largely depends on the quality of relationships among participants and their willingness to cooperate.

Another significant model is governance through a lead organization, in which one actor assumes the central role in coordinating the network. This organization often possesses greater resources, institutional authority, or a more central position within the network, enabling it to direct the activities of other participants (Van Duijn et al., 2022). This model is often present in business networks that require faster decision making or involve an asymmetric distribution of power. The advantage of this approach lies in more efficient coordination and a clearer structure of responsibility, although it may also lead to inequality in relationships and the dependence of other actors on the central organization. The role of the lead actor may contribute significantly to network stability, but it may also raise questions of legitimacy and the distribution of influence.

A particular governance model develops through specially established administrative or intermediary structures that exist solely for the purpose of network coordination. In such models, a specific organizational unit, office, or coordinating body assumes the role of intermediary among different participants. This model often appears in complex networks involving a large number of organizations and requiring a high degree of administrative coordination. Its advantage lies in the fact that network governance becomes more

professionalized and less dependent on the interests of individual actors. Cristofoli et al. (2017) point out that such structures can significantly increase the efficiency of network governance, particularly in situations where it is necessary to coordinate a larger number of different organizations.

Governance structures in business networks differ not only in terms of decision-making processes, but also in the distribution of power, the level of formalization, and the degree of control over participants. In some networks, governance is based more heavily on formal rules and institutional procedures, while in others informal relationships, reputation, and trust play a more significant role. The choice of governance structure depends on the size of the network, the complexity of relationships, the degree of interdependence, the risks of collaboration, and the strategic objectives the network seeks to achieve. Contemporary research shows that there is no universal governance model applicable in all situations; rather, governance structures develop in accordance with the specific characteristics of a particular network (Van Den Oord et al., 2023).

The issue of governance in business networks is particularly important because the governance structure largely determines the stability of relationships, the ability to resolve conflicts, the distribution of benefits, and the long term sustainability of the network. When governance structures are not adequately designed, even networks with significant resources and strategic potential may become inefficient or unstable. For this reason, governance in business networks is not viewed in contemporary literature merely as an administrative issue, but as an essential mechanism that shapes the functioning of the entire network structure and provides an important theoretical foundation for understanding contemporary organizational systems.

5. Linking Interorganizational Networks and Digital Platforms

The development of digital platforms has opened significant theoretical questions regarding the way these organizational models can be understood within the broader framework of organizational theory and interorganizational relationships. Although digital platforms are often analyzed as a specific form of digitally mediated business, a growing body of research indicates that their functioning largely depends on the relationships among different, interconnected actors participating in value creation. For this reason, contemporary authors increasingly examine platform ecosystems through the broader theoretical framework of interorganizational networks, with Shipilov and Gawer (2020) emphasizing that platforms do not function as isolated organizations, but rather as network organized systems in which different actors establish relationships of collaboration, interdependence, and coordination.

Interorganizational networks and digital platforms share certain structural and organizational characteristics, as both models involve multiple independent actors connected through specific mechanisms of coordination and value exchange. In both cases, the functioning of the system depends on the ability of different participants to align activities, combine resources, and maintain stable relationships under conditions of interdependence. As Jacobides et al. (2018) point out, issues of coordination, governance, power distribution, and structural interconnectedness represent key elements in both network organizational forms and platform ecosystems, since it is precisely through these mechanisms that the functionality of the broader ecosystem system emerges and is sustained.

Nevertheless, despite numerous similarities, digital platforms cannot be fully equated with traditional interorganizational networks. Unlike classical network structures, platforms operate through digital infrastructure, algorithmically mediated coordination, and architectural mechanisms that significantly shape relationships among participants. As Tiwana (2014) emphasizes, the role of the platform owner, the technical architecture of the system, and digitally mediated forms of control represent key elements that distinguish platform ecosystems as a specific organizational model in comparison with traditional business networks.

5.1 Conceptual Overlap between Networks and Platform Ecosystems

In contemporary organizational theory, increasing attention is being devoted to the question of how different organizational models transcend the classical understanding of the firm as a closed and self sufficient system. Traditional approaches long assumed that the individual organization represented the basic unit of analysis, while issues of value creation, resource control, and decision making, as Hitt et al. (2011) point out, were primarily examined within the boundaries of a single enterprise. The development of network organizational forms, and later digital platform ecosystems, significantly transformed this perspective. In this context, organizational analysis is no longer focused exclusively on the individual firm, but on a broader system of relationships in which multiple independent actors jointly participate in value creation, which Jacobides et al. (2018) recognize as one of the key characteristics of contemporary ecosystem organizational models.

One of the most significant conceptual overlaps between interorganizational networks and platform ecosystems relates to the shift in analytical focus from the organization to the system of relationships, which Radaelli et al. (2024) identify as an important theoretical shift in contemporary organizational analysis. In both theoretical frameworks, the organization is not viewed as an isolated actor, but as part of a broader structure in which its actions depend on relationships with other participants. Instead of the classical firm centered logic, relational logic comes to the forefront, in which competitiveness, innovation, and value creation are not analyzed exclusively through the internal capacities of a single organization, but through its position within a broader system of interconnectedness. As Adner (2017) points out, this theoretical shift provided an important foundation for the development of the ecosystem approach in the analysis of digital platforms, since platforms, like network forms of organization, are fundamentally based on the logic of relationships rather than solely on internal organizational resources.

The point of convergence between these two concepts can also be clearly observed in the way value is understood as the result of a broader system of interactions rather than the activities of a single actor. In the classical organizational model, value was primarily associated with the firm's internal activities and its ability to control production, resources, or market transactions. Value creation in interorganizational networks and platform ecosystems depends on the integration of complementary resources, knowledge, and activities provided by independent actors. This means that the success of one actor often

depends on the ability of others to fulfill their own role within the broader system. Kapoor and Agarwal (2017) point out that this logic is particularly pronounced in ecosystem models, although its theoretical foundation largely corresponds to earlier understandings of interorganizational interdependence in network structures.

Conceptual overlap also exists with regard to interdependence as a structural principle of organization. In both cases, participants do not act entirely independently, but their activities have direct consequences for the functioning of the broader system. This interdependence involves not only the exchange of resources, but also structural conditionality, since the actions of one actor may affect the opportunities, constraints, or outcomes of other participants. As Hannah and Eisenhardt (2018) emphasize, this systemic interdependence represents one of the key conceptual foundations linking network organizational forms and platform ecosystems, since in both models individual outcomes depend on the broader system of interconnectedness.

Another important aspect of conceptual overlap relates to the breakdown of classical organizational boundaries. In traditional organizational models, firm boundaries represented a relatively clear line between internal activities and the external environment. As Jacobides et al. (2018) point out, interorganizational networks challenged this logic by enabling organizations to establish various forms of collaboration that bridged the classical boundaries of the individual enterprise. Platform ecosystems deepen this process further, as value creation largely takes place through the activities of actors located outside the formal boundaries of the platform owner. In this sense, both concepts point to a transformation of the classical understanding of organization and a shift toward models in which organizational boundaries become significantly more fluid, representing one of the important changes in contemporary organizational theory.

The conceptual overlap between these two frameworks can also be examined through a systems approach to the analysis of organizational relationships. Both interorganizational networks and platform ecosystems are viewed as broader organizational systems in which individual actors gain meaning only in relation to the structure of the whole. In such approaches, the focus is not solely on who the individual participants are, but on how they are connected, how their activities affect one another, and how these relationships form a broader organizational order. Shipilov and Gawer (2020) point out that this systemic perspective represents an important point of convergence between network theories and the analysis of platform ecosystems, since in both cases value and organizational logic

emerge from the structure of the system rather than solely from the characteristics of individual actors.

A significant conceptual similarity also lies in the assumption that the position of actors within the system of relationships has strategic importance. In interorganizational networks, the position of an organization within the structure of interconnectedness, as Zaheer et al. (2010) point out, often influences access to resources, information, and opportunities for collaboration. In platform ecosystems, a similar logic can be observed in the distribution of roles, the degree of access to key resources, and the possibility of participating in the process of value creation. This shows that the structure of relationships in both models is not neutral, but directly shapes the opportunities and constraints of different participants, since their position within the system may influence the degree of access to value, resources, and strategic advantages.

Although platform ecosystems introduce new digital and technological elements that distinguish them from classical network forms, their conceptual foundation relies to a significant extent on the theoretical logic of interorganizational networks. For this reason, platform ecosystems should not be understood exclusively as technological models, but also as a specific evolution of network organizational logic adapted to the digital environment.

5.2 Structural Similarities

Structural similarities between interorganizational networks and platform ecosystems can be observed in the way actors are distributed, connected, and dependent on one another within a broader system of value creation. In both cases, the structure is not based on a single organization independently controlling all activities, but on the arrangement of multiple participants whose roles are interconnected. Adner (2017) views an ecosystem as a structure in which different partners must be aligned in order to achieve a particular value proposition, which is similar to the way interorganizational networks are analyzed as systems of relationships among independent actors. This perspective demonstrates that both networks and platform ecosystems can be understood as structures in which the position, role, and interconnectedness of actors are crucial for the functioning of the whole.

One of the most obvious structural similarities relates to the existence of multiple independent actors participating in a shared system of activities. In interorganizational networks, these may include suppliers, partners, distributors, research institutions, or other organizations connected through collaboration and resource exchange. In platform ecosystems, a similar structural position is occupied by platform owners, complementors, users, development partners, and other participants contributing to the functioning of the platform. Jacobides et al. (2018) emphasize that ecosystems encompass a set of different but interdependent organizations that do not need to be hierarchically connected in order to participate in joint value creation. This is important because it shows that the structure of both models is based on distributed roles rather than on a single organizational center producing all value independently.

Another important similarity lies in the existence of central and peripheral positions within the system. In business networks, certain actors may occupy a more central position because of access to resources, information, or key partners, while other actors assume more peripheral roles. A similar pattern exists in platform ecosystems, where the platform owner often occupies a central position because it controls the infrastructure and the rules of participation, while complementors and other participants operate within the system enabled by that infrastructure. Shipilov and Gawer (2020) point out that ecosystem research can be enriched by network analysis precisely because relationships among actors can be mapped through patterns of interconnectedness, centrality, and interdependence. This similarity does not mean that positions in networks and platforms are identical, but it indicates that in both models the structure of relationships affects the distribution of influence and opportunities for action.

A structural similarity also exists in the fact that both models function through a combination of collaboration and dependence. Participants in a network or a platform ecosystem do not necessarily share identical interests, but their activities are connected in a way that requires a certain degree of alignment. Hannah and Eisenhardt (2018) show that ecosystems often involve tensions between collaboration and competition, as actors simultaneously contribute to the broader system while seeking to protect their own positions. The same logic can be recognized in interorganizational networks, where organizations cooperate in order to gain access to resources or knowledge, while retaining their own strategic interests. A major point of similarity between interorganizational networks and platform ecosystems is that participant relationships are characterized by a balance of cooperation and competition. Rather than being driven exclusively by either

collaborative or competitive behaviour, these ecosystems depend on the interaction of both to support their functioning and development.

A similarity between these two models can also be observed in the way relationships are organized around a particular focal actor, value proposition, or shared objective. In business networks, this center may be a lead organization, a project, an innovation process, or a shared market interest. In platform ecosystems, the central point is most often the platform itself, which enables the connection of different groups of participants. Adner (2017) emphasizes that ecosystem structures can be understood through relationships among actors that must be aligned around the realization of a particular value proposition. This is important because it shows that both networks and platform ecosystems possess a certain organizational logic that connects different actors into a functional whole.

Another similarity between these models lies in the fact that relationships among participants are rarely limited to a single dimension. Actors may interact simultaneously through technological connections, business cooperation, knowledge sharing, market exchanges, or joint innovation activities. Such overlapping forms of interaction increase the complexity of the system, but at the same time provide greater adaptability by allowing participants to engage in different roles and through different channels. Ecosystem research often highlights that this combination of autonomy and structural connectedness enables coordination among independent actors without requiring centralized hierarchical authority (Jacobides et al., 2018). A comparable pattern can also be observed in interorganizational networks, where overall system functioning depends on the effective integration of multiple interconnected relationships.

Structural similarities between interorganizational networks and platform ecosystems should therefore not be understood as a complete overlap of these two models, but rather as the existence of shared organizational patterns. Both models involve multiple actors, distributed roles, interdependence, and a certain central logic that connects participants into a broader system. The difference lies in the fact that platform ecosystems transfer these structural patterns into a digitally mediated environment, where technical infrastructure and platform architecture further shape relationships among actors.

5.3 Key Differences between Networks and Platforms

Although interorganizational networks and platform ecosystems share certain structural and conceptual similarities, fully equating them would not be theoretically justified. For this reason, contemporary literature increasingly points out that platform ecosystems, although they largely adopt the network logic of organization, represent a specific organizational model that introduces new mechanisms of interconnectedness, coordination, and control. As Tiwana (2014) emphasizes, the differences between these two frameworks do not relate solely to the technological dimension, but also to the way in which the structure of relationships is organized, how power is distributed, how value is created, and how different participants are coordinated. These specific characteristics provide an important theoretical foundation for understanding platform ecosystems as a distinct organizational phenomenon.

One of the key differences relates to the role of digital infrastructure as a structural intermediary of relationships. In interorganizational networks, relationships among organizations generally develop through direct organizational, institutional, or business ties, with coordination depending on developed mechanisms of collaboration among specific actors. As De Reuver et al. (2018) point out, in platform ecosystems relationships are largely mediated through digital infrastructure that enables, directs, and to a certain extent controls interactions among participants. This means that the platform is not merely a space in which actors connect, but an active technical intermediary that structurally shapes the way relationships emerge and function. This technological mediation represents one of the fundamental differences between platform ecosystems and classical network organizational forms.

Another significant difference lies in the degree of centralization of control. Although interorganizational networks may include central actors or lead organizations, many network relationships are based on more decentralized forms of collaboration, in which different participants retain a relatively high degree of bargaining autonomy. In platform ecosystems, the platform owner often occupies a much stronger structural position, as it controls access to infrastructure, defines the rules of participation, and has the ability to shape the conditions under which other actors operate. Jacobides et al. (2018) point out that this position of the platform owner represents one of the central characteristics of platform ecosystems, since the distribution of power is not exclusively the result of network position, but also of control over the technical core of the system.

A significant difference also exists in the way relationships are coordinated. In interorganizational networks, coordination is largely based on organizational and relational mechanisms such as trust, negotiation, institutional arrangements, or formal contracts. Hein et al. (2020) point out that in platform ecosystems coordination is often digitally mediated and embedded within the architecture of the system itself, meaning that technical standards, algorithms, interfaces, and platform rules directly shape participant behavior. This form of coordination represents a specific characteristic of platform systems, since governance mechanisms are not only organizational, but are to a significant extent technically integrated into the platform infrastructure.

Differences between these two models can also be observed in the way systems scale. Interorganizational networks often develop gradually through the expansion of partnerships, the building of relationships, and the development of new forms of collaboration. Such growth usually implies an increase in coordination complexity, as each new actor enters the network through a certain process of integration. As Cennamo (2021) emphasizes, in platform ecosystems digital infrastructure enables much faster and larger scale inclusion of new participants, without the need for individual organizational integrations that are more common in classical networks. This capacity for rapid scaling represents one of the most important specific characteristics of platform organizational models in comparison with traditional network forms.

Another important difference relates to the role of architecture in structuring relationships. In interorganizational networks, relationships among organizations are most often the result of business, institutional, or strategic arrangements that develop through the process of collaboration. In platform ecosystems, the technical architecture of the platform directly defines the boundaries, possibilities, and forms of interaction among participants. This means that the structure of relationships is not exclusively the result of interorganizational dynamics, but is to a significant extent shaped in advance through the technical design of the platform. Tiwana (2014) points out that platform architecture is not merely a technical framework, but a structural mechanism that directly influences the organization of relationships within the ecosystem.

The comparison between interorganizational networks and platform ecosystems shows that, although they are built on comparable organizational concepts, platform ecosystems extend these principles by integrating them into a digitally enabled environment. This adaptation has resulted in a distinct organizational model with characteristics that differ

from those of traditional interorganizational networks. The role of technical infrastructure, the more centralized position of the platform owner, digitally mediated coordination, architecturally structured relationships, and the capacity for rapid scaling distinguish platform ecosystems as a specific form of organization that goes beyond classical network structures and introduces a new logic of functioning in the contemporary digital economy.

5.4 Governance as a Coordination Mechanism across Contexts

In contemporary organizational theory, the question of coordinating activities among multiple independent actors represents one of the central challenges in understanding complex organizational systems. When organizations operate outside the framework of classical hierarchical structures, the need arises for mechanisms that enable the alignment of activities, the distribution of roles, the resolution of conflicts, and the maintenance of stability within a broader system of relationships. The increasing complexity of contemporary organizational forms has expanded the role of governance beyond conventional management tasks. It now serves as a coordination framework that aligns relationships, activities, and decision-making processes, thereby enabling complex organizations to operate effectively. As Klein and McCaffrey (2022) emphasize, governance in such systems represents a structural framework that defines rules, power distribution, monitoring mechanisms, and ways of directing participant behavior. Through such mechanisms, it becomes possible to maintain the functionality and stability of the system under conditions of organizational complexity and interdependence among multiple actors.

In interorganizational networks, governance develops as a response to the fact that organizations, although independent, must align their activities in certain ways in order for the network to function as a whole. Since there is no single hierarchical authority capable of directly managing all participants, coordination depends on the development of various mechanisms that structure relationships among actors. In this context, governance serves as a mechanism that connects actor autonomy with the need for collective action. As Cristofoli and Markovic (2016) note, the essence of network governance lies precisely in the ability to organize independent actors into a functional whole without complete hierarchical integration. This means that governance in networks is neither a replacement for markets nor hierarchies, but rather a distinct coordination

framework that enables different actors to operate with a certain degree of alignment.

In platform ecosystems, governance performs a similar coordination function, but it develops within a specific organizational and technological context. Platform ecosystems bring together a large number of independent participants operating within a shared digital environment, and their activities must be coordinated in order for the system to remain functional, stable, and capable of creating value. In this case, governance also serves as a coordination mechanism, but as Hein et al. (2020) emphasize, its structure is largely shaped by the technical infrastructure of the platform and the rules defined by the platform owner. This means that governance in platform systems involves not only organizational coordination, but also digitally mediated regulation of participant behavior through architecture, interfaces, and algorithmic mechanisms.

When these two contexts are compared, it becomes evident that governance fulfills the same basic function in both cases, namely ensuring coordination under conditions of organizational dispersion and interdependence. In neither networks nor platform ecosystems does value emerge through the actions of a single actor, but rather through the interconnected activities of multiple participants who must operate within a certain organizational order. As Jacobides et al. (2018) explain, governance in ecosystem models performs precisely this systemic coordination function, as it defines the rules of participation, directs interactions, and ensures that the system does not become unstable due to conflicting interests, tensions, or misaligned behavior. This role of governance demonstrates a significant theoretical connection between ecosystem and network approaches to organization.

In platform ecosystems, governance relies to a greater extent on structurally embedded control mechanisms, since a significant part of coordination is incorporated directly into the technical design of the platform. The platform owner does not always need to negotiate directly with all participants, because rules of participation, standards, algorithms, and access to infrastructure already function as embedded coordination mechanisms. Tiwana (2014) emphasizes that platform governance operates through a combination of organizational and architectural mechanisms, which distinguishes it from classical network forms of governance. Governance here is not merely a matter of relationships between organizations, but also of the way in which the technical structure of the system shapes and constrains participant behavior.

The difference becomes particularly visible in the distribution of power within

governance systems. In interorganizational networks, power may be distributed in different ways and often depends on network position, access to resources, institutional legitimacy, or the bargaining strength of particular actors. Although leading organizations may exist, many networks function through relatively decentralized forms of coordination. In platform ecosystems, the platform owner usually occupies a clearer and structurally stronger position, since it controls the infrastructure that forms the basis of the entire system. As De Reuver et al. (2018) point out, this form of structural control significantly affects the distribution of power because it enables the platform owner, through control of infrastructure and participation rules, to shape the position of other participants within the system. This is precisely what distinguishes platform governance from classical network models.

Despite these differences, it is important to emphasize that in both contexts governance performs a broader coordination role that goes beyond the classical understanding of managerial function. It serves not only as a mechanism of control, but also as a means of reducing uncertainty, directing interactions, defining rules of behavior, and ensuring system stability. When adequate governance mechanisms do not exist, both networks and platform ecosystems can become unstable, as independent actors lack a sufficiently clear framework for cooperation. As Scott and Davis (2015) argue, governance in contemporary organizational systems should be understood as a mechanism that enables dispersed activities to become functionally connected within a broader organizational system.

Governance also plays an important role in resolving the tension between autonomy and control, which represents one of the key challenges in both networks and platform ecosystems. Participants must retain a certain degree of independence, because otherwise the system loses flexibility and innovation potential. At the same time, a complete absence of coordination may lead to instability, conflicts, and opportunistic behavior. Governance therefore functions as a mechanism that seeks to balance these two demands. Cennamo (2021), in the context of platform ecosystems, highlights that this balance between control and openness represents one of the central challenges of contemporary organizational systems, a challenge that is also theoretically close to network approaches to governance. From a broader organizational perspective, governance can be understood as a framework that enables the integration of different coordination mechanisms into a unified and functional system. It does not represent just one specific instrument, but rather a broader organizational mechanism through which rules, roles, and relationships among different

participants are aligned. In interorganizational networks, this may be achieved through a combination of formal rules, trust, institutional arrangements, and the role of central coordinators. In platform ecosystems, this framework is further expanded through technical standards, architectural constraints, and digitally mediated regulatory mechanisms. Although the specific instruments differ, the fundamental role of governance remains the same, namely ensuring stability and organizational order under conditions of complex interdependence among multiple actors.

For this reason, governance in different organizational contexts cannot be viewed exclusively as an administrative or control function, but rather as a fundamental mechanism that enables multiple independent participants to operate within a broader and coordinated system. This is where one of the most important conceptual links between interorganizational networks and platform ecosystems lies. Although the specific forms of coordination differ depending on the organizational and technological context, their essential purpose remains the same: to enable the stable functioning of the system under conditions of interdependence and organizational complexity.

5.5 The Role of Platform Architecture in Structuring Relationships

In the analysis of digital platform ecosystems, the question of architecture occupies a particularly important place because it does not relate exclusively to the technical design of the platform, but also to the way in which relationships among different participants are structured through that design. In traditional organizational models, relationships among actors are most often the result of strategic decisions, contractual arrangements, or developed institutional mechanisms of cooperation. In platform ecosystems, however, relationships are not defined solely at the organizational level, but are to a significant extent structurally conditioned by platform architecture, which determines the mode of connection, the boundaries of interaction, the degree of access to resources, and the possibilities for participation within the system. As Tiwana (2014) explains, platform architecture should therefore be understood not merely as the technical foundation of the platform, but as a mechanism that shapes the organizational structure of relationships among different actors within the ecosystem.

One of the key functions of platform architecture lies in the fact that it structurally defines

the conditions under which relationships among actors can emerge in the first place. Unlike classical interorganizational networks, where relationships develop through direct cooperation, negotiation, or strategic decisions made by organizations, in platform ecosystems the design of the platform itself determines how different participants may access the system, what kinds of interactions are possible, and within what boundaries those interactions can take place. Schrieck et al. (2017) emphasize that architecture is therefore not a passive infrastructure, but an active structural framework that directs relationships among actors. De Reuver et al. (2018) further highlight that this structural role of platform architecture represents one of the essential characteristics of digital platforms as a distinct organizational model.

Platform architecture also plays an important role in defining the boundaries of participation within the ecosystem. In traditional business networks, access to the system usually depends on the development of partnerships, institutional arrangements, or negotiation processes. In platform ecosystems, by contrast, the architecture of the platform itself largely determines who may become part of the system and under what conditions. As Jacobides et al. (2018) explain, this does not refer only to technical access to the platform, but also to participation rules, integration standards, and possibilities for interaction with other participants. In this way, platform architecture represents not only the technical basis of ecosystem functioning, but also a mechanism through which its boundaries, relationships among actors, and overall system structure are shaped.

A particularly important aspect of architecture relates to modularity as a principle of structuring relationships. One of the key characteristics of digital platforms is that different participants can operate relatively independently, but within a system that still enables their interconnection. Bonina et al. (2021) point out that this principle of modularity allows different complementors, development partners, and other participants to contribute to the ecosystem without the need for full integration into the organizational structure of the platform owner. Tiwana (2014) explains that modular architecture enables controlled interdependence, because participants remain autonomous while their activities must still align with the architectural rules of the system. For this reason, architecture not only enables connectivity, but structurally defines the way independent actors fit into a broader organizational system.

Platform architecture also has an important role in shaping the degree of dependence among participants. In classical interorganizational networks, dependence among actors

most often arises as a consequence of resource exchange, strategic interests, or developed partnership relationships. In platform ecosystems, however, this dependence is largely conditioned by the platform architecture itself, since it determines access to key resources, technical standards, interfaces, and possibilities for integration. As Hein et al. (2020) note, participants who wish to operate within the ecosystem must adapt their activities to the rules and technical conditions established by the platform, thereby creating a specific form of structural dependence. This represents one of the important differences compared to traditional network organizational forms, where dependence primarily arises from organizational and relational ties among actors.

An important role of platform architecture can also be seen in shaping the way different groups of participants interact within the ecosystem. Platform architecture determines not only who may participate, but also how participants can communicate, exchange resources, develop complementary products, or gain access to users. In this way, architecture directly influences the relationships that develop within the ecosystem and the way in which it functions. As Boudreau (2010) explains, platform design may stimulate or constrain innovation depending on the degree to which architecture is open, flexible, or restrictive. For this reason, platform architecture should not be understood merely as the technical basis of the system, but as an important mechanism that shapes relationships among participants and influences the overall dynamics of the ecosystem.

A particularly significant issue concerns the relationship between openness and architectural control. Platform ecosystems often depend on the inclusion of a large number of external actors, because their value grows through ecosystem expansion and the development of complementary activities. On the other hand, a completely open system may threaten the stability, security, or quality of the platform. Architecture therefore becomes the mechanism through which this balance is regulated, since the platform owner can, through system design, determine the degree of openness, access to key resources, and the boundaries of autonomy available to external actors. As Cennamo (2021) argues, this architecturally structured balance between openness and control represents one of the key conditions for the sustainability of platform ecosystems. Platform architecture also plays an important role in shaping the innovation space within the ecosystem. Unlike classical organizational models, in which organizations often control most innovation processes internally, platform ecosystems enable a large number of external participants to develop new products, services, and innovative solutions. Yet this innovation freedom is not entirely unrestricted, but is significantly conditioned by the

architecture of the platform. As Gawer (2014) emphasizes, the platform owner, through architectural standards, interfaces, and integration rules, defines the framework within which innovations may develop. For this reason, architectural design is crucial for understanding platform organizational logic, since it enables the stimulation of external innovation while simultaneously preserving a certain degree of control and stability within the system as a whole.

Platform architecture also functions as an invisible layer of structural governance, because a significant part of organizational order is not established through direct organizational interventions, but is embedded in the design of the system itself. Participants within a platform ecosystem do not respond only to formal rules or contractual mechanisms, but also to the technical possibilities and limitations imposed by platform architecture. As Tiwana (2014) explains, platform architecture therefore has a dual role: it functions simultaneously as a technical and organizational mechanism that shapes participant behavior.

Viewed from a broader organizational perspective, platform architecture represents much more than the technical foundation of a digital system. It functions as a structural mechanism that shapes relationships, defines boundaries, distributes dependencies, directs interactions, and establishes the framework within which independent actors can operate. This ability of architecture to structurally shape the relational logic of the ecosystem represents one of the most important characteristics of digital platforms and one of the key elements that distinguishes platform ecosystems from classical interorganizational networks. For this reason, architecture in contemporary literature is not viewed exclusively as a technical component of the platform, but as a fundamental organizational framework that directly shapes the structure of relationships within the digital ecosystem.

5.6 Development of an Integrative Conceptual Framework

The analysis of interorganizational networks and digital platform ecosystems shows that, although these organizational models emerged in different theoretical and business contexts, there is a significant conceptual connection between them. Interorganizational

networks have long represented an important theoretical framework for understanding how multiple independent organizations coordinate activities, exchange resources, and develop relationships that extend beyond the boundaries of a single firm. The development of digital platforms and platform ecosystems has introduced a new organizational dimension in which similar principles of interdependence, collaboration, and coordination emerge within a technologically mediated environment. As Jacobides et al. (2018) point out, platform ecosystems should therefore not be viewed exclusively as a technological phenomenon, but also as a specific evolution of network organizational logic.

However, simply identifying similarities between these two concepts is not sufficient for a deeper understanding of their organizational logic. In order to understand how digital platform ecosystems function as systems of relationships, it is necessary to develop an integrative conceptual framework that connects the key elements of network theory with the specific characteristics of platform systems. Such a framework makes it possible to understand digital platforms not merely as technical infrastructures or business models, but as complex organizational systems in which relationships among the platform owner, external participants, and structural coordination mechanisms form part of a broader organizational logic. The emergence of hybrid organizational forms has challenged the explanatory power of conventional organizational theories. For this reason, Foss and Saebi (2018) advocate an integrative approach that is better suited to capturing the complexity of contemporary organizational models.

The starting point of this integrative conceptual framework is based on the assumption that digital platform ecosystems represent a specific network organizational system in which relationships among actors are not only the result of business cooperation, but are also structurally shaped through governance mechanisms and platform architecture. As Mukhopadhyay and Bouwman (2019) note, in classical interorganizational networks organizations develop different forms of collaboration, with coordination depending on a combination of formal rules, trust, institutional arrangements, and the distribution of power within the network. In platform ecosystems, this logic is expanded and transformed through the introduction of technical infrastructure that directly influences the way relationships are developed, maintained, and coordinated. Tiwana (2014) emphasizes that platform systems do not function solely through organizational coordination, but through a combination of architecture and governance, which distinguishes them from traditional network forms.

Within this conceptual framework, the first key element is the platform owner as the focal actor of the ecosystem. Unlike classical interorganizational networks, in which a central position does not always have to be clearly institutionalized, in platform ecosystems this actor has a specific structural role because it controls the technical core of the platform, defines the rules of participation, and significantly shapes the organizational order of the entire system. As Jacobides et al. (2018) explain, this type of position represents one of the most important specific characteristics of platform ecosystems in comparison with classical network organizational forms. This does not mean that the central actor directly controls all participants, but rather that it represents the structural point around which the ecosystem is organized and coordinated.

The integrative framework also recognizes that ecosystem participants combine organizational autonomy with mutual structural dependence. Although each actor operates independently, effective ecosystem functioning relies on the interconnected relationships that link them together. These may include complementors, development partners, users, service providers, or other organizations operating within the platform system. Their role is not passive, as they actively participate in value creation, the development of complementary solutions, and the expansion of the ecosystem as a whole. However, as Hein et al. (2020) emphasize, their activities are not entirely independent, since they are significantly shaped by platform architecture and by the rules defined by the platform owner. For this reason, these participants can be understood as network actors whose position is simultaneously autonomous, but also structurally conditioned within the broader ecosystem.

The third key element of the integrative conceptual framework is governance as the central mechanism for coordinating relationships. In classical interorganizational networks, governance has already been recognized as a mechanism that enables multiple independent organizations to function within a broader system of cooperation. In platform ecosystems, this role becomes even more significant. Complex ecosystems require governance mechanisms that do more than regulate relationships among participants. As noted by Staub et al. (2022), governance provides the coordination needed to balance the interests of multiple actors, preserve system stability, and organize interactions across the ecosystem. In doing so, it determines participation conditions, shapes power structures, and supports the ecosystem's overall performance. This coordinating role represents one of the key elements for understanding contemporary organizational systems that operate beyond the boundaries of the classical firm.

The fourth element of the conceptual framework relates to platform architecture as a structural mechanism for shaping relationships. This represents one of the most important contributions of platform theory in comparison with classical network approaches. While in interorganizational networks relationships are primarily the result of strategic and organizational arrangements, in platform ecosystems platform architecture directly affects the possibilities for interaction, the degree of access to resources, the boundaries of participation, and the dependence among different actors. Tiwana (2014) emphasizes that platform architecture does not represent merely the technical foundation of the system, but an important organizational mechanism that shapes relationships and the way the ecosystem functions as a whole.

Within this integrative framework, governance and architecture do not function as separate elements, but as two interconnected mechanisms for structuring relationships. Governance defines rules, power distribution, and coordination mechanisms, while architecture determines the technical and structural boundaries within which these relationships take place. Together, these two elements shape the way in which the platform owner coordinates relationships with external participants, which represents the essential theoretical foundation of this study. According to Cennamo (2021), it is precisely the combination of architectural control and governance mechanisms that constitutes one of the key foundations of the sustainability of contemporary platform ecosystems.

Based on this framework, a broader relational logic of the platform ecosystem can also be formulated. Through governance mechanisms and architecture, the platform owner shapes the conditions of participation within the ecosystem. Platform participants, operating within these structurally defined boundaries, develop relationships, create complementary value, and contribute to the expansion of the platform system. The quality of relationships among these actors depends on the extent to which governance mechanisms and architectural structure are able to maintain a balance between control, openness, innovation, and stability.

6. Apple App Store Ecosystem: An Illustrative Case Analysis

The Apple App Store represents one of the most well-known and frequently analyzed examples of a digital platform ecosystem, as it brings together a large number of independent participants, a clearly defined technological infrastructure, and developed governance mechanisms that shape relationships between the platform owner and external actors. Unlike traditional business models, in which an organization independently produces and distributes value, this platform functions as an ecosystem in which Apple provides the central infrastructure, while a significant portion of value emerges through the activities of external participants who develop applications, offer digital services, and contribute to the expansion of the entire system through various forms of interaction. For this reason, the Apple App Store is often viewed in contemporary literature as a representative example of a platform ecosystem, because it clearly illustrates the relationships between a central platform owner and a broad network of external participants. In Tiwana's (2014) view, this model is particularly useful for explaining the mechanisms through which digital platforms coordinate interactions and relationships among participants operating within complex organizational settings.

At the core of the Apple App Store ecosystem is Apple as the platform owner, that is, the central actor controlling the technological infrastructure, access to the platform, integration rules, and the basic conditions under which other participants may operate within the system. In this case, Apple does not act merely as the owner of a digital application marketplace, but as the organizational center that shapes the entire ecosystem of relationships through infrastructural and governance control. The App Store is not designed as a neutral digital marketplace in which participants independently form relationships, but as a system in which Apple defines the key conditions of interaction, technical standards, app approval procedures, monetization rules, and access to end users. Jacobides et al. (2018) emphasize that this position of the platform owner represents one of the central characteristics of platform ecosystems, since the central actor does not need to directly produce all value, but structurally shapes the system in which that value is created.

In addition to Apple as the central actor, platform participants also play an important role in the ecosystem, particularly app developers, who act as external participants creating complementary products and services that expand the functionality of the platform. Their

role is essential, because without a broad range of applications the App Store would not be able to achieve the level of attractiveness and market value that characterizes it. Through the development of applications, additional digital services, and specialized solutions, developers actively participate in the process of value creation, while Apple does not assume a direct production function, but rather provides the infrastructure within which such value is generated. Hein et al. (2020) note that participants of this kind in platform ecosystems should not be understood as traditional external partners, but as complementary actors whose activities have a direct impact on the total value of the system.

However, the relationship between Apple and developers is not a relationship of classical market exchange, nor is it a typical partnership of the kind found in traditional interorganizational networks. Developers retain their organizational independence, but at the same time their activities depend on the conditions imposed by the platform. In order for an application to become available to users, it must be developed in accordance with Apple standards, pass the approval process, and remain technically compatible with the architecture of the system. This relationship illustrates a specific form of structural dependence, because although developers remain formally autonomous, their market visibility and ability to access users depend to a significant extent on the platform framework. Tiwana (2014) identifies this type of relationship as a new form of interorganizational dependence, one that is not based exclusively on contractual cooperation, but on infrastructural and architectural conditioning.

Another important group of participants consists of end users, whose presence represents one of the key elements in the functioning of the entire system. Unlike classical business networks, in which end users often remain outside the organizational structure itself, in platform ecosystems users have an active role because their presence directly influences the behavior of other participants. A larger number of users increases the attractiveness of the system for developers, while a broader range of high-quality applications further increases the value of the platform for users. Evans and Schmalensee (2016) identify this interdependence between different groups of participants as one of the fundamental drivers of digital platform growth. In the case of the Apple App Store ecosystem, this logic is particularly visible, because the value of the system cannot be explained solely through the activities of Apple or developers individually, but through the relationships

that develop among all participants within the broader ecosystem.

The analysis of the Apple App Store shows that the process of value creation is largely based on complementarity between the platform core and the external contributions of participants. Apple provides the core infrastructure, operating system, security standards, and access to users, while developers, through applications and digital services, expand the functionality of the system and increase its market value. This distribution of roles demonstrates that the Apple App Store functions as a typical platform ecosystem in which value is not the result of the activities of a single organization, but rather the consequence of the interconnectedness and interdependence of different actors. Kapoor and Agarwal (2017) point out that this complementary logic distinguishes platform ecosystems from classical organizational models, because the success of the system depends on the quality and dynamics of relationships between the central platform and external participants.

The Apple App Store represents a particularly interesting example because the balance between openness and control is not evenly distributed among participants. Apple encourages the inclusion of a large number of external developers, but at the same time retains a high degree of control over access rules, distribution, and monetization. This organizational logic demonstrates that the Apple ecosystem does not function as a fully open network of collaboration, but rather as a structured platform system in which the platform owner actively shapes the conditions under which other actors may participate.

One of the most visible examples of such governance is the App Review process, through which Apple exercises control over applications before they are published on the platform. This mechanism has a formal function in protecting quality, security, and technical compliance, but it also represents an important instrument for coordinating relationships between the platform owner and developers. Through this process, Apple not only verifies the technical correctness of applications, but effectively determines the conditions under which external participants may gain access to the user market. This model demonstrates that governance in platform ecosystems operates not only through classical organizational mechanisms, but also through institutionalized processes that directly influence participant behavior and the structure of relationships within the system.

Beyond formal rules and governance procedures, the Apple App Store ecosystem is particularly distinctive because a significant part of the relationships among actors is shaped not only through organizational decisions, but also through platform architecture

as a structural mechanism for organizing relationships. In this respect, Apple represents an especially relevant example for applying the theoretical concepts developed in previous chapters, because it clearly shows that the platform does not function as a simple digital intermediary between developers and users, but as a system in which the architecture itself directly affects possibilities for interaction, boundaries of participation, and the distribution of dependence among actors. Tiwana (2014) emphasizes that in platform ecosystems technical architecture is not merely infrastructural, but also an organizational mechanism that shapes relational patterns within the system.

In the case of the Apple App Store, platform architecture is organized around a closed but modular system, meaning that Apple retains strong control over the technological core, while external participants may develop complementary products within predefined boundaries. Developers have the ability to create a wide range of applications and digital services, but this freedom is not absolute, since it is conditioned by technical rules, development tools, API standards, and architectural constraints defined by Apple. This model demonstrates that relationships between Apple and developers are not based exclusively on market cooperation, but are structurally shaped through platform design. Hein et al. (2020) argue that precisely this architectural conditioning of relationships represents one of the most important characteristics of platform systems, because coordination takes place not only through rules, but also through the technical structure of the system.

This organizational logic becomes especially important when analyzing the issue of dependence between the platform owner and participants. In classical interorganizational networks, dependence between organizations often emerges through resource exchange, contractual relationships, or strategic interdependence. In the Apple App Store ecosystem, developer dependence arises not only from business interests, but also from the fact that access to users, monetization opportunities, and technical compatibility depend on the architecture controlled by Apple. A developer may formally remain an independent organization, but its market position within the ecosystem depends significantly on platform rules and the technical framework of the system. In the framework proposed by De Reuver et al. (2018), the interconnectedness of ecosystem participants is viewed as a consequence of two complementary factors: organizational relationships and the digital infrastructure that supports communication, coordination, and collaboration across the platform.

One of the key questions in analyzing the Apple App Store ecosystem concerns the balance between openness and control, which is also one of the central themes in contemporary platform theory. Apple encourages the inclusion of external developers because they increase the functionality and market value of the platform. The larger the number of high-quality applications, the more attractive the platform becomes for users, thereby increasing the overall value of the system. At the same time, Apple retains a high degree of control over key elements of the ecosystem, including distribution rules, monetization, technical standards, and access to infrastructure. This combination of openness and control shows that the Apple App Store does not function as a fully open network, but as a controlled platform ecosystem in which the platform owner actively shapes the boundaries of autonomy available to other participants. Cennamo (2021) identifies this balance between openness and control as one of the key conditions for the long-term sustainability of platform systems.

A particularly important example of this logic can be observed in Apple's monetization and commission policies, which are frequently analyzed in contemporary literature as an example of platform governance through the economic dimension of relationships. Apple provides developers with access to a global user market and infrastructural resources, but at the same time defines the conditions under which revenue may be generated, including commissions on digital transactions and rules related to in-app purchases. In this way, the platform owner coordinates relationships not only through technical and organizational mechanisms, but also through control over key economic channels within the ecosystem. Jacobides et al. (2018) describe value distribution in platform ecosystems as one of the central questions of power and governance, because through such mechanisms the platform owner significantly shapes relationships among different participants.

The analysis of the Apple App Store shows that this platform is largely based on principles of network organization, but also adapts and transforms them in accordance with the specific characteristics of the digital environment. As in classical interorganizational networks, there is a large number of independent actors who, through interdependence, resource exchange, and the development of complementary activities, jointly participate in value creation. This logic of interconnectedness, collaboration, and interdependence represents an important point of contact between network organizational models and platform ecosystems. However, the Apple App Store does not function as a classical network in which relationships primarily develop through direct organizational ties among actors. In this case, Apple occupies a much stronger and more structurally

central role, because it is not merely one participant in the system, but the actor that actively shapes the way relationships among others develop through governance rules, technological infrastructure, and platform architecture. For this reason, the Apple App Store demonstrates that platform ecosystems adopt network organizational logic to a significant extent, while at the same time extending it through specific forms of central coordination that clearly distinguish them from traditional interorganizational networks.

The analysis of the Apple App Store ecosystem also shows that governance mechanisms perform a direct coordinating function in relationships between the platform owner and participants, which represents the central research question of this study. Through participation rules, the App Review process, monetization mechanisms, technical standards, and architectural constraints, Apple actively directs developer behavior and shapes the way in which they participate in the system. This means that relationships between Apple and external participants are not spontaneous or entirely governed by market logic, but are coordinated through a combination of formal and structurally embedded governance mechanisms.

The Apple App Store clearly demonstrates how platform ecosystems function in practice and how relationships among different participants are organized within a broader system. At the center of the system is the platform owner, who controls the core infrastructure and defines the rules of operation, while around it operates a large number of independent participants whose activities contribute to the creation of the overall value of the system. Relationships among these actors do not develop spontaneously or exclusively through market logic, but are shaped through a combination of governance mechanisms, technological infrastructure, and architectural rules that determine the functioning of the ecosystem as a whole. Through this type of organization, Apple is able to maintain system stability, stimulate value creation, and at the same time retain a central coordinating role within the platform.

This example demonstrates that the Apple App Store is not merely a successful digital platform, but also an illustrative example of how network organizational logic evolves in a digital environment. It contains elements characteristic of interorganizational networks, but also the specific characteristics of platform systems that arise from the central role of the platform owner, digitally mediated coordination, architecturally shaped relationships, and the continuous balancing between openness and control. For this reason, the Apple App Store represents a highly relevant example for understanding the way governance

mechanisms in digital platform ecosystems shape relationships between the platform owner and other participants, thereby directly providing an answer to the central research question of this study.

7. Conclusion

The rapid development of digital platforms has fundamentally transformed the way economic activity is organized, shifting attention from traditional firm-centered business models toward ecosystems based on interdependence, coordination, and value co-creation among multiple external actors. In such environments, platform owners no longer operate solely as individual firms, but increasingly act as orchestrators of complex networks in which relationships between participants must be carefully structured, managed, and coordinated. This transformation has created an important theoretical need to better understand how governance mechanisms function within digital platform ecosystems and how these systems relate to broader concepts of interorganizational networks.

The findings of this study indicate that digital platform ecosystems represent a specific organizational form in which coordination does not rely on traditional hierarchical control, but on a combination of governance structures, technological infrastructure, and strategically designed interaction mechanisms. Unlike conventional interorganizational networks, where coordination is often based on negotiated relationships, formal agreements, and relational trust, digital platforms introduce additional layers of coordination that are embedded directly into platform architecture and technologically mediated systems. In this sense, governance becomes a central organizing mechanism that shapes participation, regulates interaction, and influences value creation across the ecosystem.

The analysis further demonstrates that relationships between platform owners and platform participants are characterized by a structural asymmetry in which platform owners retain a central governance role while external actors contribute to ecosystem growth through innovation, complementary offerings, and user engagement. This creates a system of mutual interdependence in which platform owners depend on participants for ecosystem expansion, while participants simultaneously depend on the platform for market access, visibility, and resource integration. Such relationships are therefore neither purely hierarchical nor purely market-based, but represent a hybrid form of coordination shaped by technological and organizational governance mechanisms.

In direct response to the central research question, this study finds that governance mechanisms within digital platform ecosystems coordinate relationships between

platform owners and participants through a combination of formal rules, access control, architectural design, algorithmic coordination, standards, participation requirements, and strategic balancing between openness and control. These mechanisms enable platform owners to organize decentralized interactions, maintain system stability, regulate participant behavior, and support value co-creation, while preserving a central coordinating role within the ecosystem.

The findings suggest that digital platform ecosystems share important similarities with traditional interorganizational networks, particularly in their reliance on interdependence, resource exchange, coordination across organizational boundaries, and the strategic importance of relationships between autonomous actors. However, digital platforms also differ in significant ways due to the central role of digital infrastructure, algorithmically mediated governance, scalable coordination mechanisms, and the architectural power of platform owners, which introduce forms of control and coordination not typically present in conventional network structures.

An important contribution of this study lies in connecting insights from interorganizational network theory with contemporary platform ecosystem research, thereby offering a broader analytical perspective for understanding governance in digitally mediated business environments. The integration of these perspectives highlights that digital platforms should not be viewed simply as technological systems, but as complex organizational ecosystems in which governance structures play a decisive role in shaping relationships, participation, and value creation.

Future research could therefore build on these findings by conducting empirical investigations of specific platform ecosystems, comparing governance mechanisms across industries, or examining how participants perceive and respond to different forms of platform control. Additional studies may also explore the long-term consequences of algorithmic governance, power asymmetries, and regulatory interventions in digital ecosystems, particularly as platforms continue to expand their role in global economic and organizational structures.

Overall, this study confirms that governance mechanisms are central to the functioning of digital platform ecosystems and represent the key link through which relationships between platform owners and participants are coordinated, structured, and sustained in contemporary digital business environments.

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