

Multi-Level Governance of Power in Digital Platforms: A Systematic Meta-Synthesis Study

Atoosa Ebrahimi Shah
Abadi 

Ph.D. student in Entrepreneurship, Faculty of Entrepreneurship, University of Tehran, Tehran, Iran

Ali Mobini Dehkordi *

Full Professor, Faculty of Entrepreneurship, University of Tehran, Tehran, Iran

Abstract

Digital platforms have become complex structures in which technological architectures, network effects, and multi-sided interactions have created new forms of power at the *macro*, *meso*, and *micro* levels. This study aims to reorganize the scattered dimensions of platform-power governance into a coherent three-level framework. This study used a systematic meta-synthesis design and conducted a guided search in the Scopus database using the *PRISMA* protocol for the years 2015-2025. After screening 514 articles and applying the Joanna Briggs Institute quality criteria, 44 qualitative studies were selected. Data extraction and coding were conducted through open, axial, and selective stages, and the codes were also reviewed independently to ensure reliability. The reviewed studies included interventions in the domains of regulatory structures, ecosystem architectures, and user-level mechanisms, and the analysis was carried out using qualitative synthesis techniques. The results showed that platform power had been shaped through macro-level institutional and regulatory rules, meso-level infrastructural and algorithmic arrangements, and micro-level design and behavioral mechanisms. The findings also showed that these levels were interconnected and reinforced one another in shaping how platform power functions. Finally, this study showed that understanding platform governance requires simultaneous attention to all three levels and that integrated frameworks are necessary to address the multidimensional nature of power in digital platforms.

1. Introduction

* Corresponding Author: mobini@ut.ac.ir
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In recent years, the governance of power in digital platforms has become a central issue due to the increasing complexity of platform structures, the technological nature of their architectures, and the influence of network effects. The article stated that digital platforms had evolved from simple technological intermediaries into large-scale socio-technical systems that reshaped economic and social relations across multiple layers. The expansion of data-driven infrastructures and the rise of multi-sided platform businesses had intensified the need to understand how platform power was formed, maintained, and reproduced. While previous studies had examined platform governance from different perspectives, the existing literature remained dispersed. Some works focused on regulatory and institutional structures at the macro level, others on ecosystem architecture and infrastructural arrangements at the meso level, and several on user experience and algorithmic mechanisms at the micro level. This fragmentation underscored the need for an integrated framework capable of combining these layers. Accordingly, the present study aimed to reorganize the scattered conceptual components through a *systematic meta-synthesis* and to develop a coherent three-level model of platform-power governance encompassing *macro-, meso-, and micro-level* dimensions.

2. Literature Review

The literature on digital platforms showed that platform power was formed across three interconnected levels. At the *macro level*, prior studies discussed institutional and regulatory environments, including antitrust rules, data-access policies, and public-governance frameworks, that shaped broader conditions for platform operations. At the *meso level*, the literature emphasized ecosystem architecture, infrastructural control, API governance, algorithmic ranking, and content-moderation mechanisms that structured interactions within the platform. At the *micro level*, research focused on user experience, including interface design, behavioral nudging, personalization, and limited algorithmic transparency. The study showed that this three-level categorization was *inspired by the multi-level perspective of* (Poell et al., 2019)(Geels, 2011) *and the micro-meso-macro framework of* (Dopfer et al., 2004), which provided a conceptual basis for organizing dispersed findings. Across the literature, these layers appeared consistently as the main domains through which platform power was exercised and reproduced.

3. Methodology

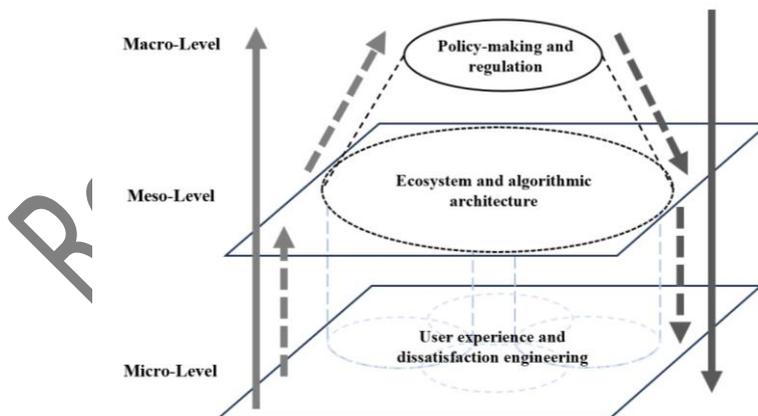
The study used a *systematic meta-synthesis approach* to identify and integrate research findings. A *PRISMA*-guided search in Scopus from 2015 to 2025 has retrieved 514 articles. After removing duplicates, 392 titles and abstracts were screened, and 256 full texts were reviewed. After applying

inclusion criteria focused on platform power and governance mechanisms, 127 studies remained. These were assessed using the Joanna Briggs Institute (JBI) checklist, and 44 articles with acceptable quality scores were included. The article detailed a three-stage coding process (open, axial, and selective coding). The coding identified 183 initial codes that reflected concepts such as infrastructural control, institutional governance, data dependency, content moderation, ranking algorithms, and user-level behavioral mechanisms. Independent coding of 20% of the data yielded a Cohen's kappa of 0.78, indicating substantial agreement.

4. Results

The findings showed that platform power governance operated across three connected levels. The *macro level* consisted of regulatory frameworks, public policies, antitrust rules, and data-access arrangements that shaped structural conditions. The *meso level* included API control, algorithmic ranking, data-flow management, content moderation, and operational oversight, which organized participation and visibility. The *micro level* involved interface design, personalization, nudging, and limited transparency, influencing user behavior and anticipatory compliance. Overall, platform power was reproduced through the continual interaction of these three levels.

Figure 1: A multilayer model of the relationships among macro, meso, and micro levels



5. Discussion

The research emphasized that platform power could not be understood through a single analytical layer, because the mechanisms identified across *macro*, *meso*, and *micro levels* were structurally connected and continually

reinforced one another. The findings showed that institutional and regulatory arrangements at the macro level shaped the external boundaries within which platforms operated. At the same time, meso-level architectures, including infrastructural control, algorithmic systems, and ecosystem rules, translated these broader conditions into concrete operational mechanisms. At the micro level, user experience reflected how these institutional and infrastructural elements were enacted in daily interactions, particularly through interface design, personalization, and behavioral cues. Also, the study explained that this layered perspective, inspired by *Geels's multi-level framework* and *Dopfer's micro-meso-macro structure*, enabled the reorganization of dispersed insights into a coherent structure of platform power. It also noted that the entanglement of technological design with regulatory and behavioral dynamics meant that any attempt to govern platform power required attention to how rules were implemented through the platform's architecture and how users responded to algorithmic and interface mechanisms. In this sense, the discussion highlighted that power in digital platforms emerged through the interplay of institutional constraints, technical infrastructures, and user practices, and none of these components could be separated analytically without losing explanatory depth.

6. Conclusion

The study concluded that platform power in digital environments operated through a *multi-layered structure*, with components distributed across the macro, meso, and micro levels. By conducting a systematic meta-synthesis, the article reorganized fragmented findings into a single integrated framework that clarified how institutional rules, infrastructural architectures, and user-level mechanisms jointly shaped the formation and reproduction of platform power. The three-level model, adapted conceptually from *Geels* and *Dopfer*, provided a structured way to distinguish the regulatory context, the intermediary ecosystem architecture, and the experiential layer of user interactions. The conclusion stated that effective governance of digital platforms required coordination across all three levels, because interventions aimed solely at regulation, ecosystem design, or user behavior would remain incomplete without alignment with the other layers. The framework, therefore, offered a conceptual foundation for future research on platform governance and guided policymakers, regulators, and platform designers seeking to develop more coherent strategies for addressing platform power in digital economies.

Keywords: Platform power structure, Digital platform governance level, multi-sided businesses, Platform power technology nature, Network effect

Introduction

In the past few decades, the emergence of digital platforms as dominant structures within the knowledge-based economy has reshaped the nature of power governance (Castells, 2009; Nieborg et al., 2019). Platforms are no longer merely technological intermediaries; instead, they have evolved into expansive networks that redefine power relations across multiple levels, ranging from technical infrastructures and ecosystem architectures to macro-level policymaking and users' everyday practices (Busch, 2021; Cusumano et al., 2019; Elyasi et al., 2023). Despite the substantial growth of the literature on platform power governance (Gawer & Bonina, 2024; Jacobides & Lianos, 2021) a key challenge remains unresolved: the fragmentation of perspectives and the absence of an integrated analytical structure capable of systematically linking the dimensions of power across different levels, from macro-market structures to ecosystem design and micro-level user experience (Geels, 2011; Harraca & Gawer, 2023). Recent efforts, such as the multi-level perspective on socio-technical transitions and the three analytical levels outlined by Dopfer et al. (2004), indicate that analyzing complex phenomena without a clear distinction between levels of analysis leads to incomplete and ineffective explanations (Geels, 2011). In parallel, studies including Cutolo & Kenney (2021) and Estrin et al. (2025) show that platform power is not confined to macro-level structures and regulatory regimes; instead, it is distributed and reproduced across the meso level encompassing infrastructures, application programming interface (API) policies, and ecosystems, and the micro level, including experience architecture and recommender algorithms.

At the macro level, issues such as structural dominance, ecosystem dependency, and the design of antitrust policies in Europe and the United States have attracted increasing attention (Busch et al., 2021; Estrin et al., 2025; Gawer & Jacobides, 2024). At the meso level, the architecture of ecosystems, control over data flows, and complementor strategies reveal more concealed dimensions of power (Cutolo & Kenney, 2021; Dopfer et al., 2004; Yoffie et al., 2019). At the micro level, more subtle mechanisms, such as satisfaction-engineering strategies, predictive algorithms, and choice architecture, have become sophisticated tools for behavioral engineering (Bozeman, 2000; Jhaver et al., 2023). Furthermore, the philosophical dimension of technological power, as articulated in perspectives such as Heidegger's "question concerning technology" (Heidegger, 1993), suggests that the power of platforms is not exclusively technical or economic. Instead, it is embedded at a deeper level in the very technological condition of

modernity and its entanglement with users' everyday lives. Accordingly, the main research question of this study is: *What dimensions and components of digital platform governance exist across different levels (macro, meso, and micro), and how can these dimensions be integrated into a coherent analytical framework?*

In response, the present study draws on the multi-level perspective (Geels, 2011) and the three-level conceptual model proposed by (Dopfer et al., 2004) employing a systematic meta-synthesis to reorganize the fragmented dimensions of power governance on digital platforms into a unified three-level framework. In doing so, the study bridges theoretical gaps between dispersed perspectives and more consolidated analytical approaches. The three-level model developed in this research, adapted from Geels' multi-level perspective and Dopfer et al.'s macro-meso-micro framework, is explicitly redefined for the field of power governance in digital platforms. Within this adaptation, the macro level corresponds to the institutional and regulatory environment; the meso level functions as an intermediary regime or architectural layer that translates macro-level rules into internal ecosystem mechanisms; and the micro level refers to the tangible actions of users and rule carriers as manifested in user experience and interactive behavior. Given that the focus of this study is not technological transition or the general evolution of rules per se, the MLP and macro-meso-micro conceptual model are not applied in a one-to-one manner; instead, they serve as conceptual resources for distinguishing layers of power governance. Beyond enhancing conceptual coherence in the study of platform power, this framework enables a more nuanced understanding of how power is interwoven across macro, meso, and micro levels, thereby supporting researchers and policymakers in designing more effective governance strategies.

The primary innovation of this study lies in identifying and reorganizing the dimensions of digital platform power governance within a three-level analytical framework. Although concepts such as power governance, platforms, and interactions have been examined across various strands of the literature (Castells, 2009; Cusumano et al., 2021), most existing studies have not explicitly differentiated governance across distinct levels, namely the macro, meso, and micro levels (Geels, 2011; Jacobides & Lianos, 2021). Prior research has predominantly focused either on macro-level dimensions, such as antitrust regulation, or on micro-level aspects, such as user experience design (Busch, 2021; Zuboff, 2023). In contrast, the present study adopts a comprehensive approach that integrates these levels within a unified framework and systematically analyzes their relationships and interactions. This framework not only addresses gaps in the existing

literature but also offers pathways for policy formulation and the design of digital platform ecosystems.

Literature Review

Digital Platforms

In recent decades, the emergence of digital platforms as the backbone of the digital economy and online social spaces has fundamentally transformed traditional conceptions of power and governance (Castells, 2009, 2016; van Dijck et al., 2019). These digital platforms, commonly characterized by multi-sided business models, leverage network effects to deepen the dependence of users and business partners alike (Cusumano et al., 2019; Evans & Gawer, 2016; McIntyre et al., 2021). A digital platform can be defined as a technological infrastructure that directly connects multiple distinct groups of users (Nobari & Ebrahimi ShahAbadi, 2024). This connection is not neutral; instead, it is governed through access rules, interface design, and algorithmic architectures that structure interactions among participants (Busch, 2021; Mutz & Simmons, 2022).

The Nature of Technology

Heidegger's question concerning the "nature of technology" emphasizes that technology is not merely an instrument, but rather a hidden ordering that enframes and encompasses being, that is, a mode of structuring that is today reproduced at the level of digital infrastructures and application interface architectures. Within this perspective, algorithmic governance can be understood as a continuation of the "will to mastery," which Heidegger identified as the culmination of the modern era (Heidegger, 1993). What digital platforms currently produce extends beyond simple mediation; they reproduce what Harraca & Gawer (2023) describe as an "organized infantilization" of space, referring to a reduction in the capacity for public rationality. This process is closely linked to the design of user interfaces and data-flow algorithms and gives rise to forms of "satisfaction engineering" (Harraca & Gawer, 2023; Zuboff, 2019). Technological power is not confined to tools or software alone. As Castells (2009) demonstrates, this power acquires meaning within dense communication networks that shape structures of governance and the circulation of power. According to Bozeman (2000), technology transfer is always influenced by governance structures and regimes, which are exercised through networks of application interfaces and data ownership rules. Consequently, algorithmic governance can be viewed

as a framework that defines the boundaries of access, decision-making, and knowledge production (Busch et al., 2021). Ultimately, data control, software architecture, and algorithmic interventions have generated a new form of “network power,” a form of power rooted in digital networks and intertwined with political-economic mechanisms based on monopoly and data capture (Castells, 2016; Cusumano et al., 2021).

Digital Platform Power

Platform power can be defined as the structural and symbolic capacity of platform actors to organize economic, social, and cultural interactions. This power emerges from the combination of resources such as network effects, switching costs, economies of scale and scope, data ownership and processing capabilities, and the ability to influence consumer behavior (Busch et al., 2021; Poell et al., 2023). Platform power is not limited to market dominance; rather, through control over digital infrastructures and software architectures, it enables the setting of rules of the game and the constraint of actions and choices available to dependent actors (Cutolo & Kenney, 2021; Nzembayie et al., 2024). At a deeper level, this form of power is accompanied by processes such as satisfaction engineering and organized infantilization, which contribute to the erosion of the public capacity for rational judgment and autonomy (Harraca & Gawer, 2023). What ultimately distinguishes platforms from mere technical intermediaries is their platform power, a form of power that is distributed across economic dimensions (market control), infrastructural dimensions (data and network ownership), and social and symbolic dimensions (the shaping of narratives and preferences) (Busch et al., 2021; Harraca & Gawer, 2023; Zuboff, 2019). This power not only structures markets but also shapes users’ freedom of action at the micro level (Heidegger, 1993).

The Structure of Platform Power Governance

A growing body of research has emphasized that platform power is not limited to economic dominance alone, but should instead be understood within the framework of a multi-level governance structure (Furman et al., 2019; Steinbaum, 2022). Within this perspective, the structure of platform power governance consists of a network of rules, technological policies, decision-making algorithms, and institutional relationships that operate across macro, meso, and micro levels (Cusumano et al., 2021; Dopfer et al., 2004; Geels, 2011). The three-level model proposed in this study is informed by the multi-level perspective (Geels, 2011), the macro-meso-micro classification developed by Dopfer et al. (2004), and network governance theory

(Castells, 2009, 2011, 2016). This model is adaptively redefined for the specific field of power governance in digital platforms. In this adaptation, the macro level corresponds to the institutional and regulatory context; the meso level functions as an intermediary regime or architectural layer that translates macro-level rules into internal ecosystem mechanisms; and the micro level refers to the tangible actions of users and rule carriers as manifested in user experience and interactive behavior. Since the focus of this study is not technological transition or the general evolution of rules, the multi-level perspective and the macro-meso-micro framework are employed not in a one-to-one manner, but as conceptual resources for distinguishing layers of power governance. In this regard, studies such as Busch (2021) and Cusumano et al. (2021), which examine policy “blind spots” in platform governance, highlight the need to attend to the less visible dimensions of power. Moreover, concepts such as institutional work (Gawer & Phillips, 2013) demonstrate that shifting organizational logics from traditional supply chains to platform-based models requires active institutional engagement, legitimation processes, and the reconstitution of organizational identity. These institutional transformations are closely intertwined with the expansion of “soft power” and “organized infantilization,” through which users’ capacity for critical agency is weakened (Harraca & Gawer, 2023; Nye, 2008). Consequently, a review of this body of literature suggests that any profound understanding of platform power governance remains incomplete without a clear differentiation of levels of analysis. For this reason, the present study seeks to reorganize these fragmented dimensions into a coherent framework based on the macro, meso, and micro levels.

Methodology

To identify the dimensions and components of digital platform power governance, the present study adopts a systematic meta-synthesis approach. This method is particularly suitable for analyzing and integrating fragmented research across interdisciplinary fields such as digital technologies, platform governance, and technology management (Paterson, B. L.; Thorne, S. E.; Canam, C.; Jillings, 2001; Sandelowski et al., 1997, 2007). To conduct the meta-synthesis, the research question was first precisely defined as follows: *What dimensions and components of digital platform governance exist across different levels (macro, meso, and micro), and how can these dimensions be integrated into a unified analytical framework?* In the initial stage of data collection and screening, a systematic literature review was conducted using the PRISMA protocol, covering the period

2015-2025 and focusing on the international Scopus database. Given the study's emphasis on the governance of digital platform power, the following keywords were employed using the search strategy presented in Table 2: "platform governance," "platform power," "digital platform power governance," "platform regulatory power," and "multi-level platform governance." This strategy was designed to ensure comprehensive coverage of relevant and high-quality scholarly articles. The initial search identified a total of 514 articles, with the number of articles retrieved for each keyword reported separately in Table 1.

Table 1. Results of Keyword Searches in the Scopus Database

No.	Keyword	Number of Articles Identified
1	"Platform Governance"	342
2	"Platform Power"	69
3	"Power Governance"	11
4	"Digital Platform Governance"	1
5	"Regulatory Governance"	1
6	"Platform Regulatory Power"	0
7	"Regulatory Governance of Power"	0
8	"Multi-level Platform Governance"	0
9	"Platform Power" OR "Platform Governance" OR "Platform Power Governance" OR "Governance of Digital Platform" OR "Platform Regulatory" OR "Governance of Platform Power" OR "Platform Regulation" OR "Power Governance."	514

Following the identification of the relevant records, 122 duplicate articles were removed. The remaining 392 articles were subsequently screened based on their titles and abstracts, leading to the exclusion of 136 articles. Subsequently, the full texts of the remaining 256 articles were examined in detail, of which 129 articles were excluded due to misalignment with the research objectives and core thematic focus. As a result, a total of 127 articles were retained for comprehensive evaluation.

Table 2. Search Strategy

Component	Description
Approach	Systematic review
Standard	PRISMA
Database	Scopus
Time span	2015–2025
Search fields	Title, Abstract, Keywords

Component	Description
Subject areas	Social Sciences; Business; Management; Accounting
Document types	Articles; Review papers
Publication stage	Final
Keyword filters	Platform power; Platform governance; Digital platform governance; Power governance; Governance approach; Platform regulation; Digital governance; Governance mechanisms; Policy
Language	English
Inclusion and exclusion criteria	Quality checklist

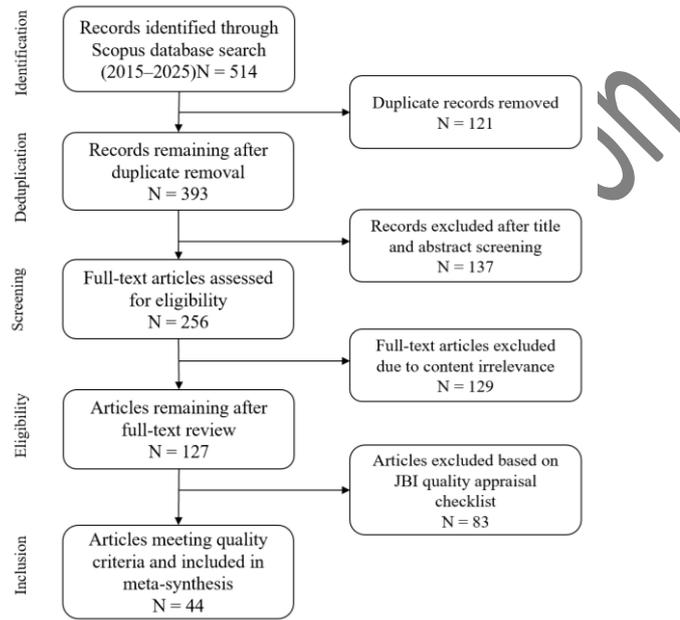
At this level, the remaining 127 articles were subjected to *quality appraisal* using the Joanna Briggs Institute (JBI) critical appraisal checklist for qualitative studies (Porritt et al., 2014). A primary reviewer assessed all articles, while a second team member independently audited a random sample of 30% of the studies. Any discrepancies were resolved through a final team consensus meeting. Based on the collective agreement, an inclusion threshold of 7 out of 10 was established, and studies scoring below this threshold were excluded. The appraisal criteria considered indicators such as the alignment between research questions and objectives with the study methodology, as well as the consistency between data collection methods and the underlying theoretical or analytical approach. As a result of this process, 83 articles were excluded, and 44 articles were retained for the meta-synthesis (Figure 1). Finally, data extracted from the selected articles were analyzed using a *three-stage coding process*, comprising open coding, axial coding, and selective coding (Bhattacharjee, 2012; Sandelowski et al., 1997). This process was conducted to identify key concepts from the selected studies and to analyze them within the proposed three-level framework of digital platform power governance. To enhance the rigor and reliability of the findings, the coding process was conducted independently by two researchers. Approximately 20% of the data were independently recoded by the second researcher, and *inter-coder agreement* was calculated using *Cohen's kappa coefficient*, yielding a value of 0.78, which indicates a high level of agreement and acceptable reliability (Miles et al., 1994) (Table 3).

Table 3. Results of Independent Coding by Researchers

No.	Evaluation Indicator	Value
1	Percentage of total codes independently re-coded	20%
2	Initial inter-coder agreement	83%

No.	Evaluation Indicator	Value
3	Inter-coder agreement after resolving discrepancies	96%
4	Cohen's kappa coefficient	0.78

Figure 1. Article Screening and Selection Process



Subsequently, the extracted codes were inductively analyzed and categorized within the three-level framework of macro, meso, and micro analysis. Through this process, the previously fragmented dimensions of platform power governance were ultimately integrated into a conceptual matrix. This qualitative and integrative methodological approach, aimed at designing a coherent framework for analyzing the complexities of digital platform governance, provides a suitable foundation for the production of applied knowledge and the development of macro-level policy interventions (Dopfer et al., 2004; Gawer & Srnicek, 2021; Geels, 2011; Zuboff, 2019).

Findings

The data analysis process in this research was conducted within the framework of a systematic meta-synthesis approach and followed three

successive stages of open coding, axial coding, and selective coding. In the first stage, the full texts of the 44 selected articles were examined line by line, resulting in the identification of 183 initial codes. Selected examples of these codes are presented in Table 4. These codes encompassed a broad range of concepts related to structural power, infrastructural governance, managerial algorithms, user experience engineering, and public policymaking. For instance, themes such as the information economy, data ownership, digital market rules, ecosystem structure, application interface architecture, ranking algorithms, and user satisfaction-engineering policies emerged prominently during the open coding phase.

Table 4. Open Coding

Key Concept	Representative Statement
Design-based control of user choices (UI)	User experience design refers to mechanisms that guide users toward specific choices through deliberate design features (Ozalp et al., 2022).
Concentrated market structure	Due to network effects and data concentration, the digital economy tends toward monopolistic structures (Furman et al., 2019).
Technical control and monopolization	By controlling technical interfaces (e.g., APIs) and digital infrastructures, platforms gain competitive dominance and contribute to market concentration (Nzembayie et al., 2024).
Concentration of power in digital markets	Owing to their digital business models, platforms systematically centralize power within digital markets (Zuboff, 2022).
Monopolization of online markets	Platforms may leverage data-driven business models to create monopolies and exercise market control (Kenney et al., 2019).
Data monopolization	Platforms possess exclusive control over user data, which constitutes a core source of structural power (Zuboff, 2019).
Macro-level regulation	European digital market regulations aim to restrain the dominance of large technology firms (Cennamo et al., 2023).
Institutional governance	Institutional frameworks shape the governance structures of digital markets (Jacobides & Lianos, 2021).
Cultural governance	By influencing culture and social dynamics, platforms reinforce their soft power (Flew & Gillett, 2021).
Platform competitive strategies	Platforms employ specific strategies such as controlling access to data and infrastructures to compete in digital markets (Bozeman et al., 2013).
Business system design	Through the design of proprietary business models, platforms consolidate their economic power (Lynskey, 2017).
Multi-sided actors	Diverse actors within platforms, holding multiple interests and roles, influence decision-making processes (Zuboff, 2019).

Key Concept	Representative Statement
Algorithmic governance	Platforms exert indirect influence over user decisions through the deployment of algorithms (Jarrahi et al., 2021).
Platform economy and power concentration	Data-driven platform business models lead to the concentration of power in the hands of dominant platforms (Srnicek, 2017).
Platform control through algorithms	By leveraging algorithms, platforms manage markets and marginalize competitors (Jacobides & Lianos, 2021).
Digital market regulatory frameworks	Laws and macro-level regulatory policies can directly affect competition and platform dominance (Furman et al., 2019).
Network effects and market concentration	Network effects make platforms more attractive to users and contribute to the concentration of power in digital markets (Castells, 2009).
Expansion of global network effects	By creating global networks and reinforcing economic relations, platforms expand their power worldwide (Srnicek, 2017).
Competitive pressures and reinforcement of the platform dominance	The competition in digital markets leads to increasing pressures that further strengthen platform dominance (Cennamo et al., 2023).
Access control through application programming interfaces (APIs)	Application programming interfaces are used to regulate access to platform resources and functionalities (Cutolo & Kenney, 2021).
Ecosystem architecture	Ecosystem design determines the degree of dependency of complementors and partner firms (Gawer & Phillips, 2013).
Media policy	The modification of content determines what users see and what content is removed (Jhaver et al., 2023).
Information flow management	Algorithms classify, prioritize, and manage information flows (Bucher et al., 2021).
Legal challenges in platform regulation	Legal and regulatory challenges aimed at controlling platform power and preventing potential misuse have emerged (Jarrahi et al., 2021).
Behavioral engineering	Notifications and user interface design guide shape users' interactions and behaviors (Harraca & Gawer, 2023).
Platforms and the restriction of competition	Platforms create legal and technical barriers that constrain competition in digital markets (Gawer & Phillips, 2013).
Dependency creation within platform ecosystems	Platforms generate new forms of dependency within digital ecosystems, enabling them to accumulate greater power (van Dijck et al., 2019).
Content personalization	Recommender systems determine which content is suggested to users (Jhaver et al., 2023).
Market control through digital platforms	Platforms exert control over digital markets through strategic policies that eliminate competitors from the competitive arena (Furman et al., 2019).
Automated filtering	Automated filters are used for content moderation and information restriction (Gillespie, 2018).

Key Concept	Representative Statement
Soft control	Surveillance and predictive monitoring operate in ways that remain invisible to users (Mansell, 2015).
Competition and digital domination	Intense competition in digital markets ultimately leads to excessive platform dominance (Ozalp et al., 2018).
Soft governance	Through the use of soft design elements and imperceptible interactions, platforms exercise soft power (Gillespie, 2018; Nye, 2023).

In the second stage, these codes were integrated and clustered through *axial coding*, based on principles of conceptual similarity and structural relatedness. This stage resulted in the identification of several analytical axes across the *macro*, *meso*, and *micro levels*, revealing the logic of platform power governance as a multi-layered and interconnected structure. Specifically, codes related to the *Digital Markets Act*, *antitrust regulations*, and *institutional market frameworks* were classified at the macro level; codes associated with ecosystem architecture, application programming interface (API) management, and ranking algorithms were grouped at the meso level; and codes concerning user experience design, curated and personalized content feeds, and predictive algorithms shaping user behavior were categorized at the micro level (Table 5).

Table 5. Axial Coding

Macro-level Governance of Platform Power		
Governance Dimension	Sub-dimension	Brief Description
Regulation and antitrust	Digital market regulations, antitrust laws, regulatory policies, and structural competition rules	Antitrust laws and regulatory frameworks are applied to constrain platform power and strengthen competition in digital markets (Cennamo et al., 2023; Furman et al., 2019; Jacobides & Lianos, 2021).
Institutional market governance	Market institutional frameworks, market-shaping strategies, market rule design, and interaction with regulation	The establishment of appropriate institutional frameworks for regulating competition and platform dominance in digital markets, aimed at preventing monopolization (Cusumano et al., 2021; Harraca & Gawer, 2023; Kemmerling, 2025; Lynskey, 2017).
Macro-level ecosystem governance	Ecosystem structure, macro policies,	The design of digital ecosystems in ways that manage dependencies and foster competitive market structures

	collaboration mechanisms, standard-setting, protocol design, application programming interfaces, ownership, and infrastructure management	(Gawer & Srnicek, 2021; Kenney & Zysman, 2016; Plantin et al., 2018; van Dijck et al., 2019).
Information governance and data market regulation	Information infrastructure management, access control, data accessibility, transparency, and ownership policies	Control and governance of data and information infrastructures at the macro level, aimed at enhancing transparency and reducing monopolization in digital markets (Cutolo & Kenney, 2021; Furman et al., 2019; Lynskey, 2017; Nzembayie et al., 2024).
Cultural/media governance	Media frameworks, content moderation policies, information flow design, and cultural intermediation	Through media infrastructures and content governance, platforms influence user behavior, shape decisions, and affect public opinion (Cutolo & Kenney, 2021; Flew & Gillett, 2021; Poell et al., 2023).
Ethical governance and digital justice	Ethical guidelines, transparency policies, and fair data practices	Platforms are expected to ensure equitable, non-discriminatory access to information and fair data governance practices (Harraca & Gawer, 2023; Khan, 2018; Mansell, 2015).
Public and social governance	Public opinion, political campaigning, symbolic power, and social data production	Platforms operate as arenas for public campaigns and opinion formation, exercising symbolic power in the social sphere (Kemmerling, 2025; Khan, 2018; van Dijck, 2020).
Monopolization and dependency governance	Monopolistic structures, structural dependency, ecosystem lock-in, and data extraction	Through the design of monopolistic and dependency-inducing structures, platforms accumulate greater power within digital markets (Cennamo et al., 2023; Jhaver et al., 2023; Nzembayie et al., 2024; Poell et al., 2023).
Meso-level Governance of Platform Power		
Governance Dimension	Sub-dimension	Brief Description

Ecosystem architecture and structure	Ecosystem architecture, internal ecosystem structure, participation policies, internal governance rules, standardization of APIs, and API management	Platforms manage interdependencies and interactions among different market actors through the design of integrated ecosystem architectures (Cutolo & Kenney, 2021; Helmond, 2015; Jarrahi et al., 2021; Jhaver et al., 2023; Kenney & Zysman, 2016).
Meso-level algorithmic governance	Ecosystem ranking structures, algorithmic control, content, and worker ranking systems, internal rules, and commissions	Platforms employ algorithms to manage intra-platform interactions and to rank content and users within the ecosystem (Bucher et al., 2021; Chan & Kwok, 2022; Jacobides & Lianos, 2021).
Data management and data flows	Data collection, user data aggregation, data flow management	Platforms collect and manage user data to guide interactions and economic decision-making within platform ecosystems (Estrin et al., 2025; Gawer & Srnicek, 2021; Khan, 2018; Nzembayie et al., 2024).
Technical gatekeeping	Access control for developers, API access restriction, control over infrastructure, protocols, and data ownership	Platforms restrict access to platform resources and APIs to control how developers use ecosystem capabilities (Lynskey, 2017; Plantin et al., 2018; Poell et al., 2023).
Operational monitoring and labor control	Real-time monitoring, performance tracking systems, and algorithmic ranking of workers	Platforms monitor workers' performance and activities through continuous tracking and algorithmic evaluation systems (Busch, 2021; Khan, 2018; Nzembayie et al., 2024; van Dijck et al., 2019).
Content moderation/content management	Moderation guidelines, moderation systems, automated filters, and hybrid content moderation	Platforms manage and control published content through filtering systems and automated moderation to maintain quality standards (Furman et al., 2019; Gillespie, 2018; Jhaver et al., 2023).
Network governance	Social networks (network design),	The design of networks and connectivity algorithms facilitates social and commercial interactions

	connectivity algorithms	within platforms (Beer, 2009; Couldry & Hepp, 2017).
Opacity/black-box governance	Proprietary algorithms, protocol encoding	Platforms employ opaque algorithms to control data and create limited transparency in platform processes (Pasquale, 2015; Vaidhyanathan, 2018).
Micro-level Governance of Platform Power		
Governance Dimension	Sub-dimension	Brief Description
Experience engineering/user experience governance	User experience design, notifications algorithms, personalized and curated content feeds, choice architecture	User interfaces are designed to guide user behavior and to create customized and tailored experiences for users (Bucher et al., 2021).
User performance algorithms	Worker performance algorithms, ranking systems, predictive behavioral algorithms, and real-time monitoring	Predictive algorithms are used to evaluate and steer user behavior, particularly in commercial and labor-related contexts (Park & Ryoo, 2023; Andrejevic, 2014; Pasquale, 2015).
Content moderation/content curation	Content filtering, moderation guidelines, automated moderation systems, and algorithmic content curation	Platforms manage and curate user-generated content through filtering mechanisms and automated moderation systems (Bishop, 2019; Gillespie, 2020).
Networked interaction	Social networks, connectivity algorithms	Social and commercial interactions are facilitated through platform-based communication networks and connectivity algorithms (Beer, 2009).
Information manipulation	Online user monitoring, manipulation of user information	User data and information are monitored and manipulated to create targeted and goal-oriented experiences within platforms (Cusumano et al., 2021; Harraca & Gawer, 2023; Khan, 2018; Poell et al., 2023).

Limited transparency	Proprietary algorithms, encrypted protocols	Platforms provide limited transparency to users through the use of proprietary algorithms and encrypted protocols (Pasquale, 2015; Vaidhyanathan, 2018).
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In the third stage, through the application of *selective coding*, the axial clusters were organized within a *three-level matrix* to construct the *final pattern of power governance in digital platforms* (Table 6). This analysis demonstrates that platform power governance is not confined solely to market structures and macro-level regulations; rather, it is continuously reproduced at the level of *ecosystem design and algorithmic architecture (meso level)* and, ultimately, within the *lived experiences of users (micro level)*.

At the *macro level*, the focus is placed on digital market rules, data ownership policies, antitrust regulations, and institutional interactions, which are enforced through instruments such as the Digital Markets Act, competition law, and data governance frameworks. This level constitutes the legal and regulatory foundation of platform power. At the *meso level*, power governance is consolidated through ecosystem design, infrastructural management of application programming interfaces (APIs), ranking and content moderation algorithms, and developer gatekeeping mechanisms. This level effectively serves as a dynamic link between macro-level policies and micro-level user experiences. At the *micro level*, instruments such as user experience design, unconscious choice engineering, predictive algorithms, and notifications play a guiding role in shaping users' behavior in subtle and often imperceptible ways. Through these mechanisms, power governance is ultimately realized at the individual scale.

Table 6. Selective Coding

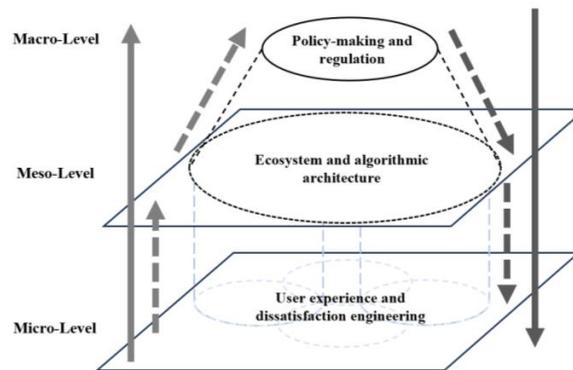
Level	Core Axis	Axial Cluster	Instruments	Level of Influence
Macro	Policy-making and regulation	Antitrust laws, digital market regulations, and parallel market rules	Digital Markets Act (DMA) regulations,	Meso
		Institutional frameworks, market design, market-shaping strategies	Antitrust laws, Parallel structural rules,	
		Data ownership policies, data governance policies	Institutional market frameworks,	
		Media frameworks and censorship	Transparency	

Level	Core Axis	Axial Cluster	Instruments	Level of Influence
		Public opinion interaction	policies, and Political campaigns	
		Ethical governance and transparency		
		Monopolistic structures and ecosystem dependency		
Meso	Ecosystem and Algorithmic Architecture	Ecosystem architecture and structure	Ecosystem architecture, open application programming interfaces (APIs), developer access control, ranking algorithms, content moderation systems, social networks	Macro /Micro
		Application programming interface (API) management and interface standardization		
		Content and worker ranking algorithms		
		Commission control and internal governance rules		
		Data collection and data flow management		
		Operational surveillance and performance monitoring		
		Content moderation and systematic filtering		
		Network governance (social networks)		
		Limited transparency (black-box governance)		
Micro	User experience and satisfaction engineering	User experience design, notifications, curated and personalized content feeds	Choice architecture, cookies, notifications, content filtering, predictive algorithms, encryption	Meso
		user performance algorithms (monitoring and prediction)		
		content filtering and moderation, social networks and connectivity algorithms		
		information manipulation and soft control		
		limited transparency in user experience		

Interconnections Among the Three Levels

The findings of this study indicate that platform power structures operate as a *multi-layered network*, in which instruments and policies may exert influence *simultaneously across multiple levels*. For instance, the standardization of application programming interfaces (APIs) constitutes a subject of regulatory intervention at the *macro level*, shapes ecosystem structures at the *meso level*, and directly affects user and developer experiences at the *micro level*. The analysis further demonstrates that the three levels of platform power governance, *macro, meso, and micro*, are neither fully independent nor entirely overlapping. Rather, they function within a *dynamic and interconnected network*. The findings reveal that, despite their functional differentiation, these levels *mutually reinforce and complement one another both vertically and horizontally* (Figure 2).

Figure 2. A Multi-layered Model of Interconnections Among Governance Levels (Macro–Meso–Micro)



At the *Macro level*, overarching rules and policies such as antitrust laws, institutional frameworks, and regulatory instruments, including the Digital Markets Act, provide the legal and regulatory foundations of platform governance. These rules are operationalized at the *Meso level* through ecosystem design, application programming interface (API) management, ranking algorithms, and monitoring mechanisms, thereby acquiring structural and functional form. At the *Micro level*, they are translated into users' lived experiences through user experience design, experience designers, notifications, personalization algorithms, and satisfaction-engineering mechanisms, ultimately shaping user behavior.

Similarities: All three levels share a common objective: the control and reproduction of power. Across levels, shared instruments such as APIs, ranking algorithms, and content policies perform multi-level functions. For example, the standardization of application interfaces can simultaneously serve as a tool of regulatory intervention at the macro level, ecosystem design at the meso level, and the shaping of developer and user experiences at the micro level.

Differences: Despite these overlaps, each level operates according to a distinct logic of control. The *Macro level* targets market structures and institutions of power through transparent policymaking and formal legal rules. The *Meso level* translates *macro-level* rules into operational policies through technical architectures and the internal design of ecosystems. At the *Micro level*, operating at the most subtle layer, influences users' freedom of choice through soft control mechanisms, user experience governance, and the guidance of imperceptible decision-making processes.

These findings demonstrate that platform power governance cannot be adequately analyzed by focusing on any single level in isolation. Rather, it is the internal interconnection of these three levels that enables the stabilization and reproduction of power. In other words, macro-level rules remain ineffective without meso-level architectures, and meso-level architectures are incomplete without micro-level control mechanisms. Accordingly, the three-level framework proposed in this study offers a coherent account of digital platform power governance, encompassing a fluid and scalable continuum ranging from institutional structures to the satisfaction-engineering of users.

Discussion and Conclusion

Drawing on the multi-level analytical perspectives proposed by Dopfer et al. (2004) and Geels (2011), the present study demonstrates that *power governance in digital platforms cannot be understood solely at the level of macro-level rules*. Rather, it is enacted and sustained through *meso-level design choices* and *micro-level user experiences*. To clarify the positioning of these findings within the existing literature, the results are compared and discussed in a *peer-to-peer manner with six key studies* (Table 7). This comparative analysis reveals that the findings of the present study partially overlap with prior research while also extending the literature by introducing new dimensions. Specifically, the study aligns with existing scholarship on *soft and communicative power mechanisms*, resonating with the literature on soft/communicative power, while simultaneously diverging through its *systematic articulation of macro-meso-micro linkages* (Castells, 2009;

Dopfer et al., 2004; Jhaver et al., 2023; Mutz & Simmons, 2022; Nye, 2023; Zuboff, 2022). Overall, the comparative findings indicate that the *effectiveness of macro-level rules is contingent upon meso-level architectures and micro-level experiences, and that the intensity of their impact varies depending on reputational risk and ecosystem design*. These results underscore the necessity of a multi-level analytical approach for understanding how platform power is stabilized and reproduced across institutional, architectural, and experiential domains.

At the *macro level*, the findings align with Castells' concept of *communicative power* (Castells, 2009, 2016) and critiques of *surveillance capitalism* (Zuboff, 2023), while emphasizing that legal and policy rules become effective only when they are translated into *design-oriented implementations at the meso level* (Estrin et al., 2025; van Dijck et al., 2019). This perspective is also consistent with debates on *soft power*, suggesting that *macro-level* legitimacy cannot be sustained without institutional translation and fair *micro-level* experiences (Gubaidullina & Paizova, 2025). Furthermore, the limitations of traditional antitrust frameworks underscore the need to reconsider the tools used to assess and regulate power in digital markets (Steinbaum, 2022).

Table 7. Comparative analysis of the present study with prior literature

Study	Level	Key findings	Correspondence with the present study
(Nye, 2023)	Macro	Soft power (power of attraction) emerges from culture, values, and external policies. In power competition, attention should be paid to attraction and legitimacy rather than coercion alone.	In the present study's three-level model, the effectiveness of macro-level rules is realized only when they are translated into meso-level platform design and rules. The findings show that how platforms design interfaces and ranking/moderation mechanisms can strengthen or undermine perceived legitimacy and attractiveness at the micro level, thereby shaping the capacity for soft governance.
(Mutz & Simmons, 2022)	Macro	Digital walls at the international level (attraction/repulsion) reduce the willingness of target countries to engage and weaken the	At the meso level, the present study shows that when boundary-setting rules and access restrictions intensify (e.g., increased friction in access due to antitrust or data policies), these signals are

Study	Level	Key findings	Correspondence with the present study
		quality of bilateral relations.	experienced by users at the micro level, shaping distrust toward platforms and reducing symbolic capital and soft legitimacy. This parallels the same “wall effect” identified at the international level.
(Nelson et al., 2023)	Macro	Governments frequently underutilize insights from social sciences; they emphasize translation mechanisms, conceptual alignment, and better indicators for policy use.	At the meso level, our findings demonstrate that intermediating mechanisms, such as actionable guidelines, algorithmic feedback, and auditable transparency indicators, significantly increase the likelihood that research findings are adopted in organizational and policy practices. Practically, adding a “policy translation layer” to each intervention is recommended. Moreover, when meso-level rules constrain legitimate pathways, micro-level actors initially respond through normative guidance (platform logic) and subsequently through behavioral nudging. This supports our model of vertical power diffusion from macro to micro levels.
(van Dijck et al., 2019)	Meso	Reframing platform power from the perspective of “service provision” and “digital citizenship,” shifting the focus from firm-centric market control to infrastructural and ecosystem-based governance.	By explicitly introducing the meso level as an architectural layer, the present framework operationalizes this shift and demonstrates that evaluating platform performance must go beyond efficiency and price, encompassing accountability, accessibility, and downstream impacts on users at the micro level.
(Jhaver et al., 2023)	Micro / Meso	Content moderation and feedback mechanisms, such as warning labels, visibility reduction,	Our findings extend this insight by showing that: 1) warnings and reduced visibility lower post durability and accelerate

Study	Level	Key findings	Correspondence with the present study
		and norm-based signaling, reshape participation patterns and behavior steering through algorithmic intervention.	content decay; 2) engineered opacity and compliant friction weaken users' capacity to contest moderation decisions; and 3) the behavioral impact intensifies among groups with higher reputational risk. This supports the claim that micro-level design choices function as soft but effective instruments of power reproduction.
(Gubaidullina & Paizova, 2025)	Macro	Official Russian policy documents emphasize soft power as a strategic asset, highlighting the strengths and limitations of cultural, educational, and humanitarian instruments in transnational influence.	Our analytical results demonstrate that even macro-level attractiveness-oriented signals exert tangible influence only when operationalized through meso-level institutional arrangements. If platform-based participation rules are designed in a non-transparent or exclusionary manner, perceived attractiveness erodes at the micro level. This confirms that macro-level power instruments remain insufficient without meso-level architectural translation.

At the *meso level*, classical studies emphasize the logic of *network effects and complementarities* (Cusumano et al., 2019; McIntyre et al., 2021), as well as platforms as *novel organizational forms* (Gawer & Jacobides, 2024). Our findings show that this logic is reproduced through *technical gatekeeping* and *algorithmic architectures*. Busch (2021) highlights the blind spots of such structures by pointing to *platformization frictions* (Popiel & Vasudevan, 2024); the present results explain how these frictions are transmitted to the *micro level*, shaping the lived experiences of users and workers. In addition, studies such as Kemmerling (2025) demonstrate that *political–institutional gaps* can undermine platform legitimacy, an observation that is corroborated by our findings.

At the *micro level*, *choice architecture*, notifications, and ranking systems structure the user/worker experience and activate what can be

termed “*disenchantment engineering*,” that is, the pre-emptive regulation of behavior based on inferred algorithmic rules to avoid penalties or exclusion. These results align with studies on entrepreneurial dependency (Cutolo & Kenney, 2021) and everyday risk management (van Doorn, 2024). Even within ostensibly decentralized arrangements, concentration is reproduced through the intermediate technical layer (Jhaver et al., 2023). Moreover, the linkage to *public opinion* indicates that the political and social legitimacy of platforms ultimately depends on the provision of *fair micro-level experiences* (Mutz & Simmons, 2022; Nelson et al., 2023).

The *main contribution* of this study consists in clarifying and specifying the operational linkage among the three levels and explicating the mechanisms through which effects travel across them (Figure 2). The effectiveness of macro-level rules is contingent upon meso-level architecture and micro-level experience (Dopfer et al., 2004; Geels, 2011), while the magnitude and direction of effects vary according to reputational risk and ecosystem design. On this basis, the *peer-to-peer comparison* section (Table 7) explicitly demonstrates, on a case-by-case basis, the present study’s alignment with prior research on legitimacy and soft power, its convergence with Nelson et al. (2023) regarding the linkage between public opinion and user experience, its divergence from van Dijck et al. (2019) concerning the degree to which the effectiveness of rules depends on meso-level architecture, and its consistency with Jhaver et al. (2023) in showing the reproduction of concentration through the meso level, even within ostensibly decentralized models.

From a *managerial perspective*, this framework indicates that digital platform managers must account for the *three-level alignment of power governance* in the design of products, services, and internal policies. Ecosystem managers can enhance trust among developers and complementary businesses by redefining *API policies* and increasing the *transparency of access rules*. User experience design and content personalization algorithms should be oriented toward preserving informed user consent and avoiding the engineering of unconscious or coerced choices. Finally, adopting data transparency practices and internal reporting mechanisms can strengthen a platform’s public legitimacy and symbolic capital, thereby reinforcing its competitive position over the long term.

From a *policy-making perspective*, the findings of this study indicate that any effective attempt to regulate platform power must adopt a multi-level and layered approach. Rather than relying on isolated interventions at the market or infrastructure level, policymakers should simultaneously address *macro-level legal frameworks*, meso-level

ecosystem architectures, and micro-level transparency and user empowerment instruments. For instance, the design of effective antitrust regulations should be combined with transparent enforcement mechanisms for developer access as well as ethically grounded user experience design. Similarly, regulations aimed at algorithmic transparency must be coupled with the provision of genuine user choice and the re-engineering of consent and dissatisfaction pathways. Moreover, international and multi-institutional cooperation for the development of open-data frameworks and digital justice standards constitutes an indispensable requirement.

Overall, this study demonstrates why and how *macro-level policies* are sustainable only when they are operationalizable at the *meso level* and experienced as fair at the *micro level*. The result is a policy roadmap for balancing public interest and concentrated platform power within the governance of digital platforms.

Limitations and Directions for Future Research

Although the present research, by synthesizing 44 selected articles, proposes a multi-level and networked framework for understanding the dimensions of power governance in digital platforms, several limitations related to the research design, methodology, and analytical scope warrant caution in interpreting and generalizing the findings. Accordingly, each limitation is accompanied by suggested avenues for future research.

First, this study adopts a generalized perspective on power governance in digital platforms. However, according to the typology proposed by Gawer (2014), platforms can be classified into four distinct types, each requiring different governance logics and architectural configurations. This heterogeneity suggests that the proposed three-level framework may require contextual adaptation depending on platform type. Future research could apply and refine this framework through comparative analyses of specific platform categories, examining how governance mechanisms vary across different platform models.

Second, the empirical foundations of the reviewed literature are predominantly drawn from European and North American contexts, while local and regional dimensions such as regulatory maturity and market structures in developing economies have received comparatively limited attention. Future studies could address this gap by analyzing variations in platform power governance across diverse institutional environments, including Iran and other countries with similar regulatory and market conditions.

Third, although the proposed conceptual framework offers analytical value, it lacks validated quantitative instruments for examining causal relationships and assessing the relative effects of different dimensions. Accordingly, future researchers may empirically test and validate this framework in real-world contexts by employing methods such as structural equation modeling (SEM) or fuzzy-set qualitative comparative analysis (fsQCA).

Finally, while this study focuses on the vertical and horizontal linkages among governance dimensions, the role of key actors and the power interactions among them have been examined only to a limited extent. Future research could address this gap by combining network analysis with qualitative approaches to more precisely investigate stakeholder roles and power dynamics. Such extensions would allow the multi-level framework to be tested and further developed across diverse contexts, while also providing new analytical tools for policymakers and managers to support more effective decision-making in the governance and regulation of power within digital platform ecosystems.

Conflict of Interest

This article is derived from the doctoral dissertation in Entrepreneurship at the University of Tehran.

ORCID

Atoosa Ebrahimi Shah  orcid.org/0009-0005-8864-4103

Abadi

Ali Mobini Dehkordi  <https://orcid.org/0000-0003-0838-4945>

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