

REVIEW

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Platform-Based Business Models and Firm Competitiveness: A Systematic Review of Network Effects, Ecosystem Governance, and Value Capture

Santiago Morales^{1*}, Laura Rojas², Camila Vega¹

Abstract

Platform-based business models have become central to digital competition because they reorganise how firms create, coordinate, and appropriate value across multi-sided ecosystems. Unlike traditional pipeline models, platforms depend on interactions among users, complementors, developers, advertisers, and other external actors. This shift has made platform competitiveness a strategic phenomenon that cannot be explained only by internal resources or product-market positioning. This systematic review examines how platform-based business models generate and sustain firm competitiveness through three interrelated mechanisms: network effects, ecosystem governance, and value capture. The objective is to synthesise fragmented evidence from strategy, information systems, innovation, and management research. The review focuses on how these mechanisms operate individually and how their interaction shapes platform performance and durability. The findings show that platform competitiveness is supported by architectural design, multi-sided participation, network effects, ecosystem orchestration, and monetization choices. However, the evidence also reveals tensions between openness and control, growth and quality, value creation and value capture, and network expansion and strategic vulnerability. Five tables summarise the review method, platform typology, network effects, governance mechanisms, and value capture models. The review concludes that platform competitiveness should be understood as a dynamic system rather than as the automatic result of scale. Network effects require governance, governance shapes value capture, and value capture can either strengthen or weaken ecosystem health. Future research should therefore examine platform success and failure through longitudinal, comparative, and context-sensitive designs.

Keywords Competitive advantage, Network effects, Value capture, Ecosystem governance, Systematic review, Platform business model

*Correspondence:

Santiago Morales

s.morales@uba.ar

¹ Department of Digital Commerce and Analytics, Faculty of Economics, University of Buenos Aires, Buenos Aires, Argentina

² Department of Strategic Management, Faculty of Business, Pontifical Catholic University of Chile, Santiago, Chile

Introduction

Platform-based business models have reshaped competition by moving strategic attention from firm-controlled value chains to digitally mediated ecosystems of interaction. McIntyre and Srinivasan argue that platforms differ from conventional strategy settings because competitive advantage increasingly depends on network structure, participation incentives, and the orchestration of external complementors [1]. This shift is reinforced by research showing that digital platforms invert the firm by enabling value creation outside the formal organisational boundary [2]. As a result, platform

competitiveness is not merely a matter of owning assets but of designing architectures that attract, coordinate, and monetise distributed actors.

The platform economy has also challenged the traditional pipeline logic in which firms create value internally and deliver it sequentially to customers. Adner's ecosystem-as-structure perspective shows that firms must account for interdependent partners whose alignment is required for value propositions to materialise [3]. Similarly, Nambisan, Lyytinen, Majchrzak, and Song argue that digital innovation increasingly depends on modularity, generativity, and distributed agency rather than closed internal development [4]. In this context, a platform-based business model can be understood as an organisational and technological arrangement that enables multiple groups to interact, exchange, innovate, and generate value through shared infrastructure.

Firm competitiveness in platform contexts therefore involves more than superior products, lower costs, or market share. Cennamo's work on next-generation platforms suggests that competitiveness depends on building and sustaining platform value while managing the paradox that growth can eventually create diminishing returns [5]. Jacobides, Cennamo, and Gawer further show that ecosystems generate advantage when complementarities are structured in ways that allow coordinated value creation and defensible appropriation [6]. Competitiveness is consequently defined here as the platform firm's ability to attract and retain participants, stimulate valuable interactions, govern ecosystem quality, capture economic returns, and sustain strategic advantage over time.

This systematic review asks three guiding questions. First, how do direct, indirect, and data-related network effects contribute to platform competitiveness, and under what conditions do they become fragile or reversible [7, 8]? Second, what ecosystem governance mechanisms support platform health, complementor participation, innovation quality, and strategic control [9, 10]? Third, how do platforms capture value through monetization models such as transaction fees, freemium, advertising, subscription, and data-enabled value appropriation while preserving ecosystem participation [11, 12]? By answering these questions, the review synthesises evidence on the integrated relationship between network effects, governance, and value capture.

Review Method and Selection Criteria

The review was designed as a systematic synthesis of peer-reviewed platform research published between 2017 and 2025. The procedure followed the logic of transparent search, screening, eligibility assessment, and inclusion associated with PRISMA 2020 [13]. It also adopted the SPAR-4-SLR emphasis on assembling, arranging, assessing, and reporting literature in a structured and reproducible way [14]. The aim was not to count studies mechanically but to build an analytically coherent sample capable of explaining platform competitiveness across strategic management, information systems, innovation, and business model research.

The search strategy focused on combinations of terms related to platform business models, network effects, ecosystem governance, value capture, monetization, multi-sided markets, and firm competitiveness. The search was directed toward high-quality peer-reviewed journal outlets in strategy, management, information systems, innovation, marketing, and business research, including journals such as *Strategic Management Journal*, *MIS Quarterly*, *Organization Science*, *Journal of Management*, *Journal of Management Studies*, *Research Policy*, and related Q1 outlets. Foundational conceptual articles were included when they clarified platform architecture, ecosystem structure, digital innovation, or platform governance [2-4, 6]. Review-oriented and method-oriented studies were included when they supported the systematic review process or synthesised platform competition, digital ecosystems, or ecosystem value creation [12, 15-17].

The inclusion criteria required that each article be peer-reviewed, published between 2017 and 2025, and directly relevant to at least one of the review's core domains: platform business model logic, network effects, ecosystem governance, value capture, or systematic review methodology. Articles were excluded when they were books, reports, theses, websites, conference papers, non-peer-reviewed papers, or studies unrelated to platform-based business models and

competitiveness. Studies focused only on general digital transformation without platform mechanisms were also excluded unless they offered explicit insight into platform ecosystems or digital platform architecture [18, 19]. Quality appraisal prioritised conceptual clarity, journal quality, methodological transparency, theoretical contribution, and relevance to the three mechanisms of interest.

The final sample consisted of 35 peer-reviewed journal articles selected to support an integrative systematic synthesis rather than a narrow bibliometric count. The sample includes conceptual strategy papers, empirical platform studies, information systems research, ecosystem governance analyses, monetization studies, and review-method articles. **Table 1** summarises the search strategy, inclusion and exclusion criteria, and the final sample of studies. This organisation allows the review to connect methodological transparency with substantive synthesis across the three mechanisms.

Table 1. Systematic Review Search Strategy and Study Selection: Databases, Keywords, Screening Process, and Final Sample

Review element	Specification used in this systematic review	Rationale for inclusion in the review design
Time window	2017–2025	Captures the contemporary platform economy literature after the consolidation of digital platform and ecosystem research.
Literature type	Peer-reviewed journal articles only	Ensures scholarly quality and excludes books, reports, theses, websites, and non-peer-reviewed material.
Core domains	Platform business models, network effects, ecosystem governance, value capture, monetization, multi-sided markets, firm competitiveness	Aligns the search directly with the review's three analytical mechanisms and strategic outcome.
Search logic	Combined keyword searches using platform, business model, network effects, ecosystem governance, value capture, monetization, competitive advantage, and systematic review	Balances precision and recall across strategy, innovation, information systems, and management literatures.
Inclusion criteria	Articles published between 2017 and 2025; peer-reviewed; directly relevant to platform logic, network effects, governance, value capture, or review method	Ensures that every selected article contributes to the systematic synthesis.
Exclusion criteria	Non-peer-reviewed outputs, books, reports, theses, websites, conference proceedings, and articles without a substantive platform mechanism	Maintains source quality and conceptual focus.
Screening process	Title and abstract screening, relevance assessment, full-text eligibility review, and final thematic classification	Mirrors PRISMA-style transparency while allowing analytical synthesis.
Quality appraisal	Journal quality, theoretical relevance, conceptual clarity, methodological transparency, and contribution to competitiveness mechanisms	Prioritises articles capable of informing a systematic review rather than only descriptive coverage.
Final sample	35 peer-reviewed journal articles	Provides a focused but sufficiently broad evidence base for synthesis across Sections 3–10.

Platform-Based Business Model Logic

Platform-based business models are distinguished by their reliance on mediated interactions among multiple participant groups rather than by linear production and distribution. Parker, Van Alstyne, and Jiang show that platforms enable outside developers and complementors to create value around a shared digital core, thereby changing the boundary and logic of the firm [2]. Constantinides, Henfridsson, and Parker describe platforms and infrastructures as central organisational forms of the digital age because they combine technical architecture with socio-economic coordination [18]. This means that platform business models are not simply digital channels but organising systems for interaction, innovation, and exchange.

The reviewed literature identifies several recurring platform types, including transaction platforms, innovation platforms, multisided retail platforms, global platforms, and ecosystem-oriented platform organisations. Ardolino, Saccani, Adrodegari, and Perona offer a business model framework for digital multisided platforms that emphasises value proposition, actors, revenue logic, and enabling architecture [20]. Hänninen, Smedlund, and Mitronen show that multisided platforms transform retailing by connecting consumers, sellers, service providers, and data-driven intermediaries in new configurations [19]. Nambisan, Zahra, and Luo extend this logic internationally by showing that global platforms and ecosystems challenge existing theories of international business because platform firms can scale coordination across borders without conventional ownership structures [21].

The economic logic of platform-based business models rests on interaction enablement, complementarity, scale, and governance-sensitive value creation. De Reuver, Sørensen, and Basole argue that digital platforms require a research agenda that accounts for layered architectures, evolving ecosystems, and the interplay between technical and business design [15]. Hein, Schreieck, Riasanow, Soto Setzke, Wiesche, Böhm, and Krcmar synthesise digital platform ecosystems as configurations of platform owners, complementors, users, and governance rules that jointly create value [16]. These studies suggest that the distinctive competitiveness of platform firms emerges from the capacity to coordinate external innovation and exchange more efficiently than traditional firms can through internal hierarchy alone.

A typology is useful because platform firms vary in their architecture, participant structure, value drivers, and competitive logic. Transaction platforms primarily facilitate exchange, innovation platforms support complementary development, investment platforms manage portfolios of platform positions, and hybrid platforms combine several logics in one ecosystem [1, 22]. Platform ecosystems as meta-organisations further show that platform sponsors must coordinate actors who are organisationally independent but strategically interdependent [23]. Table 2 classifies platform-based business model types and their defining features.

Table 2. Typology of Platform-Based Business Models: Architectural Features, Value Drivers, and Competitive Logic

Platform-based business model type	Defining architectural features	Primary value drivers	Competitive logic	Representative literature from the review
Transaction platform	Digital infrastructure enabling exchange between two or more participant groups	Matching efficiency, liquidity, trust, transaction volume, reduced search costs	Competitiveness depends on attracting both sides of the market and increasing interaction quality	McIntyre and Srinivasan [1]; Ardolino, Saccani, Adrodegari, and Perona [20]
Innovation platform	Shared technological core that allows complementors to	Complementor innovation, modularity, generativity, developer participation	Competitiveness depends on external innovation and the	Parker, Van Alstyne, and Jiang [2]; Nambisan, Lyytinen,

	develop applications, services, or extensions		quality of complementary offerings	Majchrzak, and Song [4]
Digital ecosystem platform	Multi-actor system combining users, complementors, partners, and governance rules around a platform sponsor	Ecosystem alignment, complementarities, participant coordination, shared infrastructure	Competitiveness depends on ecosystem orchestration and sustained partner alignment	Jacobides, Cennamo, and Gawer [6]; Hein, Schrieck, Riasanow, Soto Setzke, Wiesche, Böhm, and Krcmar [16]
Multisided retail platform	Platform connecting buyers, sellers, service providers, advertisers, logistics actors, and data infrastructures	Market reach, assortment breadth, data-enabled targeting, convenience	Competitiveness depends on scale, customer access, seller participation, and platform-mediated transformation of retail logic	Hänninen, Smedlund, and Mitronen [19]
Global platform	Digitally scalable architecture that coordinates users and complementors across countries and institutional contexts	Cross-border scale, international network reach, global ecosystem leverage	Competitiveness depends on scaling participation across markets while adapting to institutional differences	Nambisan, Zahra, and Luo [21]
Meta-organisational platform ecosystem	Governance-centred arrangement in which independent actors coordinate through platform rules, standards, and interfaces	Coordination without ownership, role clarity, complementor alignment, strategic control	Competitiveness depends on managing the ecosystem-organisation interface and sustaining coordinated autonomy	Kretschmer, Leiponen, Schilling, and Vasudeva [23]; Sjödin, Liljeborg, and Mutter [24]
Hybrid platform	Combines transaction, innovation, data, and ecosystem coordination functions within one business model	Multiple revenue streams, cross-side synergies, data accumulation, ecosystem depth	Competitiveness depends on integrating several platform logics without creating excessive complexity or participant conflict	Cennamo [25]; Gawer [26]

Figure 1 illustrates the core logic through which platform-based business models transform firm competitiveness by shifting from linear value creation to ecosystem-mediated interaction, coordination, and value capture.

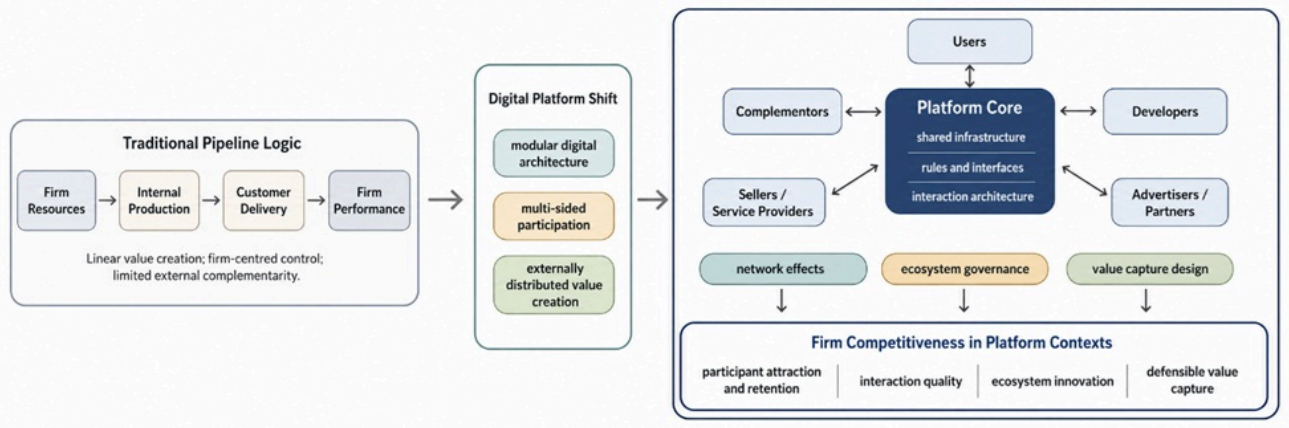


Figure 1. Platform-Based Business Model Logic: From Pipeline Value Creation to Ecosystem-Mediated Competitiveness

Network Effects and Competitive Advantage

Network effects are among the most frequently cited explanations for platform competitiveness, but the reviewed literature shows that they are neither automatic nor uniformly sustainable. McIntyre and Srinivasan define platforms as competitive settings in which participant growth can increase value for other participants, thereby creating reinforcing demand-side dynamics [1]. Hinz, Otter, and Skiera show that two-sided markets require careful estimation because the value created on one side of the platform may depend strongly on the size, quality, and behaviour of the other side [7]. This evidence suggests that network effects are best understood as mediated competitive mechanisms rather than simple consequences of scale.

Direct network effects arise when additional users on the same side of the platform increase value for existing users, while indirect network effects arise when growth on one side increases value for another side. Cennamo argues that platform-based competition depends on how firms build next-generation platform value while avoiding the paradox that additional participation can eventually reduce marginal value [5]. Rietveld and Schilling's systematic review of platform competition further shows that multihoming, switching costs, complementor incentives, and platform differentiation shape whether network effects lead to defensible advantage or competitive vulnerability [17]. Thus, network effects may generate advantage, but their durability depends on participant behaviour and competitive structure.

Data network effects represent a more recent extension of the platform competitiveness debate. Gregory, Henfridsson, Kaganer, and Kyriakou argue that artificial intelligence and user data can generate value when platform use improves data resources, which then improves services and attracts further use [8]. Yet their later exchange on data network effects emphasises that shared data, data value duality, and boundary conditions complicate the assumption that more data always produces stronger advantage [27]. Platform firms therefore need to examine not only user numbers but also data quality, learning loops, and the organisational ability to convert data into improved user value.

The evidence also reveals limits to network effects as competitive moats. Platform competition may weaken network effects when users and complementors multihome, when complement quality declines, when governance discourages participation, or when rivals envelop adjacent markets [17]. Ozalp, Cennamo, and Gawer show that disruption in platform-based ecosystems can occur when technological or strategic shifts alter ecosystem dependencies and weaken incumbent control [28]. Table 3 synthesises the evidence on network effects and their contribution to competitive advantage.

Table 3. Network Effects and Competitive Advantage: Types, Mechanisms, and Empirical Evidence on Sustainability

Network effect type	Core mechanism	Contribution to competitiveness	Sustainability conditions	Main vulnerabilities identified in the literature
Direct network effects	More users on the same side increase value for existing users	Supports user attraction, retention, and market liquidity	Strong when user interaction quality increases with scale	Congestion, declining quality, weak differentiation, participant fatigue
Indirect network effects	Growth on one side increases value for another side	Strengthens multi-sided participation and complementor incentives	Strong when cross-side value is clear and well governed	Imbalanced participation, weak complementor incentives, poor matching
Data network effects	More use generates data that improves services and attracts more use	Supports learning-based advantage and personalised value creation	Strong when data quality, AI capability, and feedback loops are aligned	Data saturation, weak data governance, privacy constraints, limited conversion into user value
Complementor network effects	More complementors increase variety and usefulness for users	Expands ecosystem depth and innovation variety	Strong when openness is balanced with quality control	Low-quality complements, complementor conflict, platform crowding
Reputation and trust effects	More verified interactions increase perceived reliability	Reduces uncertainty and strengthens platform loyalty	Strong when governance supports credible trust signals	Manipulation, opportunism, fake reviews, erosion of legitimacy
Competitive lock-in effects	Network value raises switching costs for users and complementors	Creates defensibility and reduces churn	Strong when alternatives are less attractive or less interoperable	Multihoming, platform envelopment, regulatory intervention, user resistance
Negative network effects	More participation reduces value through congestion, complexity, or quality decline	Can weaken competitiveness despite growth	Managed through curation, segmentation, and governance	Declining experience, complementor overload, reduced strategic focus

Ecosystem Governance Mechanisms

Ecosystem governance is central to platform competitiveness because platform firms must coordinate actors that they do not fully own or hierarchically control. Parker, Van Alstyne, and Jiang show that platforms invert the firm by enabling external developers and complementors to create value, but this inversion also creates new governance problems [2]. Kretschmer, Leiponen, Schilling, and Vasudeva describe platform ecosystems as meta-organisations, where coordination must be achieved through rules, standards, incentives, and participation structures rather than conventional authority [23]. Governance therefore becomes the strategic mechanism through which platform firms stabilise distributed value creation.

Formal governance mechanisms include contracts, control rights, platform rules, technical interfaces, access conditions, boundary resources, ranking systems, and enforcement procedures. Chen, Yi, Li, and Tong show that platform governance design influences complementors' multihoming decisions, indicating that governance affects not only internal

order but also competitive positioning [29]. Chen, Pereira, and Patel's analysis of decentralised governance further suggests that platform firms may distribute decision rights when decentralisation improves legitimacy, adaptability, or ecosystem participation [30]. Formal governance is therefore not merely restrictive; it can also be used to structure participation and reduce uncertainty.

Relational governance mechanisms include trust, shared norms, reputation, social capital, ecosystem identity, and repeated interaction among platform participants. Cennamo and Santaló show that generativity tension shapes value creation in platform ecosystems because platform firms must encourage complementor innovation while preventing uncontrolled complexity or quality erosion [10]. Rietveld, Schilling, and Bellavitis demonstrate that selective promotion of complements can help platforms manage ecosystem value by directing attention toward strategically important or high-quality complements [9]. These studies show that governance is simultaneously a mechanism of control, enablement, and competitive differentiation.

The main governance tension concerns openness and control. Greater openness can attract complementors, encourage innovation, and expand network effects, but excessive openness can produce quality problems, opportunism, strategic fragmentation, or appropriation conflicts [16]. Gawer argues that digital platforms and ecosystems have become dominant organisational forms precisely because they combine openness with mechanisms that organise participation and preserve strategic direction [26]. Table 4 catalogues ecosystem governance mechanisms and their performance implications.

Table 4. Ecosystem Governance Mechanisms in Platform Business Models: Formal and Relational Approaches, Antecedents, and Outcomes

Governance mechanism	Formal or relational emphasis	Main antecedents	Expected ecosystem outcomes	Competitiveness implications
Access rules	Formal	Need to define who may join and under what conditions	Controls participant entry and reduces uncertainty	Protects quality and prevents adverse selection
Technical interfaces	Formal	Need for modular participation and complementor integration	Enables scalable innovation and interoperability	Supports ecosystem growth and complement variety
Control rights	Formal	Need to allocate decision authority between platform owner and participants	Clarifies authority over standards, data, pricing, and participation	Strengthens strategic coordination but may reduce autonomy
Selective promotion	Formal and strategic	Need to manage complement visibility and ecosystem value	Directs user attention toward high-value complements	Improves quality signalling and platform differentiation
Ranking and recommendation systems	Formal and algorithmic	Need to organise large numbers of users, sellers, or complements	Shapes discovery, visibility, and participant incentives	Can increase efficiency but may trigger fairness concerns
Contracts and sanctions	Formal	Need to reduce opportunism and enforce standards	Improves compliance and protects platform reputation	Supports trust but may increase perceived dependence

Trust and shared norms	Relational	Need for cooperation among independent actors	Encourages voluntary coordination and reduces conflict	Enhances ecosystem resilience and commitment
Decentralised governance	Formal and relational	Need for legitimacy, scalability, and participant autonomy	Distributes decision rights and encourages engagement	Can improve adaptability but may weaken platform control
Openness-control balancing	Integrative	Need to attract complementors while maintaining quality	Maintains generativity while preventing ecosystem disorder	Supports sustainable innovation and defensible platform position

Value Capture and Monetization Models

Value capture in platform-based business models is inseparable from value creation because monetization choices influence who joins, how participants behave, and whether network effects continue to grow. Rietveld's study of freemium business models shows that platforms can create value by lowering adoption barriers while capturing value from a subset of paying users [11]. Ardolino, Saccani, Adrodegari, and Perona emphasise that digital multisided platforms require business model configurations that align value proposition, participant roles, and revenue logic [20]. Monetization is therefore a strategic design choice rather than a post-growth financial decision.

The reviewed literature identifies several monetization models, including transaction fees, subscription, advertising, freemium, data-enabled monetization, commission models, and hybrid revenue architectures. Hänninen, Smedlund, and Mitronen show that multisided retail platforms transform industry revenue structures by combining seller access, consumer reach, data visibility, and platform-mediated services [19]. Cennamo's platform-based view of digital markets suggests that competitive advantage depends on how platform firms design value capture mechanisms without undermining the participation incentives that sustain ecosystem growth [25]. This creates a persistent balance between monetizing access and preserving ecosystem vitality.

Governance choices strongly shape value capture because platforms must decide which side to subsidise, which side to charge, and how to distribute surplus among ecosystem actors. Khademi's systematic review of ecosystem value creation and capture highlights the need to understand how value is generated collectively but appropriated asymmetrically by different actors [12]. Cutolo and Kenney show that platform-dependent entrepreneurs face power asymmetries, risks, and strategic constraints when platforms capture value through control over access, visibility, and rules [31]. These findings indicate that value capture can become a source of competitive strength for the platform owner while simultaneously creating ecosystem vulnerability.

Sustainable value capture requires alignment among monetization model, platform type, governance design, and network-effect dynamics. Data monetization, advertising, and algorithmic intermediation may strengthen revenue potential, but they can also produce trust problems, privacy concerns, or perceived exploitation if participants believe value appropriation is unfair [8, 27]. Conceptual work on ecosystem management capabilities further suggests that firms need capabilities for managing the ecosystem-organisation interface so that value capture does not damage long-term collaboration [24]. **Table 5** maps value capture models and their relationship to governance and network effects.

Table 5. Value Capture and Monetization Models in Platform Business Models: Mechanisms, Contingencies, and Firm Performance Links

Value capture model	Core monetization mechanism	Best-fit platform conditions	Governance requirements	Relationship with network effects and competitiveness
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Transaction fees	Platform captures a percentage or fixed fee from mediated exchanges	Strong fit for marketplaces and exchange platforms with high transaction volume	Requires trust systems, dispute resolution, pricing transparency, and fraud control	Scales with liquidity but may discourage participation if fees are perceived as excessive
Subscription	Users, complementors, or firms pay recurring access fees	Strong fit when platform provides continuing utility, tools, or premium access	Requires consistent service quality, retention management, and clear value proposition	Supports predictable revenue but may slow adoption if network effects are still developing
Freemium	Basic participation is free, while premium features generate revenue	Strong fit for user-growth platforms and digital services with upgrade potential	Requires segmentation between free and paid value without harming the core experience	Supports rapid network expansion but depends on conversion and premium differentiation
Advertising	Platform monetizes user attention and data through advertiser access	Strong fit for platforms with large user bases and high engagement	Requires data governance, targeting rules, brand safety, and user trust protection	Benefits from scale but can reduce user experience if advertising becomes intrusive
Commission model	Platform captures revenue from sellers, service providers, or complementors	Strong fit for retail, app, gig, and service platforms	Requires seller governance, ranking fairness, and complementor relationship management	Can strengthen revenue but may intensify complementor dependence and conflict
Data-enabled monetization	Platform captures value by analysing, packaging, or applying participant data	Strong fit when data improves matching, prediction, personalization, or AI services	Requires privacy safeguards, data access rules, and legitimacy of data use	Can reinforce data network effects but may face saturation, regulation, or trust erosion
Hybrid monetization	Combines fees, subscriptions, advertising, data services, and premium features	Strong fit for mature or multi-function platforms	Requires careful balancing of incentives across participant groups	Diversifies revenue but may create complexity and conflicting participant incentives

Figure 2 shows how network effects, ecosystem governance, and value capture operate as an integrated system shaping the sustainability of platform-based firm competitiveness.

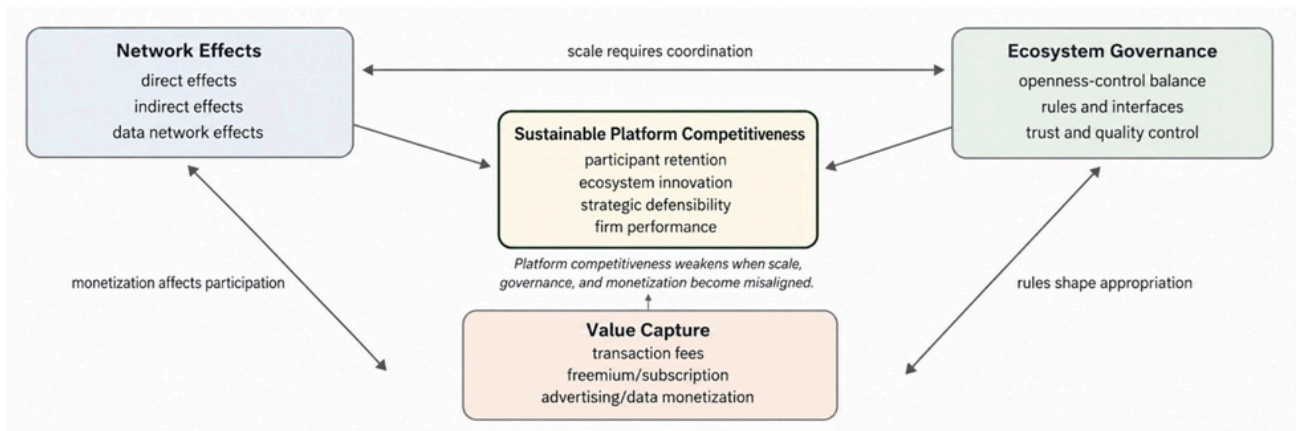


Figure 2. Integrated Competitiveness System of Platform-Based Business Models: Network Effects, Governance, and Value Capture

Synthesis of Research Gaps

The first major gap concerns the dynamics of network effects over time. Much of the reviewed literature explains how platforms grow through direct, indirect, or data-related feedback loops, but fewer studies examine network-effect decline, saturation, congestion, or reversal [7, 17]. Cennamo's argument about diminishing returns suggests that platform growth can produce complexity and declining marginal value, yet this problem remains underdeveloped in many accounts of platform competitiveness [5]. Future synthesis must therefore distinguish between network-effect emergence, acceleration, maturity, saturation, and decay.

The second gap concerns the under-theorised relationship between governance and value capture. Research on platform governance explains openness, control, selective promotion, decentralisation, and complementor management, while value capture studies examine monetization, freemium, transaction fees, and appropriation [9, 11, 30]. However, fewer studies explain how governance choices directly alter monetization outcomes or how aggressive value capture changes ecosystem trust and participation [12, 31]. This gap is important because platform firms often lose competitiveness not because value is absent but because the distribution of value becomes contested.

The third gap concerns context and sectoral diversity. Studies of digital platforms often focus on large technology firms, app ecosystems, digital marketplaces, retail platforms, and Western institutional environments, while less attention is given to emerging markets, regulated sectors, industrial platforms, public platforms, or hybrid digital-physical ecosystems [19, 21]. Nambisan, Zahra, and Luo show that global platforms challenge international business theory, but comparative institutional research remains limited [21]. This creates a risk that platform competitiveness theory overgeneralises from a narrow set of successful cases.

The fourth gap concerns platform failure, dependency, and dark sides. Platform research often foregrounds growth, innovation, and ecosystem advantage, but studies of disruption, complementor dependence, value appropriation conflict, and power asymmetry reveal that platforms can also generate vulnerability [28, 31]. Clough and Wu's discussion of artificial intelligence, data-driven learning, and decentralised platform structure suggests that new platform architectures may create additional governance and accountability challenges [32]. A more balanced review agenda must therefore examine not only platform success but also platform fragility, failure, exclusion, and strategic harm.

Future Research Agenda

Future research should develop longitudinal explanations of platform evolution. Existing studies provide strong conceptual foundations for understanding platform ecosystems, network effects, governance, and value capture, but more evidence is needed on how these mechanisms change as platforms move from launch to growth, maturity, crisis, and renewal [6, 25]. Longitudinal research could examine when network effects stop producing advantage, when complementor participation becomes excessive, and when governance rules must shift from growth orientation to quality preservation [5, 10]. Such work would help move platform theory beyond static success models.

A second research priority is multi-level analysis linking platform governance choices to participant behaviour and firm-level outcomes. Platform competitiveness depends simultaneously on user adoption, complementor commitment, algorithmic visibility, governance legitimacy, and platform-owner performance [9, 20]. Future studies should connect micro-level participant perceptions, meso-level ecosystem structures, and macro-level competitive outcomes rather than examining these layers separately [23]. This would clarify how governance interventions translate into loyalty, innovation, monetization, and strategic durability.

A third research priority is comparative analysis across sectors, countries, and institutional contexts. Research on global platforms shows that scale across borders is central to digital competition, but institutional differences may affect governance, data use, monetization, and ecosystem participation [21]. Studies of retail platforms, digital multisided platforms, and platform-dependent entrepreneurs show that sectoral context shapes both opportunity and risk [19, 20, 31]. Comparative research could therefore identify when platform business model logic is generalisable and when it depends on regulation, culture, infrastructure, market maturity, or industry architecture.

A fourth research priority is the development of sustainable and ethical platform business model theory. Data network effects, artificial intelligence, decentralised governance, and platform dependency raise questions about fairness, privacy, accountability, complementor autonomy, and the social consequences of value capture [8, 27, 32-34]. Gawer's account of platforms and ecosystems as dominant organisational forms implies that platform competitiveness increasingly has economic and societal significance [26]. Future research should therefore study not only how platforms win but how they can remain competitive while sustaining ecosystem legitimacy, participant welfare, and responsible value distribution.

Figure 3 presents the review's future research agenda by mapping unresolved gaps to priority directions for advancing platform competitiveness theory.

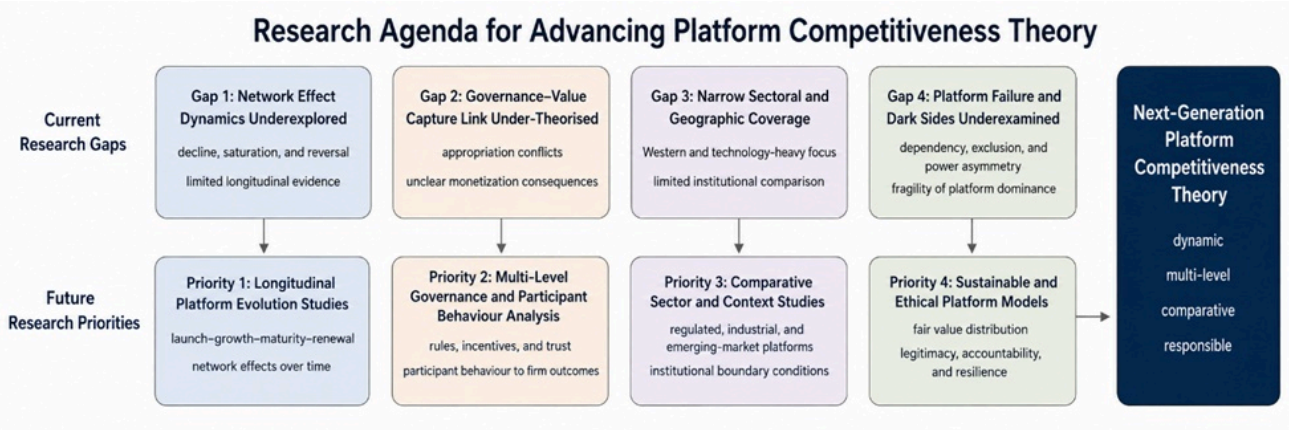


Figure 3. Future Research Agenda for Platform-Based Competitiveness: From Current Gaps to Next-Generation Research Priorities

Conclusion

This systematic review has synthesised the evidence on platform-based business models and firm competitiveness through the mechanisms of network effects, ecosystem governance, and value capture. It has shown that platforms do not become competitive simply because they are digital or scalable. Their competitiveness depends on how they structure participation, generate interaction value, govern ecosystem actors, and monetise without weakening the foundations of participation.

The review's central contribution is to frame platform competitiveness as an integrated system. Network effects can attract and retain participants, but they require governance to preserve quality and coordination. Governance can sustain ecosystem health, but it also shapes the fairness and feasibility of value capture. Value capture can fund platform growth and strengthen firm performance, but it can also create conflict when appropriation undermines participant trust.

For theory, the review highlights the need for more dynamic, comparative, and context-sensitive explanations of platform success and failure. For practice, it suggests that platform leaders should manage growth, governance, and monetization as mutually dependent strategic choices rather than isolated decisions. Platform-based business models will remain central to digital competition, but their long-term competitiveness depends on disciplined orchestration, legitimate governance, and sustainable value capture.

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References

- McIntyre DP, Srinivasan A. Networks, platforms, and strategy: Emerging views and next steps. *Strat Manag J.* 2017;38(1):141-60.
- Parker G, Van Alstyne M, Jiang X. Platform ecosystems: how developers invert the firm1. *MIS Q.* 2017;41(1):255-66.
- Adner R. Ecosystem as structure: An actionable construct for strategy. *J Manag.* 2017;43(1):39-58.
- Nambisan S, Lyytinen K, Majchrzak A, Song M. Digital innovation management: Reinventing innovation management research in a digital world. *MIS Q.* 2017;41(1):223-38.
- Cennamo C. Building the value of next-generation platforms: The paradox of diminishing returns. *J Manag.* 2018;44(8):3038-69.
- Jacobides MG, Cennamo C, Gawer A. Towards a theory of ecosystems. *Strateg Manag J.* 2018;39(8):2255-76.
- Hinz O, Otter T, Skiera B. Estimating network effects in two-sided markets. *J Manag Inf Syst.* 2020;37(1):12-38.
- Gregory RW, Henfridsson O, Kaganer E, Kyriakou H. The role of artificial intelligence and data network effects for creating user value. *Acad Manag Rev.* 2021;46(3):534-51.
- Rietveld J, Schilling MA, Bellavitis C. Platform strategy: Managing ecosystem value through selective promotion of complements. *Organ Sci.* 2019;30(6):1232-51.
- Cennamo C, Santaló J. Generativity tension and value creation in platform ecosystems. *Organ Sci.* 2019;30(3):617-41.
- Rietveld J. Creating and capturing value from freemium business models: A demand-side perspective. *Strateg Entrep J.* 2018;12(2):171-93.
- Khademi B. Ecosystem value creation and capture: A systematic review of literature and potential research opportunities. *Technol Innov Manag Rev.* 2020;10(1).
- Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ.* 2021;372:n71.
- Paul J, Lim WM, O'Cass A, Hao AW, Bresciani S. Scientific procedures and rationales for systematic literature reviews (SPAR-4-SLR). *Int J Consum Stud.* 2021;45(4):O1-6.
- De Reuver M, Sørensen C, Basole RC. The digital platform: A research agenda. *J Inf Technol.* 2018;33(2):124-35.
- Hein A, Schreieck M, Riasanow T, Setzke DS, Wiesche M, Böhm M, et al. Digital platform ecosystems. *Electron Mark.* 2020;30(1):87-98.
- Rietveld J, Schilling MA. Platform competition: A systematic and interdisciplinary review of the literature. *J Manag.* 2021;47(6):1528-63.
- Constantinides P, Henfridsson O, Parker GG. Introduction—platforms and infrastructures in the digital age. *Inf Syst Res.* 2018;29(2):381-400.
- Hänninen M, Smedlund A, Mitronen L. Digitalization in retailing: multi-sided platforms as drivers of industry transformation. *Balt J Manag.* 2018;13(2):152-68.
- Ardolino M, Saccani N, Adrodegari F, Perona M. A business model framework to characterize digital multisided platforms. *J Open Innov Technol Mark Complex.* 2020;6(1):10.

Nambisan S, Zahra SA, Luo Y. Global platforms and ecosystems. *J Int Bus Stud.* 2019;50(9):1464-86.

McIntyre D, Srinivasan A, Afuah A, Gawer A, Kretschmer T. Multisided platforms as new organizational forms. *Acad Manag Perspect.* 2021;35(4):566-83.

Kretschmer T, Leiponen A, Schilling M, Vasudeva G. Platform ecosystems as meta-organizations: Implications for platform strategies. *Strateg Manag J.* 2022;43(3):405-24.

Sjödin D, Liljeborg A, Mutter S. Conceptualizing ecosystem management capabilities: managing the ecosystem-organization interface. *Technol Forecast Soc Change.* 2024;200:123187.

Cennamo C. Competing in digital markets: A platform-based perspective. *Acad Manag Perspect.* 2021;35(2):265-91.

Gawer A. Digital platforms and ecosystems: remarks on the dominant organizational forms of the digital age. *Innovation.* 2022;24(1):110-24.

Gregory RW, Henfridsson O, Kaganer E, Kyriakou H. Data network effects: Key conditions, shared data, and the data value duality. *Acad Manag Rev.* 2022;47(1):189-92.

Ozalp H, Cennamo C, Gawer A. Disruption in platform-based ecosystems. *J Manag Stud.* 2018;55(7):1203-41.

Chen L, Yi J, Li S, Tong TW. Platform governance design in platform ecosystems: Implications for complementors' multihoming decision. *J Manag.* 2022;48(3):630-56.

Chen Y, Richter JI, Patel PC. Decentralized governance of digital platforms. *J Manag.* 2021;47(5):1305-37.

Cutolo D, Kenney M. Platform-dependent entrepreneurs: Power asymmetries, risks, and strategies in the platform economy. *Acad Manag Perspect.* 2021;35(4):584-605.

Clough DR, Wu A. Artificial intelligence, data-driven learning, and the decentralized structure of platform ecosystems. *Acad Manag Rev.* 2022;47(1):184-9.

Jacobides MG, Cennamo C, Gawer A. Externalities and complementarities in platforms and ecosystems: From structural solutions to endogenous failures. *Res Policy.* 2024;53(1):104906.

Costabile C. Digital platform ecosystem governance of private companies: Building blocks and a research agenda based on a multidisciplinary, systematic literature review. *Data Inf Manag.* 2024;8(1):100053.