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Digital Ecosystems and Competitive Strategy: A Review of Platform-Centered Markets

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Abstract

Digital ecosystems represent a fundamental shift in competitive dynamics, moving the unit of analysis from individual firms to interdependent networks organized around platform orchestrators. This review synthesizes contemporary research on how competitive strategy evolves in platform-centered markets, examining the transition from firm-centric to ecosystem-centric competition. We analyze how platform structures create new forms of interdependence, governance mechanisms, and power asymmetries that fundamentally reshape strategic positioning. The review identifies three core themes: ecosystem structure and platform-centered competition, governance and strategic asymmetry, and value dynamics between creation and capture. Our analysis reveals that competitive advantage in digital ecosystems increasingly derives from relational positioning, complementor management, and the ability to navigate tensions between openness and control. We identify critical gaps in the literature, particularly regarding complementor agency, dynamic governance evolution, and the strategic implications of generative AI platforms. The review concludes by proposing an integrated framework for understanding ecosystem competition and outlining priorities for future strategic management research.

Keywords Digital ecosystems, Ecosystem governance, Value co-creation, Platform competition, Complementor strategy, Strategic interdependence

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Introduction

The emergence of digital platforms as dominant organizational forms has fundamentally transformed the competitive landscape across industries [1-3]. From e-commerce and ride-sharing to enterprise software and generative artificial intelligence, platform-centered ecosystems have become the primary architecture for value creation and capture in the digital economy [4-6]. This transformation challenges foundational assumptions of strategic management, which have traditionally focused on firm-level resources, industry positioning, and competitive advantage derived from internal capabilities [7, 8].

In digital ecosystems, competitive dynamics extend beyond dyadic firm relationships to encompass multilateral interactions among platform owners, complementors, users, and rival ecosystems [9-11]. The strategic logic shifts from competing through internal resources to competing through ecosystem orchestration, where value emerges from network effects, complementary innovations, and coordinated interdependencies [12-14]. This shift necessitates a fundamental reconceptualization of how firms formulate and execute competitive strategy in digitally networked markets.

The literature on digital platform ecosystems has grown exponentially over the past decade, spanning information systems, strategic management, innovation studies, and

marketing disciplines [7, 15, 16]. Research has examined platform governance structures [9, 17], complementor strategies [12, 18], competitive dynamics between platforms and complementors [19, 20], and the evolution of ecosystem architectures [21, 22]. However, this proliferation has also led to fragmented insights, with divergent theoretical perspectives and limited synthesis of how competitive strategy evolves in ecosystem contexts.

This review addresses a critical question: How does competitive strategy change in digital ecosystems characterized by platform-centered market structures and high levels of firm interdependence? We synthesize contemporary research to examine the shift from firm-centric to ecosystem-centric competition, analyze platform-centered market structures and ecosystem power, explore the role of complementors, orchestrators, and users in strategic dynamics, and investigate tensions between value creation and value capture. Our analysis reveals that strategic advantage increasingly depends on relational positioning, governance navigation, and the management of interdependence rather than on isolated firm resources or traditional industry positioning [1, 23, 24].

The review makes three primary contributions. First, we synthesize fragmented literature across disciplines to provide an integrated understanding of competitive strategy in digital ecosystems. Second, we identify key mechanisms through which platform-centered market structures reshape strategic logic, including governance asymmetries, dependence dynamics, and the dual nature of complementor relationships. Third, we outline an agenda for future research, highlighting unresolved debates and emerging contexts—particularly generative AI platforms—that challenge existing theoretical frameworks.

This review is structured as follows. The next section synthesizes the literature on digital ecosystems and competitive strategy, examining the transition from firm-centric to ecosystem-centric competition. We then analyze platform-centered market structures and the nature of firm interdependence. Following this, we explore governance, control, and strategic asymmetry in ecosystem competition. We subsequently examine value creation and capture dynamics, particularly from the perspective of complements. The final section discusses implications for strategic management research and practice.

Literature Synthesis on Digital Ecosystems and Competitive Strategy

From firm-centric to ecosystem-centric competition

Traditional strategic management theory conceptualizes competition as occurring between firms operating within industry boundaries, where competitive advantage derives from internal resources, capabilities, or value-chain positioning [7, 8]. However, digital platforms have disrupted this conceptualization by creating market structures where value is co-created across networks of interdependent actors [4, 11, 15]. The shift toward ecosystem-centric competition represents a paradigmatic change in how strategic advantage is conceptualized and achieved.

Jacobides, Cennamo, and Gawer define ecosystems as “groups of interacting firms that depend on each other’s activities” [1]. This definition emphasizes interdependence as the defining characteristic of ecosystem organization. Unlike traditional markets, where transactions are arm’s-length and hierarchical, ecosystems combine elements of both markets and hierarchy through multilateral coordination mechanisms [23, 25]. Platform owners act as orchestrators, establishing technical architectures and governance rules that shape interactions among ecosystem participants [2, 9, 17].

The shift to ecosystem-centric competition fundamentally alters the unit of analysis for strategic inquiry. Rather than focusing on individual firm capabilities, strategy must account for how value is created across interdependent actors and how competitive advantage emerges from relational positioning within the ecosystem [13, 14, 26]. This requires firms to consider not only their own resources but also their complementors’ capabilities, platform governance structures, and the broader competitive dynamics between ecosystems [10, 21, 27].

Hein *et al.* [4] characterize digital platform ecosystems as sociotechnical systems where platform owners provide core infrastructure that enables third-party complementors to offer extensions, applications, or services. This architecture creates a fundamental asymmetry: platform owners control technical interfaces and governance rules, while complementors depend on platform access to create and distribute value [19, 28]. This asymmetry establishes a

power dynamic that fundamentally shapes competitive positioning and strategic options for ecosystem participants. **Table 1** clarifies the fundamental strategic reorientation required when competition shifts from internal firm advantage to ecosystem-positioned advantage.

Table 1. Strategic logic shift from firm-centric competition to ecosystem-centric competition

Analytical dimension	Firm-centric competition	Ecosystem-centric competition	Stra impli
Primary unit of analysis	Individual firm	An interdependent actor network organized around a platform	Strate eva rela positi onl as
Source of advantage	Internal resources, capabilities, value-chain position	Orchestration, complementarity, network position, governance access	Adva depe embed and str wi ecos stru
Boundary of competition	Industry or market boundary	Fluid ecosystem boundary spanning users, complementors, partners, and rival platforms	Firms across and s partic archit
Core strategic actor	Focal firm	Platform orchestrator plus heterogeneous ecosystem participants	Stra influe distrib asymm struc
Mechanism of coordination	Hierarchy, contracts, market exchange	Platform rules, interfaces, standards, data flows, relational governance	Comp beha media plat des coord mech
Nature of interdependence	Limited or transactional	Persistent, multilateral, and recursively reinforcing	Stra mo gen secon effects multipl
Role of innovation	Firm-generated and internally appropriated	Jointly produced through complementor participation and platform enablement	Inno strate acco depe and a gatek
Role of data	Firm resource supporting internal decision-making	Shared but asymmetrically controlled ecosystem resource	D conce beco sou stru advant mon po
Rivalry pattern	Direct firm-versus-firm competition	Intra-ecosystem co-opetition plus inter-ecosystem rivalry	Firm ma simult collab a comp
Positioning logic	Differentiate against rivals	Position relative to the platform owner, other complementors, and users	Stra suc depe multi posit rathe single posit
Control problem	Internal organization and competitor response	Balancing openness, coordination, innovation, and appropriation	Gove beco ce stra var
Risk profile	Market rivalry, imitation, and capability erosion	Platform dependency, governance shifts, visibility loss, and platform entry	Stra planni inc depe and cha exp
Growth pathway	Scale through internal	Scale through ecosystem participation,	Gro incre condit

	expansion or market share gains	multihoming, and relational leverage	ecos acce comp

The transition from firm-centric to ecosystem-centric competition also transforms how firms conceptualize competitive advantage. Traditional resource-based views emphasize firm-specific assets and capabilities as sources of sustainable advantage [7, 8]. In ecosystem contexts, advantage increasingly derives from network position, relational capabilities, and the ability to influence governance arrangements [23, 25, 29]. Complementors may achieve advantage through product differentiation, niche specialization, or multi-homing strategies that reduce platform dependency [12, 18, 20]. Platform owners may gain an advantage through governance design that balances openness to innovation with control over value capture [2, 9, 17].

Platform-centered market structures and firm interdependence

Platform-centered market structures introduce distinctive forms of interdependence that reshape competitive dynamics. Unlike traditional industries where firms operate with relative autonomy, platform ecosystems create mutual dependencies between platform owners and complementors, among complementors, and between ecosystem participants and users [1, 11, 22]. These interdependencies create both opportunities for value creation and vulnerabilities for value capture.

Cenamor argues that complementors face strategic decisions regarding their positioning relative to platform owners and other complementors [12]. Complementors may pursue differentiation strategies to establish unique value propositions, cost leadership through efficient operations, or niche specialization in underserved market segments. However, these strategic choices are constrained by platform governance rules, technical interfaces, and the platform owner's own competitive moves [17, 19, 20]. The interdependence between platform owners and complementors creates a distinctive competitive dynamic where complementors must simultaneously collaborate with and compete against the platform owner—a phenomenon Zhu and Liu term "co-opetition" [10].

Research has extensively documented how platform owners may enter complementor markets, creating direct competition with the complementors upon whom platform success depends [6, 10, 20]. Zhu and Liu's analysis of Amazon demonstrates how platform owners can leverage their governance authority and data access to identify attractive complementor markets for entry [10]. This creates strategic uncertainty for complementors, who must anticipate platform owner moves and adapt their strategies accordingly [17]. Kude and Huber's longitudinal study of enterprise software complementors reveals how complementors develop adaptive responses to platform owner entry, including specialization, relationship management, and strategic timing of investments [17].

The nature of interdependence varies across ecosystem types and evolutionary stages. Sandberg, Holmström, and Lyytinen identify phase transitions in platform organizing logics, showing how interdependence patterns shift as ecosystems mature [2]. Early-stage ecosystems often feature loose coupling and exploratory relationships, while mature ecosystems develop tighter coupling, standardized interfaces, and more formalized governance [21, 22, 27]. These evolutionary dynamics create changing strategic conditions that require adaptive responses from both platform owners and complementors.

Platform-centered market structures also generate interdependence among complementors. Engert *et al*. [29] examine how complementor engagement is sustained through network effects, where complementor participation creates value for other complementors and users. However, interdependence also creates competition for user attention, as complementors vie for visibility and adoption within platform interfaces [16]. Meyer *et al*. [16] analyze competition for attention on digital platforms, demonstrating how complementors must navigate both algorithmic and competitive dynamics to achieve visibility.

The concentration of control in platform owners creates distinctive power asymmetries that shape interdependence. Hurni, Huber, and Dibbern examine power dynamics in software platform ecosystems, identifying how platform owners exercise architectural and governance authority to shape complementor behavior [22]. Agarwal, Miller, and Ganco analyze how platforms manage the adoption of complementor innovation, revealing mechanisms by which platform owners selectively enable or constrain complementor initiatives [28]. These power dynamics create strategic challenges for complementors, who must balance dependency risks against the benefits of platform participation.

Toh and Agarwal extend this analysis by conceptualizing complementors as holding “option value” within platform ecosystems [14]. Complementor investments create strategic options for future growth, but these options are contingent on platform governance and competitive dynamics. This perspective highlights how interdependence creates both flexibility and constraint for ecosystem participants, with strategic value emerging from the ability to maintain optionality while navigating platform dependencies. **Figure 1** illustrates the architecture of competition in digital platform ecosystems, depicting the structural relationships, flows, and dynamics that shape strategic positioning.

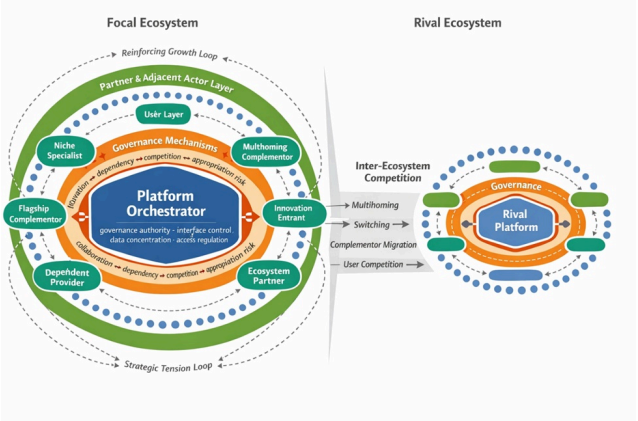

Figure 1. Digital ecosystem competition architecture—textual description

Governance, Control, and Strategic Asymmetry in Ecosystem Competition

Platform governance as a strategic instrument

Governance in digital platform ecosystems represents a fundamental strategic instrument through which platform owners shape competitive dynamics and value distribution [8, 9, 23]. Unlike traditional governance mechanisms limited to hierarchical control or market transactions, platform governance combines architectural design, contractual arrangements, and relational mechanisms to coordinate multilateral interactions among ecosystem participants [4, 25, 26]. This governance architecture establishes the rules of engagement that define strategic possibilities for all ecosystem actors.

Huber, Kude, and Dibbern identify governance practices as mechanisms for navigating tensions between value co-creation and governance costs [9]. Platform owners must balance the need for openness—enabling complementor innovation and user engagement—against the imperative for control—ensuring quality, security, and value capture. This balancing act creates strategic trade-offs that fundamentally shape ecosystem evolution and competitive positioning. Governance decisions regarding access rules, revenue sharing, intellectual property rights, and technical standards establish the structural conditions within which complementors formulate competitive strategies [17, 19, 28].

Kretschmer *et al*. [23] conceptualize platform ecosystems as meta-organizations, arguing that their governance structures differ fundamentally from those of traditional organizations. Meta-organizations lack formal authority over member organizations but exercise influence through architectural control, resource dependence, and network effects. This conceptualization highlights how platform governance operates through indirect mechanisms—shaping behavior through interface design, data access, and selective enforcement—rather than through direct hierarchical authority [22, 25, 26].

The strategic implications of governance extend beyond platform owners to encompass complementor responses and adaptation. Engert *et al*. [29] examine how complementor engagement is shaped by governance perceptions, finding that complementors assess governance fairness, transparency, and stability when making investment and participation decisions. Complementors develop governance navigation strategies, learning to operate within platform constraints while seeking opportunities for strategic autonomy [17, 24]. This dynamic creates ongoing strategic interplay between platform owners seeking to maintain governance authority and complementors seeking to expand strategic space.

Power asymmetries and strategic dependence

Power asymmetries constitute a defining feature of platform-centered market structures, creating systematic differences in strategic capabilities and options across ecosystem actors [22, 25, 27]. Platform owners exercise structural power through control over technical interfaces, governance rules, and access to user data [10, 19, 28]. Complementors experience dependence on platform

owners for market access, distribution channels, and technical integration [12, 14, 20]. These asymmetries shape competitive positioning, innovation strategies, and value capture outcomes.

Hurni, Huber, and Dibbern analyze power dynamics in software platform ecosystems and identify multiple sources of power for platform owners [22]. Architectural power derives from control over technical interfaces and integration points, enabling platform owners to shape complementor functionality and interoperability. Governance power derives from authority over participation rules, revenue sharing, and dispute resolution. Information power derives from access to user data and complementary performance metrics, enabling platform owners to identify attractive markets for entry or acquisition [5, 6, 10]. These power sources combine to create systematic advantages for platform owners in ecosystem competition.

Complementor responses to power asymmetries vary based on strategic positioning, resource endowments, and governance context. Kude and Huber's longitudinal study reveals how complementors develop adaptive strategies, including specialization in narrow niches to reduce exposure to platform competition, relationship cultivation to influence governance decisions, and strategic timing of investments to avoid platform owner entry windows [17]. Kapacinskaite and Mostajabi examine complementor positioning across multiple platforms, finding that multi-homing—participation in multiple ecosystems—reduces dependence on any single platform owner while creating coordination costs and resource-allocation challenges [20].

The concept of strategic dependence extends to entrepreneurial ventures operating within platform ecosystems. Nzembayie, Evers, and Urbano examine adaptive strategies of platform-dependent entrepreneurs, identifying how small complementors navigate power asymmetries through innovation differentiation, user relationship development, and governance entrepreneurship [24]. These strategies reflect the distinctive competitive challenges faced by dependent actors in ecosystem contexts, where strategic success depends not only on internal capabilities but also on navigating platform governance and power relations [25].

Control mechanisms and strategic coordination

Platform owners employ diverse control mechanisms to coordinate ecosystem activity and shape competitive outcomes [9, 19, 28]. These mechanisms range from formal contractual arrangements to informal relational governance, each carrying distinct implications for complementor autonomy and strategic flexibility. Understanding these control mechanisms is essential for comprehending how competitive dynamics unfold in platform-centered markets.

Technical control operates through application programming interfaces, software development kits, and architectural design [2, 4, 11]. Platform owners establish technical standards that define permissible complementor functionality, integration methods, and data access. Hukal *et al*. [19] examine platform signaling—the use of technical and governance signals to shape complementor behavior—demonstrating how platform owners influence complementor innovation without direct intervention. Technical control mechanisms create both constraints and opportunities for complementors, channeling innovation toward platform-aligned directions while enabling value creation through platform integration.

Contractual control encompasses formal agreements governing participation terms, intellectual property rights, revenue sharing, and dispute resolution [8, 9, 23]. Platform owners use contractual mechanisms to establish expectations, allocate risks, and capture value from complementor activities. However, contractual control alone proves insufficient for managing complex ecosystem relationships, leading platform owners to supplement formal contracts with relational governance mechanisms [25, 26]. Relational governance includes trust-building, communication practices, and collaborative problem-solving that enable flexibility in adapting to changing circumstances.

Shi *et al.* [6] examine how platform owners' entry timing into complementor markets affects competitive dynamics, finding that early entry enables platform owners to shape market development. In contrast, late entry allows complementor innovation to demonstrate market potential. This analysis reveals how platform owners strategically time the deployment of control mechanisms to balance innovation incentives with value-capture objectives. The strategic use of control mechanisms thus becomes a critical determinant of ecosystem evolution and complementor competitive positioning.

Value Creation, Value Capture, and Complementor Dependence

The value tension in platform ecosystems

A central tension in platform ecosystems exists between value creation—the generation of value through ecosystem participation—and value capture—the appropriation of value by individual actors [9, 11, 15]. This tension manifests most acutely in platform-owner–complementor relationships, where both parties contribute to value creation but may have divergent interests in the distribution of that value [10, 12, 25]. Understanding how this tension shapes competitive strategy is essential for comprehending ecosystem dynamics.

Schreieck, Wiesche, and Krcmar examine capabilities for value co-creation and value capture in emergent platform ecosystems [11]. Their longitudinal analysis reveals that platform owners develop capabilities for ecosystem orchestration—such as attracting complementors, coordinating activities, and managing interfaces—while complementors develop capabilities for platform-specific innovation, user engagement, and governance navigation. Value creation emerges from the alignment of these capabilities across ecosystem actors, while value capture depends on bargaining power, strategic positioning, and governance arrangements [13, 14, 18].

The tension between value creation and value capture generates strategic dilemmas for both platform owners and complementors. Platform owners must balance openness to maximize value creation against control to ensure value capture [8, 9, 23]. Excessive openness may enable free-riding and quality deterioration, while excessive control may discourage complementor investment and innovation. Complementors must balance platform-specific investments that enhance value creation against the risks of dependency that reduce value capture [14, 17]. These dilemmas create strategic complexity that distinguishes ecosystem competition from traditional firm-level competition.

Panico and Cennamo analyze how user preferences interact with strategic interactions in platform ecosystems [13]. User preferences shape value creation patterns by influencing which complementor offerings succeed and which fail. Complementors must align their offerings with user preferences while anticipating platform owner responses and competitor moves. This multi-layered strategic interaction creates distinctive competitive dynamics where success depends on simultaneously satisfying users, aligning with platform governance, and differentiating from other complementors [12, 16, 20].

Complementor strategy and competitive positioning

Complementor strategy has emerged as a distinct domain of strategic inquiry, recognizing that complementors face unique competitive challenges distinct from those of platform owners or traditional firms [12, 14, 27]. Complementors must navigate platform dependencies, anticipate platform owner moves, and compete with other complementors while collaborating through shared platform infrastructure [17, 19, 28]. These distinctive conditions require novel strategic frameworks that extend traditional competitive strategy concepts.

Cenamor proposes a framework for complementor competitive advantage structured around strategic decisions regarding positioning, scope, and governance [12]. Complementors may pursue differentiation strategies focused on unique functionality, user experience, or service quality. Alternatively, they may pursue cost leadership through operational efficiency, scale economies, or automation. Complementors must also decide on scope—whether to focus narrowly on specific user segments or applications, or to expand across multiple domains and platforms [18, 20, 27]. These strategic decisions interact with platform governance conditions, creating contingent relationships between complementor strategy and competitive outcomes.

Carst and Hu conduct a systematic review of complementor research, identifying complementors as ecosystem actors with distinctive roles, strategies, and outcomes [27]. Their analysis reveals that complementor research has proliferated across multiple disciplines, generating insights on complementor innovation, governance responses, and performance determinants. However, they also identify fragmentation in theoretical approaches and limited integration across research streams. This fragmentation suggests that the complementor strategy remains an emerging domain requiring further theoretical development and empirical investigation.

Liu *et al*. [25] conceptualize "the complementor's dilemma"—the tension between growth ambitions and dependency on focal actors in platform ecosystems. Complementors seeking growth often increase platform-specific investments, deepening dependency and reducing strategic flexibility. Conversely, complementors seeking autonomy may limit platform-specific investments, constraining growth opportunities. This dilemma structures complementor strategic decision-making, creating path dependencies that shape long-term competitive trajectories. The authors identify strategies for navigating this dilemma, including staged investment approaches, multi-platform participation, and value chain integration. **Table 2** consolidates the causal relationship between platform control mechanisms, complementor strategic responses, and ecosystem-level value capture outcomes.

Table 2. Governance asymmetry, complementor response, and value capture outcomes in platform ecosystems

Platform governance mechanism	How asymmetry is produced	Complementor strategic response	Lik c
Access rules and participation criteria	The platform determines entry, exclusion, and legitimacy	Compliance, niche specialization, lobbying for access, and alternative platform search	Ca ec qu co
API design and technical interface control	Platform shapes what can be built and how deeply complementors can integrate	Technical adaptation, modular innovation, and architectural dependence reduction	En s co in with bo
Revenue-sharing arrangements	The platform sets appropriate terms and margin structure	Price adjustment, premium differentiation, off-platform monetization, and multihoming	S pa pe
Ranking, recommendation, and visibility control	Platform controls discoverability and user attention allocation	Optimization for platform signals, brand building, and direct user relationship development	Can use an
Data access permissions	The platform concentrates on user and performance data	Build proprietary analytics, seek first-party user contact, and diversify data sources	Dat ca ser and
Entry into complementor markets	The platform uses ecosystem knowledge to compete directly with complementors	Specialization, rapid innovation, timing adjustment, coalition formation, and multihoming	Ma cat stan
Policy updates and rule revisions	The platform can unilaterally alter strategic conditions	Flexibility reserves, staged investment, and portfolio diversification	Ma ec ali t env
Certification and quality assurance systems	The platform decides what counts as credible or compliant participation	Invest in quality signaling, certification acquisition, and process alignment	Car t ec le
Dispute resolution and enforcement	The platform adjudicates conflicts and rule violations	Relationship cultivation, reputational management, and procedural learning	Ca co i co
Support for complementor innovation adoption	The platform selects which innovations are promoted, integrated, or ignored	Align with adoption criteria, target unmet niches, and pursue distinctive complementarity	Can ec evol s

Innovation dynamics and competitive evolution

Innovation in platform ecosystems follows distinctive dynamics shaped by governance structures, interdependence patterns, and competitive pressures [2, 21, 28]. Platform owners and complementors engage in ongoing innovation activities that collectively shape ecosystem evolution and competitive positioning. Understanding these innovation dynamics is essential for comprehending how competitive advantage emerges and erodes in platform-centered markets.

Sandberg, Holmström, and Lyytinen identify phase transitions in platform organizing logics, examining how innovation patterns shift as ecosystems mature [2]. Early-stage ecosystems feature exploratory innovation where complementors experiment with diverse applications and business models. As ecosystems mature, innovation becomes more structured, with standardized interfaces, established governance, and institutionalized roles for complementors. These phase transitions create changing conditions for competitive strategy, requiring adaptive approaches from both platform owners and complementors.

Cozzolino, Corbo, and Aversa examine the evolution of collaboration and competition between incumbent producers and entrant platforms [21]. Their analysis reveals how platform entry disrupts established industry structures, creating innovation trajectories and competitive dynamics. Incumbents must respond to platform-based competition while exploring opportunities for platform-based innovation themselves. This dual response requirement creates strategic complexity that challenges traditional assumptions about innovation management and competitive response.

Agarwal, Miller, and Ganco examine how platforms manage the adoption of complementor innovations [28]. Platform owners exercise discretion in selecting which complementor innovations to support, promote, and integrate. This adoption management function creates strategic leverage for platform owners, enabling them to shape innovation trajectories and influence which complementors succeed. Complementors must align their innovation strategies with platform adoption criteria while maintaining distinctiveness and value proposition [18]. This dynamic creates selective pressures that shape complementor innovation patterns and ecosystem evolution.

Heimburg, Schreieck, and Wiesche extend this analysis to generative AI platform ecosystems, examining complementor value co-creation in emerging contexts [18]. Generative AI platforms introduce distinctive innovation dynamics, with complementors building applications, prompts, and fine-tuned models on foundational AI infrastructure. These platforms amplify concerns about complementor dependency while creating new opportunities for value creation through AI-native applications. The authors identify how complementor strategies in generative AI ecosystems differ from those in traditional software platforms, requiring novel approaches to differentiation, governance, and value capture.

Future Directions and Research Agenda

Emerging contexts and theoretical extensions

The literature on digital platform ecosystems continues to evolve, with emerging contexts challenging existing theoretical frameworks and opening new research directions. Generative AI platforms represent a particularly significant emerging context, with distinctive characteristics that may require theoretical extension or reconceptualization [18]. Unlike traditional platforms with stable technical interfaces and predictable governance, generative AI platforms feature emergent capabilities, evolving technical architectures, and uncertain governance arrangements. These characteristics create novel strategic conditions that warrant systematic investigation.

Another emerging context involves the intersection of physical and digital ecosystems, where digital platforms coordinate physical assets, logistics, and service delivery [4, 21, 27]. These hybrid ecosystems combine the characteristics of traditional industrial organization with those of digital platform dynamics, creating complex strategic conditions that challenge existing theoretical frameworks. Research is needed on how competitive strategy operates in contexts where digital coordination intersects with physical constraints, asset specificity, and location-bound capabilities.

The role of data in platform ecosystems is another domain that requires further theoretical development [13, 15, 19]. Platform owners collect and analyze data from ecosystem participants, using data-driven insights to inform

governance decisions, competitive entry, and value capture strategies. However, the strategic implications of data concentration remain underexplored, particularly regarding competitive dynamics, complementor autonomy, and regulatory responses. Future research should examine how data asymmetries shape ecosystem competition and how complementors can develop data-based competitive advantages.

Dynamic governance and evolutionary processes

Existing research has provided valuable insights into platform governance structures. Still, limited attention has been paid to governance dynamics—how governance arrangements evolve over time and in response to changing conditions [2, 9, 26]. Understanding governance evolution is essential for comprehending how competitive conditions shift as ecosystems develop and mature. Future research should examine governance adaptation processes, including how platform owners modify governance in response to complementor pressures, competitive threats, and regulatory interventions.

The relationship between governance and ecosystem performance represents another domain requiring further investigation [8, 23, 25]. Research is needed on how governance configurations affect ecosystem outcomes, including innovation rates, complementor success, user satisfaction, and ecosystem resilience. Comparative research across governance types, platform contexts, and industry settings could generate insights into governance-performance relationships that inform both theory and practice.

Engert *et al*. [26] propose an information ecology approach to understanding self-organization and governance in digital platform ecosystems. This perspective conceptualizes ecosystems as complex adaptive systems where governance emerges from interactions among platform owners, complementors, and users rather than being centrally designed. Future research should explore how governance emerges from distributed interactions, how self-organization complements formal governance, and how platform owners can facilitate beneficial self-organization while preventing dysfunctional outcomes.

Complementor agency and strategic autonomy

While research has increasingly recognized complementor strategic challenges, limited attention has focused on complementor agency—the capacity of complementors to shape ecosystem conditions and outcomes [12, 25, 27]. Future research should examine how complementors collectively influence governance evolution, how complementor associations or coalitions affect power dynamics, and how complementors develop capabilities for governance innovation. Understanding complementor agency is essential for developing balanced theoretical perspectives that recognize the strategic contributions of all ecosystem actors.

The relationship between complementor autonomy and ecosystem performance represents another important research direction [14, 20]. Complementor autonomy may enable innovation, differentiation, and strategic flexibility, but may also create coordination challenges and governance costs. Research is needed on how platform owners can balance complementor autonomy with ecosystem coordination, and how complementors can maintain autonomy while benefiting from platform participation.

Methodological pluralism and research design

The study of digital platform ecosystems has benefited from diverse methodological approaches, including longitudinal case studies [2, 11, 17], quantitative analyses of platform data [6, 10, 16], and conceptual theoretical development [1, 3, 15]. However, methodological pluralism remains essential for advancing understanding of complex ecosystem phenomena. Future research should employ mixed-method designs that combine quantitative analysis of platform activity with qualitative investigation of strategic decision-making, governance processes, and competitive dynamics.

Comparative research across platform contexts, governance types, and industry settings could generate insights into how competitive strategy varies with ecosystem characteristics [7, 8, 27]. Research examining platform ecosystems in different institutional contexts, regulatory environments, and cultural settings could reveal how contextual factors shape competitive dynamics and governance arrangements. Such comparative research would contribute to the development of more generalizable theoretical frameworks for understanding ecosystem competition.

Conclusion

This review has examined how competitive strategy changes in digital ecosystems characterized by platform-centered market structures and high levels of firm interdependence. Our analysis reveals a fundamental shift from firm-centric to ecosystem-centric competition, where strategic advantage increasingly depends on relational positioning, governance navigation, and the management of interdependence rather than on isolated firm resources or traditional industry positioning. Platform-centered market structures create distinctive competitive conditions, including governance asymmetries, power differentials, and value tensions that fundamentally reshape strategic logic. The review identified three core themes: ecosystem structure transforms the unit of analysis from individual firms to interdependent actor networks; governance and strategic asymmetry create systematic differences in strategic options across ecosystem actors; and tensions between value creation and value capture generate strategic dilemmas requiring careful balancing of collaboration and competition, openness and control, and investment and autonomy.

For strategic management research, priorities include examining emerging contexts such as generative AI platforms, investigating dynamic governance processes, and studying complementor agency. Practically, platform owners must recognize that governance design shapes competitive dynamics and complementor behavior, balancing openness to encourage innovation with control to ensure value capture. Complementors must develop strategies that account for platform dependencies while maintaining distinctive value propositions through specialization, multi-platform participation, or governance navigation. Digital ecosystems represent a fundamental transformation in how economic activity is organized and value is created and captured. As these ecosystems continue to evolve, ongoing research will be essential for developing theoretical frameworks that capture the distinctive dynamics of platform-centered competition and for informing strategic practice in digitally networked markets.

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