

REVIEW

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From Linear to Ecosystemic: A Review of Digital Business Models in the Age of Platforms and Data

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Abstract

The digital transformation of the economy has fundamentally altered the logic of business models, shifting the focus from linear, firm-centric value chains to complex, networked architectures. This narrative review synthesizes contemporary literature to conceptualize digital business models, framing the interplay between digitalization and business model design. We explore how platforms, data, and ecosystem-based value creation have become the central pillars of modern business strategy. The review identifies three core architectural shifts: the emergence of platform-based models that orchestrate value exchange, the rise of data as a primary resource for value propositions and monetization, and the transition from dyadic firm-customer relationships to multi-actor ecosystems. We analyze inherent tensions in these models, such as balancing openness with control and scalability with value capture, which present novel strategic challenges. By integrating findings from key references, this article clarifies the conceptual landscape of digital business models and highlights a departure from traditional configurations. We conclude by outlining implications for strategic management and proposing future research directions to address conceptual fragmentation and dynamic governance issues in digital business model innovation.

Keywords Business model innovation, Value capture, Platform ecosystems, Digital business models, Data-driven value creation, Digitalization

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Introduction

The pervasive influence of digital technologies has precipitated a fundamental rethinking of how organizations create, deliver, and capture value. The concept of the business model, traditionally a description of a firm's logic for creating and capturing value within a linear value chain, is now being reshaped by the affordances of digitalization [1]. The contemporary economy is no longer defined solely by firm boundaries but by intricate networks of interactions facilitated by digital infrastructures. This shift has given rise to what is termed digital business models (DBM) [1], where digital technologies are not merely an enabler but are deeply embedded in the architecture of value creation itself [2].

The academic discourse on DBMs has rapidly expanded, reflecting the growing importance of phenomena such as platformization, data monetization, and ecosystem-based competition. Early conceptualizations of business models focused on internal resources and dyadic customer relationships. However, the digital era has introduced new logics [3] where value is co-created with a multitude of actors, and competitive advantage is increasingly derived from orchestrating networks rather than controlling internal resources [4]. This shift is driven by the unique characteristics of digital technologies: their scalability, their capacity to generate and analyze vast amounts of data [5], and their ability to lower transaction costs [6], enabling new forms of coordination.

A central theme in this transformation is the emergence of platforms as dominant organizational forms. Digital platforms serve as foundational infrastructures that mediate interactions between distinct user groups [7], creating ecosystems that generate value through network effects [8]. These platform-based business models differ radically from traditional pipelines [9], as they do not simply produce and sell goods but instead facilitate exchanges, leveraging external innovation and user participation to drive growth [10]. The strategic implications are profound, as firms must now consider how to design governance mechanisms [11], manage complementor relationships, and navigate the power dynamics inherent in platform ecosystems [12].

Simultaneously, data has ascended to become a critical strategic asset. In digital business models, data is not just a byproduct of operations but a core resource that fuels value propositions [13] and enables new forms of monetization [14]. Data-driven business models leverage analytics, artificial intelligence (AI) [15], and the Internet of Things (IoT) to create intelligent offerings, personalize customer experiences [16], and optimize operations. This has led to the emergence of data-ecosystem business models [17], in which value is derived from the aggregation, sharing, and analysis of data across organizational boundaries [18]. However, this new focus also introduces tensions related to data ownership, privacy, ethical use [19], and the very definition of value capture in a context where value may be created through data sharing that resembles a public good [20].

The convergence of platform logics and data-driven strategies has given rise to complex, ecosystem-based business models. These models move beyond the traditional firm-centric view [21], positioning the focal firm as an orchestrator within a network of partners, developers, and users [22]. The value-creation logic in such ecosystems is distributed [23], relying on the collective contributions of heterogeneous actors motivated by a shared infrastructure and the potential for co-creation [24]. This shift necessitates a re-evaluation of strategic management principles. Concepts such as vertical integration are replaced by ecosystem governance; resource control is superseded by resource orchestration [25]; and value capture becomes a complex negotiation over the distribution of value generated within a networked architecture [26].

This narrative review synthesizes contemporary literature to conceptualize digital business models, framing the interplay

between digitalization and business model design. We explore how platforms, data, and ecosystem-based value creation have become the central pillars of modern business strategy.

Literature Synthesis on Digital Business Models in the Contemporary Economy

The literature on digital business models reveals a coherent, yet fragmented, narrative of transformation. The dominant thread is a decisive move away from linear, pipeline-based business models towards dynamic, networked architectures. This section synthesizes the literature across three interconnected themes: the logic of platform-based architectures, the centrality of data as a resource, and the implications of multi-actor ecosystem participation.

Platform-based business model architectures: Orchestration and governance

A foundational shift in contemporary business model design is the adoption of platform-based architectures. Unlike traditional linear models that create value through a sequential chain of activities (e.g., design, produce, sell), platform business models create value by facilitating direct interactions between two or more interdependent groups, typically users and producers [1, 6]. This architectural shift redefines the firm's role from a producer to an orchestrator. The platform owner provides a stable digital infrastructure that enables external actors—complementors, developers, or third-party service providers—to co-create value, thereby leveraging external resources at scale [7, 9].

The success of platform business models is often tied to harnessing network effects, in which the platform's value increases with the number of its users [8]. This dynamic creates a powerful growth engine but also introduces unique strategic challenges related to governance and power. A key tension in platform ecosystems is managing the dual imperative of openness and control. On one hand, open platforms attract a diverse range of complementors, which fuels innovation and increases value for users [10, 27]. On the other hand, too much openness can lead to fragmentation, quality degradation, or the erosion of the platform owner's ability to capture value [11, 12].

Literature has explored how platform owners manage these tensions through governance design. Research highlights mechanisms such as controlling access to interfaces, setting rules for participation, and managing the distribution of value to complementors [22, 23]. Power dynamics are inherent in these relationships; platform owners often hold structural power through control over core infrastructure and data, which can create dependencies for complementors [24, 28]. This dependency, termed “platform-dependent entrepreneurship,” forces complementors to develop adaptive strategies to navigate the platform owner’s policies and maintain their autonomy [25, 29]. The strategic management of these relationships is critical, as a platform ecosystem’s vitality depends on the health and commitment of its network of partners [5, 26].

Data-driven business model logics: Value propositions and monetization

A second defining characteristic of digital business models is the central role of data. In traditional models, physical goods or standardized services formed the core of the value proposition. In contrast, digital business models often position data as a primary resource [13], using it to create value for users and to establish new revenue streams [14]. This transition has led to the conceptualization of data-driven business models (DDBM) [15], where the firm’s ability to collect, analyze, and act on data is a critical source of competitive advantage [16].

The literature identifies several ways in which data enables value creation. It facilitates hyper-personalization [2], allowing firms to tailor products and services to individual user needs, thereby increasing willingness to pay and customer loyalty. Data also drives operational efficiencies through predictive analytics and process optimization [17], which can form the basis for cost leadership [18]. More strategically, data can be used to create entirely new value propositions [19], such as selling insights derived from aggregated data or enabling new business models, such as “servitization,” in which value is delivered as a service based on usage data [20].

Monetizing data, however, remains a complex strategic challenge. Research distinguishes between different types of data-driven value propositions [13], ranging from using data to improve the core offering to directly selling data assets [21]. In B2B markets, for instance, firms are developing sophisticated strategies for selling and monetizing data [14], which require a clear articulation of

the value they provide to buyers. The rise of AI and the Internet of Things (IoT) has further amplified these dynamics [17], leading to data-ecosystem business models in which value is co-created and captured through the integration of data from multiple, often autonomous, sources [18]. This complexity is compounded by the need for robust capabilities, such as organizational adaptability and dynamic capabilities [15], to navigate the shift towards data-centric operations [16] successfully. Furthermore, ethical considerations and data governance practices have emerged as critical enablers [19], with firms needing to build trust and ensure responsible data usage to sustain their business models in an increasingly regulated environment [20].

Ecosystem participation and distributed value creation

The convergence of platform logics and data-driven strategies culminates in the emergence of ecosystem business models. This represents a fundamental departure from the firm-centric view, where value is not created within a single organization but rather emerges from the interactions of a network of actors [21, 22]. In this context, the business model itself evolves from being a description of a single firm’s activities to a framework for orchestrating distributed value creation across a multi-actor system [1].

Ecosystem business models are characterized by modularity and interdependence. The focal firm (or platform owner) designs a value architecture that enables a wide range of partners—from large corporations to small and medium-sized enterprises (SMEs)—to contribute resources and capabilities [3, 9]. This distribution of value creation enables greater adaptability and innovation, as the ecosystem can draw on a diverse set of specialized skills and assets [4]. For established manufacturers, this often involves adapting their business models to platform-based servitization, shifting from selling products to offering integrated solutions enabled by digital platforms [8, 10].

For smaller actors like SMEs and entrepreneurs, participation in these ecosystems offers unprecedented opportunities for market access and growth, but also presents significant challenges [7, 27]. They can leverage the platform’s infrastructure to reach a global audience and build upon existing technologies, a phenomenon explored in the context of base-of-the-pyramid entrepreneurship [26, 28]. However, their dependence on the ecosystem orchestrator means their business model’s viability is

contingent on the platform's governance decisions and value-capture mechanisms [24, 29]. This creates a dynamic where the ecosystem's success relies on the delicate balance between the orchestrator's need for control and value capture, and the complementors' need for autonomy and fair value distribution [11, 12].

The transition from an open, firm-centric business model to an ecosystem-centric one is complex and involves significant internal transformation. Research indicates this is a non-linear process, often requiring firms to reconfigure their capabilities, redefine their role, and develop new strategies for governing loosely coupled networks [4]. The literature suggests that the ultimate evolution of a digital business model may be the ecosystem business model, in which the unit of analysis is not the firm but the network of actors bound together by a shared digital infrastructure and a common value-creation logic [22, 25]. **Figure 1** illustrates the structural transition from a linear, firm-centered value chain to a platform-mediated ecosystem architecture, in which value creation, data flows, governance, and monetization are distributed across multiple interdependent actors.

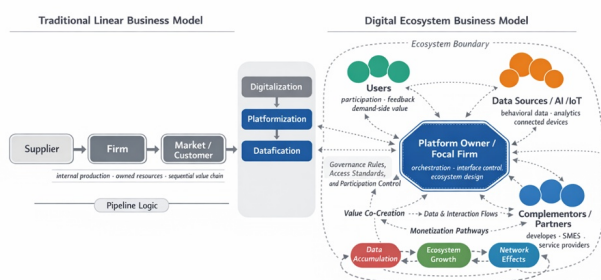


Figure 1. Digital business model architecture in the contemporary economy

Strategic Tensions and Contradictions in Digital Business Models

The synthesis of the literature reveals that digital business models are not merely new configurations but are fundamentally defined by inherent tensions and contradictions that create strategic dilemmas for managers.

These tensions arise from the unique characteristics of digital artifacts—their non-rivalry, scalability, and network-dependent value—and necessitate a new strategic logic that simultaneously balances opposing forces.

The openness-control paradox

A central tension in platform-based digital business models is the paradox of openness versus control [11, 12]. To generate network effects and foster innovation, platform owners must open their interfaces and invite external complementors to participate. This openness enables a broader range of offerings, attracting more users and strengthening the ecosystem's value proposition [5, 9]. However, excessive openness can lead to several negative consequences: fragmentation of the user experience, security vulnerabilities, opportunistic behavior by complementors, and an inability for the platform owner to appropriate sufficient value from the ecosystem it has created [10, 23].

The literature suggests that managing this paradox requires a dynamic governance capability. Platform owners must strategically decide which layers of the architecture to keep proprietary and which to open, often employing a “barbell” strategy of tight control over core components while enabling open innovation at the periphery [22, 27]. For instance, a platform owner might retain control over data access and core user interface standards while allowing complementors to develop specialized applications [24]. This approach enables a balance in which the platform maintains architectural integrity and value-capture mechanisms while benefiting from the distributed innovation of its ecosystem partners [7, 25].

Value creation versus value capture in ecosystems

A second fundamental tension lies in the relationship between value creation and value capture within digital ecosystems. Traditional business models assume that the firm that creates value is also the firm that captures it. In ecosystem-based digital business models, value is co-created by a distributed network of actors, making the allocation of captured value a contentious strategic issue. The platform owner, as the orchestrator, must ensure that sufficient value flows to complementors and partners to maintain their motivation and participation, while simultaneously securing a sustainable revenue stream for itself.

The literature also points to the emergence of new forms of value capture that prioritize ecosystem health over short-term profit maximization. Some platform owners adopt strategies of “shared value” creation, where they invest in tools and resources that enhance complementor success, recognizing that a thriving ecosystem ultimately increases the platform’s own value. This shifts the strategic calculus from a zero-sum game to a positive-sum orientation, where the platform’s long-term viability is tied to its ability to foster collective success.

Scalability versus adaptability in digital business model design

A third tension concerns the trade-off between scalability and adaptability. Digital business models are prized for their scalability; digital infrastructure can often serve millions of users with minimal marginal cost, enabling rapid expansion [1, 4]. However, the standardized architectures that enable such scalability can also become sources of rigidity [2, 8]. As digital business models evolve, they encounter a growing diversity of user needs, new competitive threats, and shifting regulatory landscapes that demand adaptability [9, 16].

This tension is evident in the evolution of platform-based servitization, where established manufacturers transitioning to digital business models must balance the scalability of standardized platforms with the need to deliver customized solutions for diverse industrial clients [8, 10]. A purely scalable platform may fail to meet the nuanced needs of specific customer segments, while excessive customization undermines the platform’s efficiency and growth potential [4, 18]. **Figure 2** depicts the core strategic tensions that define digital business models and shows how governance design, dynamic capabilities, and leadership mediate these contradictions to sustain ecosystem vitality, monetization, and business model renewal.

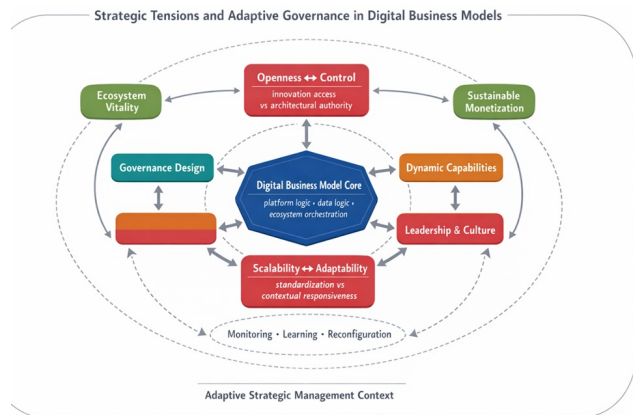


Figure 2. Strategic tensions and adaptive governance in digital business models

Implications for Strategic Management

The shift towards platform, data, and ecosystem-based digital business models carries profound implications for strategic management theory and practice. These implications extend beyond the traditional concerns of competitive positioning and resource allocation to encompass new logics of value creation and capture.

Redefining the firm’s role: From producer to orchestrator

A primary implication is the fundamental redefinition of the firm’s role. In traditional strategic management, the firm is conceptualized as a bundle of resources and activities that create value for customers. In digital business models, the firm increasingly acts as an orchestrator of value creation within a multi-actor ecosystem [1, 22]. This shift requires a different set of strategic capabilities. Rather than focusing solely on building internal resources, firms must develop capabilities for ecosystem governance, partner management, and platform architecture design [3, 9].

This redefinition has implications for how success is measured. Traditional performance metrics focused on market share, profitability, and return on assets. In ecosystem-based models, success may be better measured by ecosystem vitality—metrics such as the number of active complementors, the rate of innovation on the platform, user engagement levels, and the overall health of the network [7, 21]. This requires a longer-term strategic orientation and a willingness to invest in ways that

benefit ecosystem partners, even when the direct return to the firm is not immediately apparent [10].

Dynamic capabilities for digital business model innovation

The dynamic nature of digital environments—characterized by rapid technological change, shifting user expectations, and evolving competitive landscapes—necessitates a focus on dynamic capabilities [15, 16]. Dynamic capabilities refer to a firm’s ability to sense and seize new opportunities and to reconfigure its resource base accordingly. For digital business models, these capabilities are critical for navigating the tensions outlined above and for sustaining competitive advantage over time [2, 17].

The literature identifies several specific dynamic capabilities relevant to digital business model innovation. These include sensing capabilities for identifying emerging data sources, platform technologies, and ecosystem partnership opportunities [4, 18]; seizing capabilities for mobilizing resources to develop and launch new digital offerings [6, 19]; and transforming capabilities for reconfiguring existing business models and organizational structures to align with new digital logics [8, 20]. Firms that lack these capabilities may find themselves locked into outdated business models, unable to respond to the disruptive potential of platform and data-based competitors [5, 14]. **Table 1** analytically distinguishes the major business model logics discussed in the review by comparing their value architecture, governance assumptions, strategic role of the firm, and dominant tensions.

Table 1. Analytical contrasts between linear, platform, data-driven, and ecosystem business model logics

Analytical dimension	Linear business model logic	Platform business model logic
Primary unit of analysis	Single firm and its internal value chain	Platform and multi-sided market interactions
Core value creation	Sequential transformation of	Facilitation of exchanges

mechanism	inputs into outputs	between interdependent user groups
Role of the focal firm	Producer and owner-controller of resources	Orchestrator of interfaces and interaction rules
Boundary of value creation	Largely internal to the firm	Partly externalized through user and complementor participation
Relationship to customers/users	Dyadic exchange relationship	Multi-sided interaction mediated by the platform
Strategic asset base	Tangible assets, internal capabilities, proprietary processes	Installed base, network effects, interface control, complementor access
Dominant governance mechanism	Managerial hierarchy and internal control	Access rules, participation criteria, interface standards, and pricing structures
Primary source of scalability	Replication of standardized production and distribution processes	Growth in user participation and indirect network effects
Primary source of adaptability	Internal reorganization and process redesign	Reconfiguration of governance and

		complementor incentives
Dominant monetization logic	Sale of products/services to customers	Transaction fees, subscriptions, advertising, and access rents
Main strategic tension	Efficiency vs market responsiveness	Openness vs control
Innovation pattern	Firm-led and internally directed	Externalized and complementor-enabled
Performance logic	Firm profitability and market share	Growth, liquidity, platform engagement, and network effects
Main organizational risk	Rigidity and slow adaptation	Overdependence, governance backlash, and complementor conflict
Strategic management implication	Optimize owned resources and competitive position	Design participation architecture and govern external innovation

The role of leadership and organizational culture

The transition to digital business models is not merely a technological or strategic shift but also a cultural and leadership challenge [16, 27]. Traditional organizational cultures that emphasize control, hierarchy, and internal resource ownership may be ill-suited to the open,

collaborative, and network-oriented logics of digital ecosystems. Leaders must cultivate a culture that values experimentation, embraces external collaboration, and tolerates the ambiguity inherent in ecosystem-based competition [15, 24].

Leadership plays a critical role in navigating the openness-control paradox. Leaders must make strategic decisions about which aspects of the business model to open and which to protect, and they must communicate a clear vision for the ecosystem that aligns the interests of diverse stakeholders [11, 28]. This requires a balance of humility (recognizing that value is co-created with others) and strategic intent (maintaining a clear direction for the platform’s evolution) [25, 29]. Moreover, leaders must champion ethical data practices and responsible AI use, recognizing that trust is a foundational asset in data-driven business models [19, 20].

Conceptual Fragmentation and Unresolved Issues

Despite the richness of the literature, the field of digital business models remains fragmented conceptually. This section identifies key areas where definitions, boundaries, and relationships remain contested, pointing to opportunities for future research.

Ambiguity in core constructs

A primary source of fragmentation is the lack of consistent definitions for core constructs such as “platform,” “ecosystem,” and “digital business model” [1, 22]. While these terms are widely used in the literature, their meanings vary across studies, hindering the development of cumulative knowledge [2, 21]. For instance, some studies define platforms primarily by their technological architecture, while others emphasize their economic function as multi-sided markets [7, 12]. Similarly, the distinction between a platform ecosystem and a broader business ecosystem remains blurred in many analyses [3].

This conceptual ambiguity has practical consequences. Without clarity on what constitutes a digital business model, managers may struggle to identify which strategic principles apply to their context [9, 10]. Future research should prioritize construct clarity, developing precise typologies that differentiate among platform types (e.g., transaction vs. innovation platforms), ecosystem structures, and digital

business model archetypes [5, 25]. Such work would provide a foundation for more rigorous empirical investigation and more actionable managerial guidance.

The micro-foundations of ecosystem dynamics

A second unresolved issue concerns the micro-foundations of ecosystem dynamics. While the literature extensively discusses macro-level phenomena such as network effects and platform governance, there is less understanding of the micro-level processes that shape ecosystem evolution [23, 24]. How do individual complementors decide whether to participate in a platform? How do trust and reputation develop across ecosystem actors? What mechanisms enable the resolution of conflicts between ecosystem participants? [26, 28].

Addressing these micro-foundational questions requires multi-level research designs that examine both individual actor behavior and ecosystem-level outcomes [4, 29]. Qualitative case studies that trace the evolution of specific ecosystems over time, combined with quantitative analyses of complementor performance and platform dynamics, could illuminate the mechanisms that drive ecosystem success or failure [8, 14]. Such research would also shed light on the conditions under which ecosystems transition from virtuous cycles of growth to vicious cycles of decline.

The normative dimension: Ethics, sustainability, and grand challenges

A final area of fragmentation concerns the normative dimension of digital business models. Much of the literature adopts a firm-centric perspective focused on performance outcomes such as growth and profitability [1, 2]. However, the societal implications of digital business models—including issues of data privacy, algorithmic bias, labor precarity among gig workers, and the environmental impact of digital infrastructure—remain underexplored [19, 20].

Emerging research is beginning to address these gaps, examining how digital business models can be designed to address grand challenges such as climate change, inequality, and sustainable development [4, 27]. Studies on data sharing for public good and base-of-the-pyramid entrepreneurship suggest that digital platforms can serve social purposes beyond profit maximization [19, 26]. However, there remains a need for systematic theorizing

about how digital business models can balance economic, social, and environmental objectives [20, 28]. Future research should explore the conditions under which digital business models contribute to sustainable and inclusive development, rather than exacerbating existing inequalities.

Future Research Directions

Building on the synthesis and identified gaps, we propose several priorities for future research on digital business models.

Much of the existing literature provides cross-sectional snapshots of digital business models at a particular point in time [5, 8]. However, digital business models are inherently dynamic; they evolve in response to competitive pressures, technological advancements, and shifts in user expectations [1, 4]. Longitudinal studies that trace the evolution of specific business models over extended periods would provide valuable insights into how firms navigate the tensions and contradictions identified in this review [10, 17].

Such research could examine how platform owners adjust their governance mechanisms as ecosystems mature, how value capture strategies shift over time, and how digital business models co-evolve with the regulatory environments in which they operate [11, 22]. Comparative case designs that follow multiple firms within the same industry or across different industries could generate insights into the contextual factors that shape evolutionary trajectories [9, 18].

The literature has devoted considerable attention to platform owners and ecosystem orchestrators, but complementor perspectives remain relatively underexplored [24, 29]. Given that complementors constitute the majority of actors in most platform ecosystems, understanding their strategies and experiences is critical for a complete picture of ecosystem dynamics [25, 28].

Future research should investigate how complementors develop and adapt their business models in response to changes in platform governance, how they navigate the power asymmetries inherent in platform relationships, and what strategies enable them to achieve sustainable value capture [26, 27]. Research on platform-dependent entrepreneurship has begun to address these questions, but more systematic investigation is needed [28, 29].

Quantitative studies examining complementor performance outcomes in relation to platform policies, combined with qualitative studies of complementor decision-making processes, would be particularly valuable.

As digital business models become increasingly pervasive, understanding their ethical and sustainability implications becomes imperative [19, 20]. Future research should explore how digital business models can be designed to promote responsible data practices, ensure algorithmic fairness, and contribute to environmental sustainability [4, 15]. This research should not treat ethics and sustainability as constraints on performance but rather as integral dimensions of business model design that can themselves be sources of competitive advantage [16, 18].

Finally, advancing the field requires methodological pluralism. While the literature to date has been dominated by conceptual work and qualitative case studies [1–3], there is significant potential for quantitative approaches that test theoretical propositions across larger samples [13, 15]. Survey-based studies of complementor populations, longitudinal analyses of platform transaction data, and computational modeling of ecosystem dynamics could complement existing qualitative insights [7, 22].

Conclusion

This narrative review has synthesized a substantial body of literature to conceptualize digital business models in the contemporary economy. The central argument advanced is that digital business models represent a fundamental departure from traditional, linear, firm-centric configurations. Our analysis has revealed that these shifts are not merely additive but transformative, reshaping the very foundations of strategic management. The traditional firm's role as a self-contained producer of value is replaced by that of an orchestrator governing loosely coupled networks. The logic of linear value chains gives way to non-linear, recursive value-creation loops in which users and complementors are active co-creators. The mechanisms of value capture, once relatively straightforward, become complex negotiations over the allocation of value generated within distributed ecosystems.

We have proposed several priorities for future research: longitudinal studies of business model evolution to capture dynamic processes; micro-level studies of complementor strategies to balance the current focus on platform owners; integration of ethical and sustainability dimensions to address societal implications; and methodological pluralism to capture the multi-level, dynamic nature of digital ecosystems. Addressing these priorities will require collaborative, cross-disciplinary efforts that draw on diverse theoretical traditions and methodological approaches.

In conclusion, the transformation of business models through digitalization is one of the most significant organizational and strategic developments of our time. The shift from linear to digital and ecosystem-based business models is not merely a change in how firms operate but a reconfiguration of the fundamental logic of economic organization. As platforms, data, and ecosystems continue to reshape industries, the strategic management of digital business models will remain a critical area of inquiry. The conceptual synthesis provided in this article offers a foundation for understanding these transformations and for guiding future research that can advance both scholarly knowledge and managerial practice.

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