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Digital Resources View (DRV): Reconceptualizing Resources in the Era of Digital Disruption

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Abstract
The accelerating pace of digital disruption has highlighted the limitations of classical organizational theories and the traditional Resource-Based View (RBV) in explaining how firms achieve sustainable performance in digital ecosystems. While RBV emphasizes the value of resources as sources of competitive advantage, it lacks a clear unit of analysis for digitalization and does not adequately integrate both internal and external digital components. This study develops the Digital Resources View (DRV), which reconceptualizes resources in digital contexts as *Digitally Valuable, Digitally Rare, Uncertainty-Driving Imitation, and shaped by Normative Digital Pressure (DVRIN)*. Drawing on classical theories of organizations, including environment–organization fit, resource dependence, uncertainty, and crisis management, DRV synthesizes these perspectives into a comprehensive framework that addresses opportunity-seeking and advantage-seeking behaviors in digital ecosystems. The study contributes to theory by clarifying the conceptual boundaries of digital resources, proposing DVRIN as an analytical lens, and highlighting how firms can strategically leverage incremental digital resources for sustained competitiveness.

Keywords: Digital Economy, Digital Resource View, DVRIN Framework

Introduction

The adoption and use of digital technology by firms, commonly referred to as digitalization represents the process of leveraging external uncertainty generated by outside-in disruptions (Lee, Falahat, & Sia, 2020). Companies often recognize the necessity of process improvement through digitalization, particularly when operating near maximum capacity, as this increases the perceived benefits of adopting digital solutions to enhance efficiency and competitiveness (Adamu, 2023; Skare & Soriano, 2021; Lee & Falahat, 2019). Pagani and Pardo (2017) identify three key domains in which digitalization exerts significant influence. First, activity-links-centred digitalization enhances the efficiency of existing operations. Second, resource-ties-centred digitalization facilitates access to inputs for new operations. Third, actor-bonds-centred digitalization strengthens the building and maintenance of relationships with diverse business partners. Despite these insights, the question of why firms leverage digitalization for performance outcomes (e.g., value creation) and what factors determine digital resources has received limited theoretical and empirical attention. Over the past two decades, since digital disruption began reshaping business and economic activity within digital ecosystems, scholarly discussions of digital

resources remain sparse, leaving a gap in both conceptual understanding and empirical validation (Arrabales, 2020; Lee et al., 2019; Falahat, Tehseen, & Van Horne, 2018).

In this conceptualization, the literature on digitalization disruption, which underpins the logic of digital resources, primarily draws its foundations from established theoretical traditions. The organization environment literature (Lawrence & Lorsch, 1967; Cook, 1974; Meyer, 1978; Aldrich, 1979) emphasizes the dynamic relationship between organizations and their external contexts. For example, Aldrich raised the critical question of "under what conditions do organizations change?" in his seminal work, highlighting how complexities in the external environment influence internal organizational structures and processes. Complementing this, the resource dependence perspective (Salancik & Pfeffer, 1978) underlines the extent to which firms rely on external resources, while broader research on uncertainty and bounded rationality (Simon, 1962; Thompson, 1967; Cohen, March, & Olsen, 1972) provides insight into how organizations respond to unpredictable and complex environments. Furthermore, studies in crisis management (Smart & Vertinsky, 1977; Starbuck, Greve, & Hedberg, 1978; Milburn, Schuler, & Watman, 1983) reinforce these arguments, stressing the role of environmental turbulence in shaping strategic decision-making. From this vantage point, organizations in digitally disruptive contexts are characterized by problematic preferences, ambiguous technologies, and flexible patterns of involvement—all of which define the adaptive capacity of digitally oriented firms.

The organization-environment tradition emphasizes the strategic importance to organizations of controlling critical environmental resources. The crisis management literature has examined the impact of major environmental discontinuities and taming deep uncertainty on organizations and a hinge between a degenerative organizational past evolution and a future of change (Ansell & Boin, 2019; Thompson et al., 2017; Roux-Dufort, 2007). A theme common in these studies is that organizations place a premium on predictability and immovability, meaning that fosters organizational change and transformations within the environment (Zamoum & Gorpe, 2018; Pearson & Clair, 1998). Similarly, Thompson (1967) identified the "essence of the administrative process" as the management of uncertainty. According to the prescriptions that have emerged from this literature, uncertainty should be mitigated, the technical core should be protected, and systems should be designed to scan the environment in order to gather the information needed for strategic response. A contributing theme in this research is that organizational attributes vary according to the amount of uncertainty encountered.

This brief overview of the theoretical context surrounding the foundation of the digital resources concept underscores three persistent sources of confusion within the emerging literature. First, there is often a lack of conceptual clarity; digital resources are frequently conflated with broader technological assets, digital capabilities, or IT infrastructure, making it difficult to delineate their unique boundaries. Second, scholars disagree on whether digital resources should be viewed as stand-alone strategic inputs or as incremental complements that interact with other organizational resources. Third, the literature reflects ambiguity in explaining how these resources directly contribute to firm-level outcomes such as innovation, competitive advantage, and resilience within digital ecosystems.
These areas of confusion provide the foundation for this theoretical investigation and necessitate a more precise definition of the concept. Accordingly, this study defines digital resources as *incremental resources that mediate the alignment between firm openness and digital innovation, leading to both opportunity-seeking and advantage-seeking outcomes in digital ecosystems*. This definition accomplishes several tasks simultaneously.

i. It justifies the disambiguation of digital resources from related constructs such as capabilities or infrastructures, by emphasizing their incremental and integrative nature. For instance, while cloud platforms or AI algorithms are technological tools, the *digital resource* is the means by which firms incrementally embed and adapt these tools to generate innovation pathways.

ii. It highlights the role of technological core buffering, where digital resources act as stabilizers that enable firms to withstand external shocks while selectively integrating new technologies. For example, SMEs may not develop blockchain solutions internally but can buffer their operations by adopting secure fintech APIs incrementally.

iii. It stresses systems scanning and information digestion as a strategic imperative. Firms must continuously monitor their external environment, filter relevant digital signals, and convert them into actionable strategies. Consider how e-commerce firms leverage data analytics dashboards not only as IT tools, but also as resources that help them identify shifting consumer trends and rapidly adjust their product offerings.

With this definition, the first concern relates to the core dimensions of resource munificence and turbulence, which have been carefully delineated in research on environmental characteristics (Dess & Beard, 1984; John & Thakur, 2024). However, this distinction has often been blurred in the literature on digitalization turbulence, where firms are propelled into digital transformation and flexible organizational structures that enable continuous adaptation (Hanelt et al., 2021; Vrontis et al., 2025). The goal has been to bridge the digital divide, driven mainly by the emergence of digital business ecosystems. Empirically, most studies have not clearly separated turbulence from the broader processes of digitalization change or transformation. Currently, the most common approach to measuring digital disruption involves comparing the levels of digital versus non-digital resources or examining the patterns of variability between them.

The urgency of digital adaptation is further reinforced by the risk of losing market share or being dethroned, consistent with Schumpeter's (1950) concept of creative destruction and later studies on competitive dynamics (Aghion et al., 2021; Chen & Miller, 2012). Major firms such as Apple, Google, and Amazon exemplify this dynamic, as they are strongly incentivized to engage in competitive actions that enhance performance and maintain market dominance. More recently, attention has shifted toward understanding how internal and external digitalized network resources, including artificial intelligence (AI), enable firms to participate in competitive behavior (Min & Kim, 2024; Haritha, 2024). Despite these advances, the effects of digital resources have not yet been clearly differentiated in theoretical research, leaving conceptual ambiguities regarding their unique role in shaping firm competitiveness. Hence, these theoretical gaps provide the impetus for advancing a Digital Resources View (DRV) that integrates digital-specific dimensions into strategic management theory. This view is highlighted in the conceptualized framework that draws on classical organizational theories while extending them to address the realities of digital ecosystems.

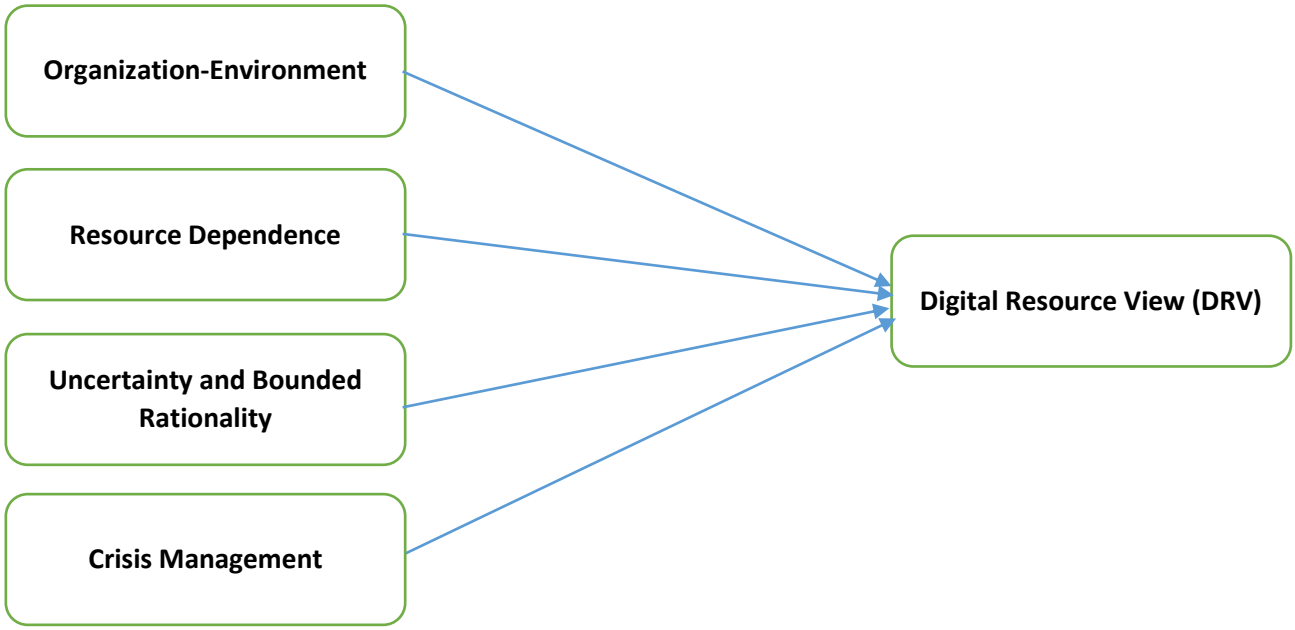

Figure 1: Rational Framework for the study

The integration of classical organizational theories into the Digital Resource View (DRV) framework provides a strong theoretical foundation for understanding digitalization. From the organization–environment perspective (Lawrence & Lorsch, 1967; Aldrich, 1979), firms adapt their internal structures in response to environmental complexity, which parallels how digital disruption forces businesses to restructure processes. The resource dependence view (Salancik & Pfeffer, 1978) emphasizes firms' reliance on external resources, a concept further developed in DRV by positioning digital resources as scarce and valuable assets within digital ecosystems. Similarly, the literature on uncertainty and bounded rationality (Simon, 1962; Thompson, 1967) explains how organizations make decisions under ambiguity, which DRV reframes through uncertainty-driven imitation as a mechanism for digital adaptation. Finally, insights from crisis management research (Smart & Vertinsky, 1977; Starbuck et al., 1978) emphasize the importance of resilience and rapid response in turbulent environments, aligning with the normative digital pressure that legitimizes digital initiatives. This study clarifies the conceptual boundaries of digital resources. It establishes a theoretical foundation for examining how firms deploy them to balance the dual imperatives of opportunity-seeking, such as exploring new markets, innovations, or customer segments and advantage-seeking, including consolidating competitive positions, enhancing efficiency, and differentiating from rivals within the broader digital ecosystem.

Much of the practitioner-oriented literature on digitalization emphasizes enhancing efficiency and effectiveness in existing markets through organizational resources, which is best evaluated through the lens of Resource-Based Theory (RBT). However, the traditional Resource-Based View (RBV) faces limitations when applied to digital contexts. Specifically, it suffers from a "digitalization unit of analysis" problem and insufficient attention to the integration of both internal and external digital components, which are crucial in digital ecosystems. Extending RBV to digitalization requires firms to move beyond traditional efficiency gains and focus on value generation through digital technologies. As argued by Von Krogh and Grand (2002) and Grand, Von Krogh, Leonard, and Swap (2004), this

process must be cultivated through firm-specific capabilities to meet the dual demands of opportunity-seeking and advantage-seeking in digital ecosystems.

In line with this reasoning, the present study addresses a conceptual gap by explicitly incorporating both digitalized internal and external features into the analysis of firm resources. It conceives a firm's digital transformation framed here as digital orientation through the principles of classical RBT and the assumption of resource heterogeneity across competitors (Barney, 1991). This orientation is further elaborated as the Digital Resources View (DRV), which characterizes digital resources as digitally valuable, rare, uncertainty-driving imitation, and shaped by normative pressures (DVRIN). Thus, the DRV framework positions digital resources as a critical and distinctive source of competitive advantage in digital ecosystems, enabling firms to differentiate themselves relative to competitors.

Comparative Table: RBV vs. DRV

Dimension	Resource-Based View (RBV)	Digital Resources View (DRV)
Unit of Analysis	Traditional organizational resources (e.g., financial, physical, human capital).	Digital resources as incremental and integrative assets across internal and external environments.
Resource Characteristics	Valuable, rare, inimitable, and non-substitutable (VRIN).	Digitally valuable, digitally rare, uncertainty-driven imitation, and normative digital pressure (DVRIN).
Focus	Efficiency, effectiveness, and sustaining competitive advantage.	Value creation, opportunity-seeking, and advantage-seeking in digital ecosystems.
Environment	Stable or moderately dynamic markets.	Highly turbulent, disruptive, and digitally networked ecosystems.
Strategic Orientation	Firm heterogeneity in resource possession and capabilities.	Digital orientation through the integration of internal digitalization and external digital ecosystems.
Gap	Limited explanation of digital disruption and incremental digital resource use.	Provides a unified lens for understanding how digital resources enable firms to adapt, compete, and innovate in digital contexts.

Despite these rich theoretical traditions, there remains a significant research gap. None of the existing perspectives fully captures how digital resources function simultaneously as valuable, rare, uncertainty-driven, and normatively legitimized assets in the digital economy. Prior theories address parts of this phenomenon, but lack an integrative lens to explain the full dynamics of digital disruption and resource deployment. This gap necessitates the Digital Resource View (DRV) and its DVRIN framework, which together

offer a unified explanation for how firms strategically combine digital resources with analytical capabilities to achieve both opportunity-seeking and advantage-seeking outcomes in digital ecosystems. The study is guided by the following research questions:

1. How do digitally valuable resources influence the ability of firms to pursue opportunity-seeking and advantage-seeking strategies in digital ecosystems?

2. In what ways does the rarity of digital resources across firms shape their competitive advantage and digital performance outcomes?

3. How does uncertainty-driven imitation affect firms' capacity to adapt and leverage incremental digital resources in disruptive environments?

4. To what extent do normative digital pressures, such as professional standards and legitimized practices, moderate the relationship between digital resource deployment and firm digital performance?

5. How does the integration of digital resources provide a more comprehensive explanation of firm digital performance in digital ecosystems compared to existing organizational theories?

Conceptualization of Digital Resources View

The DRV emphasizes the ability of firms, including SMEs, to leverage coordinated knowledge, cognitive alertness, and opportunity recognition in order to identify and exploit market opportunities. Central to DRV is the notion that firms must package digital resources together with analytical capabilities and strategic decision-making processes to create value. This intersection strengthens the argument that digital resources, when strategically combined with managerial cognition, represent a powerful driver of firm competitiveness.

Meyer et al. (1997) support this perspective by suggesting that integration occurs through opportunity-seeking and advantage-seeking actions, which collectively form a strategic entrepreneurship relationship. In this sense, entrepreneurial activity (focused on identifying and exploiting opportunities) and strategic activity (focused on consolidating advantage and sustaining competitiveness) are mutually reinforcing. When combined, they create the conditions for superior performance outcomes (Adamu, 2023).

The DRV further argues that resource heterogeneity, while necessary, is insufficient on its own for sustained advantage in today's competitive landscape. In the digital era, transformation—or digitality has become a baseline requirement for opportunity-seeking, shaping how firms adapt, innovate, and compete within dynamic ecosystems. Thus, DRV positions digital resources not as passive inputs, but as incremental and integrative assets that enable firms to continuously align with environmental turbulence and sustain their strategic relevance.

Digitally Valuable, Rare, Uncertainty-Driven Imitation, and Normative Pressure (henceforth DVRIN) perspectives are best explained under the Digital Resource View (DRV) assumption. Specifically, digital resources can be understood as follows:

i. Digitally Valuable – A digital resource should enhance a firm's capacity to pursue opportunity-seeking and advantage-seeking strategies within the digital ecosystem.

ii. Digitally Rare – The incremental digital resource must be distinctive and not easily accessible to competing firms, thereby serving as a basis for competitive advantage in the digital ecosystem.

iii. Uncertainty-Driven Imitation – Digital resources should effectively emerge as legitimate and standardized responses to uncertainty in the digital environment, encouraging firms to adopt similar practices.

iv. Normative Digital Pressure – Digital resources are expected to perform specific tasks within the digital ecosystem, while also reflecting professional norms that designate which actors or roles are responsible for their effective utilization.

Under the RBV model, organizational resources and capabilities serve as the framework and are dependent on firm performance (Construct) as measured financially and operationally. And, as the theory indicates, the primary independent construct is organizational resources, which include: "the asset, capability, organizational process, enterprise character, information, and knowledge that an enterprise can control, allocate efficiency improving or achieve efficiency strategy" (Barney, 1991).

According to Barney (2010), firms must possess a diverse and distinctive set of resources that current and potential competitors cannot easily replicate. Similarly, Liang, You, and Liu (2010) argue that the Resource-Based View (RBV) primarily explains firm performance through the resources a company controls. Milgrom and Roberts (1995) further extended this line of thought by introducing the concept of complementarity, emphasizing how the combination of resources contributes to corporate value creation. However, while these perspectives provide valuable insights, they also reveal a limitation of RBV. Although resources may be mixed in practice, their origins and outputs often differ, and RBV does not fully account for how firms compete under conditions of uncertainty and information asymmetry.

This shortcoming is addressed by the Digital Resources View (DRV), which argues that resources must be understood not only in terms of value, rarity, and complementarity, but also as digitally embedded and incrementally developed assets. From this standpoint, resources function as mechanisms for leveraging uncertainty generated by outside-in disruptions, enabling firms to pursue both opportunity-seeking and advantage-seeking outcomes within digital ecosystems. In DRV, uncertainty itself becomes a powerful force that shapes organizational behavior, with normative pressures encouraging firms to imitate successful digital practices. Thus, rather than treating uncertainty as a constraint, DRV reframes it as a driver of digital resource utilization and strategic adaptation.

For instance, the argument of DRV goes a long way in describing the uncertainty driving the imitation (UDI) phenomenon because the valuable/incremental resource ought 'to be' effective coming from conventional and reasonable responses to digital uncertainty. This means that organizations may model themselves after other organizations when organizational technologies are poorly understood (March & Olsen, 1976), when goals are vague (Brun, Saetre, & Gjelsvik, 2009), or when the environment causes symbolic uncertainty. This, according to DiMaggio and Powell (1983), is the mimetic processes point of institutional isomorphism, where a model may be diffused unintentionally, or indirectly, in this case through digitality in this conceptualization. Thus, the mimetic advantages in the digital economy are considerable when the firms, either conglomerate, multinational, large, or even entrepreneurial SMEs, are faced with the problem of ambiguous causes or unclear challenges due to changes in digitalization process. According to Cyert and March (1963), such problematics search would end up with little expense and a viable solution to form a

modelling and response to uncertainty (c.f. smartphones engaging in copying of different specifications, apps and storage capacities). Even while a modeled organization may be unaware of the modeling or may have no desire to replicate it, it provides a convenient source for practices that the borrowing organization can employ, as imitation has become a prevailing trend (DiMaggio & Powell, 1983).

Alchian (1950) observes that while some organizations consciously innovate, others do so unconsciously by acquiring unexpected or unintended unique attributes that, under prevailing circumstances, contribute to their success in imitating other firms. Building on this perspective, the present study contends that normative pressure captures how professionalism legitimizes digital initiatives, thereby shaping the capacity of firms to imitate effectively. This conceptualization is referred to here as Normative Digital Pressure (NDP). Consequently, although professional groups within firms differ in certain respects, they share significant similarities with their counterparts across other organizations.

According to this conceptualization, isomorphism in professionalization manifests in two key areas. First, knowledge sharing is grounded in a cognitive base developed through advancements in learning and creativity. Second, professional networks extend rapidly across enterprises, facilitating the swift diffusion of new models and practices. In this regard, digital resources should not only be associated with specific tasks but also with the professional groups responsible for their effective deployment. For example, the evolution from 2G to 3G, 4G, and more recently 5G technology (See Holma, et al., 2024; Shinde, et al., 2024) illustrates how incremental digital resources simplify communication and reduce distance barriers, thereby expanding opportunities for internet-driven exploration. Similarly, as opined by Nassereddine and Khang (2024), the development of smart cities under Industry 4.0 draws upon resources incrementally derived from earlier industrial technologies such as Industry 2.0. The transition from 2D to 3D systems (Jayachandran et al., 2024), and now toward blockchain technologies, further demonstrates how digital finance innovations, such as the movement from Web2 to Web3 applications (Savale et al., 2024) in cryptocurrency platforms like Binance, represent a fundamental shift in financial ecosystems.

Moreover, Artificial Intelligence (AI) enhances digital resources by enabling advanced data analysis, pattern recognition, and automation. As noted by Carole et al. (2024), AI-powered recommendation systems, such as those used by Netflix, analyze user behavior and preferences to deliver personalized content, thereby optimizing digital resources and enriching user experience. Collectively, these examples illustrate how businesses adopt digital innovations as strategies to navigate uncertainty, improve operational conditions, and maintain legitimacy within their professional fields (DiMaggio & Powell, 1983; Morcov, Pintelon, & Kusters, 2020; Baumgartner & Jones, 2020; Doležel, 2020; Hanelt et al., 2021).

This pressure is particularly evident as firms seek competitive advantage and opportunity-seeking positions, both in relation to rivals within their industries and competitors operating across industries. In the contemporary digital economy, new firms increasingly model themselves on established ones, while many others integrate and intersect through digital ecosystems (DEs). Within this context, the DRV provides a useful lens, suggesting that professional power is reshaped and often intensified by globalization processes and the digitalization of firms. More specifically, the DRV assumes that strategic managers, whether in large corporations or SMEs, require a strong digital orientation as part of their strategic toolkit to confront disruptive technologies that challenge existing visions and practices. Building on this, the present conceptualization introduces the DVRIN framework, which guides firms in digital environments to achieve outcomes from two complementary

perspectives: advantage-seeking and opportunity-seeking, depending on how they adopt or adapt incremental resources. For instance, while a corporate-level strategic manager may interface with both perspectives in shaping digital transformation agendas, an SME CEO is more likely to pursue digital orientation strategically by engaging in what Dantsoho et al. (2020) describe as digital curiosity, a proactive drive toward exploring and advancing into digitalization.

As a result of these inclinations, firms often model themselves after more reputable or successful organizations within their industries. As DiMaggio and Powell (1983) emphasized, such imitation is frequently a function of the universality of mimetic processes rather than compelling evidence that the adopted models necessarily enhance efficiency. For instance, just a few years ago, the automobile industry was dominated by companies such as Ford, General Motors, and Toyota. Today, however, disruptive entrants like Uber and Lyft firms offering transportation services rather than manufacturing cars, compete directly with these traditional giants. Similar dynamics can be observed across other sectors, where digital disruption, such as advances in Artificial Intelligence (AI), reshapes both opportunities and threats, fundamentally transforming how firms compete.

Within the DRV perspective, the entire value chain is digitized, encompassing products, services, and complementary activities such as design, development, sourcing, production, and distribution. This enables firms to leverage digitization to outperform rivals. Accordingly, this study argues that it is possible to predict which firms will add value through incremental resources derived from digital ecosystems, even without a complete understanding of their specific digitalization components. This is because the origins of digital technologies are increasingly isomorphic in formation, while traditional theories developed over decades lack sufficient explanatory power for such phenomena. Hence, the need arises for the Digital Resource View (DRV) as a more fitting conceptual framework.

Past Theories and the Conceptualization of DRV

Theoretical perspectives have long played a crucial role in shaping the assumptions that guide the applicability of hypothetical views in explaining organizational behavior. However, their relevance may vary depending on the context. For example, Rogers' (1995) diffusion of innovation theory emphasizes how new technologies spread through social systems, while Porter's (1980, 1985) competitive forces framework highlights industry dynamics that shape firm competitiveness. Similarly, Brown and Eisenhardt's (1998) notion of structured chaos integrates complexity and evolutionary theories to explain innovation under turbulent conditions. Extending the resource-based view, Teece, Pisano, and Shuen (1997) developed the dynamic capabilities framework, which underscores a firm's ability to reconfigure resources in rapidly changing environments. Building on these advances, the DRV represents a contemporary breakthrough, integrating digital orientation into strategic management to address the challenges of competing in today's dynamic digital ecosystems (Meyer, Neck, & Meeks, 2002). Within this perspective, digital projects are seen as having profound potential to enhance a firm's ability to extract, apply, and transform knowledge from digital innovation, particularly when combined with dynamic strategic thinking capabilities.

According to Teece, Pisano, and Shuen (1997), three conventional approaches to strategic management include competitive forces, strategic conflict, and the resource-based view (Wernerfelt, 1984; Dierickx & Cool, 1989; Barney, 1986; Peteraf, 1993). In recent years, two novel perspectives have gained prominence: Structured chaos and dynamic capabilities (Brown & Eisenhardt, 1998; Teece et al., 1997). Structured chaos represents a synthesis of complexity and evolutionary theories, while dynamic capabilities extend the resource-

based paradigm by emphasizing firms' abilities to adapt and reconfigure resources in turbulent environments. Building on these theoretical developments, the DRV provides an even more compelling framework by integrating digital resources with analytical capabilities and strategic decision-making processes.

As Meyer, Alvarez, and Blasick (1997) suggest, firms succeed by simultaneously seeking opportunities and exploiting them, while Malachy (2021) concludes that such integration establishes a foundation for strategic entrepreneurship. However, relying solely on a diverse workforce or strong technological infrastructure is insufficient to guarantee long-term success. Within the digital innovation process, these resources are valuable only when combined with the firm's ability to search, explore, and exploit opportunities within digital ecosystems (DEs) to solve continuous business challenges (Kohli & Melville, 2019). The accelerating pace of technological change, coupled with the short life cycles of technology-based products and services—marked by rapid creation, adoption, and obsolescence—intensifies this need. Consequently, this study proposes that overlooking the role of digital incremental resources in sustaining growth or replicating business success risks significant misjudgments in the valuation and strategic utilization of digital technologies. To address this gap, the study introduces the DVRIN framework, which extends the DRV by explaining how firms can transform incremental digital resources into sustained competitive advantage and opportunity-seeking behaviors within digital ecosystems.

Thus, under conditions of strategic change and rapidly shifting environments, this study suggests that the "edge of structure" within firms—regardless of their size—requires organizational designs that are adaptable to new ways of working and capable of guiding change through the use of digital instruments within DEs. At the "edge of time," businesses develop their own rhythm, where internal change and adaptation become the norm (Brown & Eisenhardt, 1998). Building on asset positioning and knowledge accumulation, dynamic capabilities emphasize the role of core competencies as the foundation for sustained competitiveness (Teece et al., 1997). However, in the digital economy, strategic adaptation has become a necessary rather than sufficient condition for survival. This reality necessitates organizational focus on minimal structures, such as those characteristics of entrepreneurial SMEs, alongside continuous innovation and flexibility to integrate digital incremental resources. While not sufficient on their own, neglecting such resources almost certainly guarantees failure in highly dynamic environments. Research by Nylén (2015) and Angst et al. (2010) supports this view, demonstrating that the initiation of digital innovation processes is rooted in the competitive environment of enterprises. Moreover, firms' competitive environments themselves are reshaped by their digital orientation, influencing the trajectory of innovation and performance. Consistent with this, Pagani and Pardo (2017) argue that even SMEs must remain acutely aware of how digital technologies can be harnessed as strategic tools to create and sustain competitive advantage.

Table: Mapping DRV from RBV and Institutional Theory

DRV-DVRIN Dimension	Resource-Based View (RBV)	Institutional Theory (IT)	Implication for Firms (esp. SMEs)
Digitally Valuable	*Valuable*: Resources must enable a firm to exploit opportunities or neutralize threats	Not directly covered in IT.	Firms gain advantage when digital tools (e.g., AI, mobile finance, cloud computing) improve efficiency, innovation,

	(Barney, 1991).		or customer service.
Digitally Rare	*Rare*: Resources must be unique and not widely possessed by competitors.	Not directly covered in IT.	Proprietary algorithms, localized platforms, or niche expertise give SMEs distinctiveness in the marketplace.
Uncertainty Driving Imitation	RBV recognizes inimitability, but uncertainty can push firms to copy others without building uniqueness.	*Mimetic isomorphism*: Firms imitate others under uncertainty to appear legitimate (DiMaggio & Powell, 1983).	SMEs adopt proven digital models (e.g., e-commerce, fintech platforms) but must adapt them to local needs to avoid blind replication.
Normative Digital Pressure	RBV does not address normative influences directly.	*Normative isomorphism*: Pressures from professional norms, regulations, and standards (e.g., GDPR, cybersecurity).	SMEs must comply with industry and regulatory standards (e.g., mobile payments, blockchain, data protection) to maintain legitimacy and trust.
Integration (DVRIN)	Extends RBV by adding digital-specific resources that are dynamic and context-driven.	Extends IT by integrating mimetic and normative pressures into digital contexts.	DVRIN provides a comprehensive framework linking competitive advantage (RBV) with legitimacy and adaptation (IT) in digital ecosystems.

Building on classical foundations (organization–environment literature, resource dependence perspective and crisis management) and more, such as RBV/IT, the DRV advances the conversation by reframing how organizations interact with and exploit digital disruption. While earlier theories focused on resource dependencies, uncertainty, and crisis responses, DRV emphasizes how firms leverage incremental digital resources to manage disruption and sustain competitiveness. The DVRIN framework integrates these traditions into a coherent lens for the digital era. It extends the resource dependence view by recognizing digital resources as both scarce and valuable, refines uncertainty theory by positioning digital turbulence as a driver of imitation and innovation, and builds on crisis management perspectives by highlighting the normative pressures that legitimize digital initiatives. Thus, DRV does not discard classical theories but synthesizes them, offering a timely theoretical pathway for explaining how firms navigate and thrive in today's digital ecosystems.

The DRV offers precision in understanding digitalization within digital ecosystems by providing a new approach built on four dyadic perspectives: the complexity of the digitized environment, the uncertainty arising from that environment, the dynamism of digital change, and the prospects of digitized instruments. These dyads form the basis of the DRV argument, highlighting the necessity of what this study theorizes as incremental resources,

which emerge from these four perspectives and enable firms to realize both competitive advantage and opportunity-seeking outcomes. As a theoretical approach, the absence of a defined framework that unifies these four views into a single concept, as noted by Adamu (2023), warrants this study's conceptualization. Accordingly, the proposed framework builds on the theoretical underpinnings of digitalization, particularly the roles of digital imitation and normative pressure within DEs. Within this context, digital transformation and strategic decision-making processes are viewed as a careful balance of digital value, rarity, imitation, and normative pressure, the dimensions encapsulated in the DVRIN framework.

Digitally Valuable

Digitally valuable resources represent a firm's capacity to create value by leveraging technology in the digital ecosystem. These include data analytics tools, digital platforms, and artificial intelligence capabilities that enable firms to capitalize on opportunities and enhance efficiency. Value, in this sense, emerges when digital resources directly contribute to competitive advantage, such as improved customer service, faster innovation cycles, or cost reductions. For SMEs, digital value is often tied to their ability to harness affordable and scalable technologies, such as cloud computing or mobile-based financial solutions, that improve operations while lowering entry barriers. Without value creation, digital resources risk becoming redundant or underutilized assets.

Digitally Rare

For resources to be strategically significant, they must also be rare, meaning not easily acquired or replicated by competitors. Digitally rare resources may include proprietary algorithms, exclusive data sets, or unique digital skills embedded within a firm's workforce. Rarity ensures that competitors cannot readily imitate or access the same digital assets, allowing firms to maintain a distinct market position. In the SME context, digitally rare resources can emerge from niche expertise, localized platforms, or culturally embedded knowledge that competitors cannot easily substitute. This rarity transforms ordinary digital tools into sources of long-term differentiation.

Uncertainty Driving Imitation

Uncertainty in digital ecosystems often compels firms to imitate practices that appear legitimate or successful elsewhere. This mimetic response reflects an effort to reduce risk and maintain relevance in unpredictable environments. However, imitation under uncertainty should not result in blind replication; rather, it must be strategically adapted to suit a firm's context. For example, SMEs that adopt e-commerce platforms in response to shifting consumer behavior must tailor them to their specific scale and customer base, rather than copying large multinational models. Thus, imitation in digital ecosystems can be both a constraint and a catalyst, limiting originality yet accelerating the diffusion of effective practices.

Normative Digital Pressure

Normative digital pressure arises from industry standards, professional norms, and institutional expectations that compel firms to adopt certain technologies or practices. These pressures may come from regulatory frameworks (e.g., data protection laws), professional associations, or global industry trends (e.g., the adoption of blockchain for transparency). Such pressures ensure that digital resources are not only deployed but also aligned with professional accountability and ethical responsibility. For SMEs, normative pressures often influence legitimacy and trust, as customers and partners expect compliance with digital standards. For instance, adopting cybersecurity protocols or mobile

payment platforms may be less about choice and more about survival in digitally interconnected markets.

Integrating DVRIN into Strategic Decision-Making

Together, the DVRIN dimensions provide a holistic framework for understanding how digital resources contribute to firm performance. While digital value and rarity secure competitive advantage, uncertainty-driven imitation and normative pressure ensure adaptation and legitimacy within evolving ecosystems. For SMEs in particular, the integration of DVRIN highlights the balance between innovation and conformity, showing how firms can pursue opportunities while adhering to market expectations. This makes DVRIN not only a theoretical refinement of the DRV but also a practical lens for navigating digital transformation in resource-constrained settings.

Conclusion

The implementation of the DRV is both timely and appropriate within the context of competitive-seeking and opportunity-seeking advantages. Within this perspective, digitally valuable resources refer to a firm's capacity in the digital ecosystem, matched by its ability to access and deploy digital assets effectively. Equally, being digitally rare requires that such resources provide a distinct advantage, differentiating one firm's capabilities from those of its competitors in the ecosystem. The notion of uncertainty driving imitation captures how organizations often respond to digital uncertainty by adopting what appear to be legitimate or standardized practices; yet, these resources must still prove effective in addressing evolving challenges. Finally, normative digital pressure reflects the expectation that digital resources should not only perform specific tasks but also align with professional standards and identify accountability structures for their execution. For proponents of DRV, the true potential lies in how firms, including SMEs, combine digital resources with analytical capabilities and strategic decision-making to identify and capitalize on market opportunities. Accordingly, the DVRIN framework—digitally valuable, rare, uncertainty driving imitation, and normative pressure—provides the most compelling lens for explaining these dynamics.

Possible Limitations of DRV

1. Conceptual Novelty and Boundaries

DRV is still in its infancy as a theoretical framework. Unlike the Resource-Based View (RBV) or Dynamic Capabilities Theory, which have decades of empirical refinement, DRV lacks established consensus on its scope and constructs. The distinction between *digital resources* and related concepts, such as IT infrastructure, digital capabilities, or knowledge assets, remains blurred. Without clear demarcation, scholars risk overlapping definitions that weaken construct validity and comparability across studies.

2. Measurement Challenges

Operationalizing DVRIN (Digitally Valuable, Rare, Uncertainty-Driving, and Normative Pressure) presents significant methodological challenges because each dimension is complex, dynamic, and context-dependent. For example, digital rarity may erode rapidly as technologies diffuse and competitors catch up, making its measurement unstable over time; uncertainty-driving is highly sensitive to industry turbulence and may vary considerably across markets, complicating consistent quantification; and normative digital pressure extends beyond conventional institutional metrics, requiring more indicators that capture the interplay of industry standards, regulatory regimes, and cultural expectations. These

factors collectively make DVRIN difficult to measure reliably and comparably across industries or countries, raising concerns about the stability of its empirical application.

3. Dynamic and Context-Specific Nature

Unlike physical resources, digital resources are highly perishable and dynamic. Cloud platforms, AI tools, or APIs can be disruptive today but commoditized tomorrow. Consequently, DRV may face challenges in producing stable generalizations. A rare digital asset in one context (e.g., blockchain-based recordkeeping in African SMEs) may be mundane in another (e.g., global fintech hubs). This context-dependency complicates cross-country or cross-industry comparative studies.

4. Integration with Established Theories

DRV currently functions more as a *complementary lens* than a stand-alone paradigm. It may be argued that it largely repackages RBV, institutional theory, and dynamic capabilities with digital labels. Until more empirical validations establish its *distinctive explanatory power*, some may question whether DRV offers theoretical innovation or simply an incremental extension of RBV in digital contexts.

5. Overemphasis on Uncertainty

While DRV insightfully foregrounds uncertainty as a driver of imitation and innovation, it may exaggerate its universal influence. In relatively stable, less-digitized environments (e.g., traditional manufacturing or agriculture in developing economies), uncertainty may not exert the same normative or competitive pressures. This raises concerns that DRV may be biased toward high-tech, high-volatility sectors, limiting its broader applicability.

6. Risk of Fragmentation in Application

Given its novelty, researchers may apply DRV inconsistently, with some emphasizing digital assets and others focusing on uncertainty or institutional pressures. Without a strong consensus on definitions and boundaries, the framework risks fragmentation, undermining cumulative knowledge-building.

Addressing the Limitations of DRV

Although the DRV faces notable theoretical and empirical challenges, these limitations should not be seen as weaknesses that undermine its relevance. Rather, they offer opportunities for refinement, advancement, and methodological innovation. Researchers can contribute to shaping DRV into a more robust and widely accepted theoretical framework.

First, conceptual clarification is crucial, as one of the main possible criticisms of DRV lies in the blurred boundaries between digital resources, digital capabilities, and IT infrastructure. Future research can address this by providing sharper definitions and more explicit distinctions, ensuring that digital resources are not conflated with other constructs. For instance, a study could specify digital resources as *foundational inputs* (e.g., data sets, APIs, algorithms), while capabilities represent the *organizational processes* that mobilize them. Such clarification strengthens construct validity and reduces ambiguity in application.

Second, refined measurement approaches are needed to operationalize the DVRIN dimensions more effectively. Current measures often rely on proxies that may not fully capture constructs like *normative digital pressure* or *uncertainty-driven resources*. Researchers can improve this by designing multi-dimensional scales, developing context-

specific indicators, and conducting cross-validation across industries. For example, fintech studies could capture normative pressure through regulatory compliance requirements, while AI adoption research could measure uncertainty through market volatility and shifting customer expectations. Developing consistent and context-sensitive metrics will improve empirical reliability.

Third, longitudinal and cross-context studies can mitigate the challenge of DRV's context-specificity. Since digital resources evolve rapidly, short-term or single-context studies risk capturing only transient phenomena. Tracking how digital resources gain, lose, or transform value over time across diverse industries and regions can reveal the deeper dynamics of DVRIN. For instance, a longitudinal study of SMEs in Global South versus startups in Silicon Valley could illuminate how digital rarity and uncertainty-driven pressures diverge in different digital ecosystems. This approach not only strengthens external validity but also positions DRV as a framework adaptable to multiple contexts.

Finally, theoretical integration and balanced application will be essential to ensure DRV's legitimacy in mainstream strategy research. Instead of presenting DRV as a substitute for established theories such as RBV, institutional theory, or dynamic capabilities, scholars should emphasize its complementary nature. This layered approach enriches explanatory power by combining classical insights with digital-specific nuances. Moreover, researchers must apply DRV judiciously, recognizing that uncertainty does not operate uniformly across industries. In relatively stable or less-digitized contexts, other DVRIN dimensions such as normative pressure or digital rarity may dominate. This balanced application prevents overgeneralization and enhances DRV's credibility as a flexible framework.

Addressing these limitations through conceptual refinement, improved measurement, broader empirical testing, and integrative theorizing transforms DRV's weaknesses into opportunities for growth, validation, and theoretical contribution. Hence, scholars can move DRV from its early conceptual stage toward a more mature and reliable framework for analyzing competitiveness in digital ecosystems.

How Researchers Can Use DRV to Underpin Their Research

1. Theory Development

DRV enables scholars to extend RBV into the digital economy. Instead of testing whether resources are simply *valuable and rare*, researchers can hypothesize about digitally valuable, uncertainty-driven resources under normative pressures. This adds richer theoretical propositions about digital competitiveness, particularly in contexts of disruption, AI adoption, and fintech transformation.

2. Operationalization of Digital Constructs

DVRIN Operationalization Framework

Efficiency gains	Cost savings, reduced transaction times, workflow automation
Customer reach & engagement	Access to new markets, customer base expansion, personalization tools
Innovation outcomes	New product/service development, digital-enabled business models
Revenue growth	Contribution of digital platforms to

	sales/profitability
Scalability	Ability to expand operations without proportional cost increase
Resilience	Cloud-based continuity, AI monitoring for disruption management
Market exclusivity	Proprietary datasets, algorithms, or platforms
Platform penetration rates	Limited adoption across firms or industries
Licensing & ownership rights	Patents, trademarks, exclusive digital rights
Vendor lock-in advantages	Dependence on specific platforms creating barriers
Network effects	Increased value as user base grows (e.g., payment platforms)
Early-mover advantage	First-to-market digital adoption
Speed of adoption	Time taken to adopt emerging digital technologies
Agility & adaptability	Rapid reconfiguration of systems in response to shocks
Predictive capabilities	AI, big data, and machine learning for forecasting
Experimentation capacity	Pilot projects, sandbox testing of digital tools
Flexibility of platforms	Ease of integration with APIs, evolving standards
Risk management support	Blockchain, digital simulations, fintech tools for resilience
Regulatory compliance	Adherence to government policies (e.g., CBN fintech rules, GDPR)
Professional certifications	ISO standards, cybersecurity certifications
Industry norms	Sector-wide expectations for adoption (e.g., e-payments, AI)
Stakeholder expectations	Customer, investor, or partner pressure for digitization
Reputational legitimacy	Adoption to enhance credibility or maintain trust
Sustainability-linked norms	Digital ESG reporting, compliance with sustainability standards

3. Addressing Research Gaps

DRV helps explain phenomena that RBV and dynamic capabilities cannot fully capture, particularly in digital ecosystems, SMEs, fintech, AI integration, blockchain finance, and e-government. For instance, why some African SMEs adopt digital finance quickly while others lag may be explained not only by *capabilities*, but by access to *incremental digital resources* and exposure to *normative and uncertainty-driven pressures*.

4. Comparative and Cross-Context Research

Researchers can use DRV to compare developed versus emerging economies, or high-tech versus low-tech industries. Such studies would reveal how DVRIN factors manifest differently under varying degrees of turbulence and digital maturity. For example,

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regulatory pressures may dominate in Europe, while market uncertainty drives adoption in Africa.

5. Integration with Established Frameworks

DRV can enrich analyses when used alongside RBV, institutional theory, or dynamic capabilities. This layered approach allows scholars to explain:

- *Resource possession (RBV)*
- *Capability deployment (dynamic capabilities)*
- *Institutional legitimacy pressures (institutional theory)*
- *Digital-specific uncertainty and value (DRV)*

Such integration creates more holistic models of firm performance under digital disruption.

6. Practical Relevance

DRV also offers applied insights. For managers and policymakers, it highlights that competitiveness in digital ecosystems is not only about capabilities or infrastructure but about managing digital rarity, uncertainty, adaptation, and normative compliance. This makes DRV a valuable tool for guiding digital strategy, innovation policy, and SME digital adoption programs.

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Appendix

SECTION A: DIGITAL RESOURCES (DRV – DVRIN DIMENSIONS)

Instruction: Please indicate your level of agreement with each statement on a 5-point Likert scale:
1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Code	Dimension / Sub-Dimension	Statement	1	2	3	4	5
B1. Digital Value (DV)	**Efficiency Gains**	1. Our digital tools have significantly reduced the time required to complete core tasks.					
		2. Digital systems help minimize errors in our operations.					
		3. We achieve cost savings by relying on digital platforms rather than manual processes.					
		4. Digital resources have improved the speed and accuracy of decision-making.					
		5. Automation of processes through digital tools has improved workforce productivity.					
	Customer Reach & Engagement	1. Digital platforms enable us to access new markets and customer segments.					
		2. We use digital tools to build stronger engagement with customers.					
		3. Our digital presence increases customer loyalty and retention.					
		4. Digital resources allow us to provide more personalized services to clients.					
	Innovation Outcomes	1. Digital technologies support the creation of new products or services in our firm.					
		2. Our firm uses digital platforms to experiment with new business models.					
		3. Digital resources encourage creativity and innovation among employees.					
		4. The use of digital tools has improved our ability to introduce process innovations.					
	Revenue Growth	1. Digital tools directly contribute to higher firm revenue.					
		2. Our sales performance has improved through digital adoption.					
		3. We have developed new revenue streams through digital platforms.					
		4. Digital adoption has helped increase					

		our market share.					
		5. Online transactions and e-commerce channels have expanded our revenue base.					
		6. Data-driven marketing initiatives using digital tools have improved profitability.					
	Scalability	1. Our digital systems allow us to handle larger volumes of work without increasing costs.					
		2. We can scale up operations easily because of our digital resources.					
		3. Our digital platforms support business expansion into new regions.					
		4. Growth in our firm is supported by scalable digital solutions.					
	Resilience	1. Digital resources help us sustain operations during disruptions (e.g., power outages, pandemics).					
		2. Cloud-based systems enhance the reliability of our operations.					
		3. Our digital resources provide backup and recovery options in times of crisis.					
		4. The use of digital systems strengthens our long-term resilience.					
B2. Digital Rarity (DR)	**Market Exclusivity**	1. Our firm possesses digital resources that are not widely available to competitors.					
		2. We own proprietary digital assets (e.g., data sets, software, algorithms).					
		3. Our digital systems are rare and difficult to replicate in the industry.					
		4. Possession of unique digital resources gives us a competitive advantage.					
	Platform Penetration	1. Few competitors in our sector use the same advanced digital tools we employ.					
		2. Our digital systems provide us with a competitive edge due to their limited availability.					
		3. The technologies we use are uncommon in the industry.					
		4. Our adoption of certain digital resources sets us apart from competitors.					
		5. We utilize advanced digital analytics platforms not yet adopted by most competitors.					
		6. The sophistication of our digital ecosystem gives us deeper market visibility.					

	Licensing & Ownership Rights	1. We hold exclusive licenses or patents for certain digital technologies.					
		2. Our digital rights and protections prevent easy imitation by competitors.					
		3. Our proprietary digital systems are legally protected.					
		4. Licensing and ownership rights increase the rarity of our digital tools.					
	Vendor Lock-in Advantages	1. Competitors face difficulties replicating the specialized platforms we use.					
		2. Our firm benefits from unique partnerships with digital vendors.					
		3. Our vendor relationships give us exclusive digital solutions.					
		4. Digital lock-in arrangements enhance our competitive strength.					
	Network Effects	1. The usefulness of our digital platforms grows as more customers and partners use them.					
		2. Network effects from our digital tools make it difficult for competitors to catch up.					
		3. The value of our platforms increases with larger user adoption.					
		4. Digital adoption by stakeholders strengthens our competitive position.					
		5. Collaborations within our digital networks create synergies that reinforce market dominance.					
	Early-Mover Advantage	1. We are among the first in our industry to adopt new digital technologies.					
		2. Being an early adopter has given us a long-term digital advantage.					
		3. Our pioneering use of digital tools positions us as an industry leader.					
		4. Early adoption of digital innovations creates barriers for competitors.					
B3. Uncertainty-Driven Resources (UDR)	**Speed of Adoption**	1. Our firm quickly adopts new digital technologies ahead of competitors.					
		2. We respond rapidly to emerging digital trends.					
		3. Our firm embraces digital innovation faster than most rivals.					
		4. We are proactive in adopting emerging digital resources.					
		5. Our decision-making structure					

		supports rapid digital deployment.					
		6. We allocate dedicated budgets for early adoption of cutting-edge technologies.					
	Agility & Adaptability	1. We can easily reconfigure our digital systems when the market changes.					
		2. Our digital resources make us more flexible in adapting to shocks.					
		3. Digital tools help us adjust quickly to unpredictable conditions.					
		4. Our systems allow us to adapt processes in response to uncertainty.					
	Predictive Capabilities	1. We use digital tools such as AI and analytics to forecast future customer demand.					
		2. Predictive technologies help us anticipate risks and opportunities.					
		3. Data analytics guide decision-making under uncertainty.					
		4. Our firm uses predictive digital tools to remain competitive.					
	Experimentation Capacity	1. We regularly test or pilot new digital tools even in uncertain conditions.					
		2. Experimentation with digital technologies is encouraged in our organization.					
		3. We experiment with digital resources before scaling them up.					
		4. Our firm uses pilot programs to manage risk in digital adoption.					
	Flexibility of Platforms	1. Our platforms integrate easily with other systems through APIs or open standards.					
		2. Our digital systems are built to adapt to evolving technologies.					
		3. Our platforms are flexible enough to adjust to market shifts.					
		4. Flexibility of our systems enables us to stay current with industry changes.					
		5. We can easily upgrade our platforms without major disruptions.					
		6. Modular design of our digital systems allows seamless expansion.					
		7. Our digital architecture supports interoperability across departments and partners.					
	Risk Management Support	1. We use digital tools (e.g., blockchain, simulations) to reduce risk.					
		2. Our digital systems provide					

		contingency support during uncertain events.					
		3. We use digital platforms to strengthen security and reliability.					
		4. Digital adoption supports risk identification and mitigation.					
B4. Normative Pressure (NP)	**Regulatory Compliance**	1. We adopt digital resources to comply with government regulations.					
		2. Regulatory frameworks strongly influence our digital adoption.					
		3. Legal requirements motivate us to digitize processes.					
		4. Our digital practices are shaped by compliance demands.					
	Professional Certifications	1. Our adoption of digital resources is influenced by professional standards (e.g., ISO, cybersecurity).					
		2. We prioritize certifications when implementing digital tools.					
		3. Compliance with professional guidelines drives our digital adoption.					
		4. Achieving certifications enhances our digital legitimacy.					
	Industry Norms	1. Digital adoption in our firm is shaped by industry-wide expectations.					
		2. We adopt certain technologies because they have become standard practice in our sector.					
		3. Our competitors' digital practices influence our adoption decisions.					
		4. Industry-wide digital trends push us to embrace new technologies.					
		5. Benchmarking with industry leaders guides our digital adoption strategy.					
	Stakeholder Expectations	1. Customers demand that we digitize our processes.					
		2. Our investors/partners expect us to embrace digital technologies.					
		3. Stakeholders encourage us to remain digitally relevant.					
		4. External expectations shape the pace of our digital adoption.					
	Reputational Legitimacy	1. We adopt digital tools to strengthen our reputation as a modern and innovative firm.					
		2. Not adopting digital systems would harm our credibility.					
		3. Digital adoption improves how we are perceived by external stakeholders.					

		4. Our reputation benefits from being digitally advanced.					
	Sustainability-Linked Norms	1. We use digital platforms to comply with sustainability reporting (e.g., ESG, environmental metrics).					
		2. Our firm digitizes processes to align with sustainable business practices.					
		3. Sustainability concerns influence our adoption of digital resources.					
		4. We rely on digital systems to meet environmental or social standards.					
		5. Our digital initiatives are aligned with global sustainability frameworks (e.g., UN SDGs).					
		6. We invest in green digital technologies to reduce environmental impact.					