

Article

Organizational Factors and Digital Transformation: A Systems Perspective on Small Firms

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Abstract

Although digital readiness is widely recognized as a prerequisite for digital transformation, existing research predominantly adopts a determinant-based perspective, offering limited insight into how readiness actually emerges within organizations. To address this gap, this study develops a systems-based and process-oriented framework explaining how organizational factors translate into digital readiness in small firms. Drawing on Resource-Advantage Theory and a socio-technical systems perspective, a qualitative cross-cultural multiple-case study was conducted in six small service firms located in Brazil and the United Kingdom. The cross-cultural design enabled the identification of recurring organizational mechanisms across different institutional contexts. The findings reveal that organizational factors such as corporate culture, knowledge management, organizational learning, and leadership do not directly generate digital readiness. Instead, their influence depends on Project Management Capability (PMC), which emerged as the central mechanism coordinating and integrating these resources into coherent digital initiatives. Firms with stronger PMC exhibited more structured and strategically aligned digital transformation trajectories, regardless of resource availability. This study contributes to the literature by conceptualizing digital readiness as an emergent organizational outcome rather than a static condition and by positioning PMC as the critical link between organizational factors and digitally enabled competitive advantage in small firms.

Keywords: digital readiness; digital transformation; project management capability; organizational factors; resource-advantage theory; socio-technical systems; small firms



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1. Introduction

Digital readiness, defined as the degree to which an organization is collectively prepared to engage in digital transformation, has become a critical condition for small businesses seeking to maintain competitiveness in today's rapidly evolving business environment [1]. Despite their central role in the global economy, representing the majority of businesses worldwide [2], small firms frequently face substantial challenges in managing digital transformation due to limited organizational structures, resource constraints, and insufficient experience with digital tools and applications [3,4]. Beyond these structural constraints, evidence suggests that small firms often struggle not only with access to digital resources, but with the ability to organize and coordinate their use in a coherent manner [3–5].

From a strategic perspective, digital readiness can be understood as a condition that enables firms to more effectively mobilize and combine heterogeneous firm resources, such as technological, human, organizational, and relational assets, in pursuit of competitive advantage, consistent with the logic of Resource-Advantage Theory. This perspective views competition as a dynamic process in which firms seek superior market positions by leveraging resource heterogeneity and by developing more effective resource combinations than their rivals [6,7]. Importantly, this perspective emphasizes that value is not derived from the mere possession of resources, but from their integration and deployment through coordinated organizational processes [8]. However, managers in small firms often lack the necessary know-how to formulate and implement coherent digital strategies, which constrains their ability to compete in increasingly digitalized markets [9].

As a result, many small firms tend to adopt a reactive and fragmented approach to technology adoption, relying on isolated digital initiatives rather than on a clearly articulated strategic roadmap [4,10]. Such patterns frequently manifest in disconnected digital efforts across functions (e.g., marketing, operations, or customer interfaces), limiting the ability of firms to generate systemic value from digital investments. While access to scalable digital resources can, in principle, enable small firms to compete more effectively with larger organizations [11], the absence of internal alignment and strategic direction often prevents such potential from being realized in practice. These limitations suggest that the core challenge is not solely technological adoption, but the organizational capability to translate strategic intent into coordinated execution. Such reactive patterns reflect limitations in firms' adaptive capacity [12] and, more specifically, in their ability to coordinate and execute digital initiatives in a structured and coherent manner—a gap that this study addresses through the lens of Project Management Capability.

Prior research has shown that among the multiple factors influencing organizational digital maturity, the existence of a well-defined digital strategy is particularly critical [13]. Nevertheless, many organizations engaged in digital transformation initiatives continue to experience significant difficulties in translating strategic intent into effective implementation. In this sense, a persistent gap remains between digital strategy formulation and execution. In some cases, digital initiatives even exacerbate organizational complexity, leading to fragmented IT systems, poorly coordinated digital services, and misalignment with operational realities. These outcomes are frequently associated with insufficient levels of digital readiness, which reflect misalignments between organizational structures, knowledge bases, and strategic intent within socio-technical systems [5,14,15].

A growing body of research indicates that internal organizational factors, such as culture, managerial practices, and knowledge-related processes, play a more decisive role in technology adoption than external environmental conditions [16]. In this sense, organizational factors encompass deeply embedded elements such as shared values and assumptions that guide collective behavior [17], as well as organizational processes through which knowledge is created, integrated, and leveraged for strategic action [18]. These factors constitute the internal resource base of the firm, but their effectiveness depends on how they are structured, coordinated, and enacted within organizational systems [7,12]. Nevertheless, although prior studies have examined a wide range of determinants of digital readiness [19,20], there remains limited clarity regarding the relative importance of these organizational factors, how they interact and should be strategically structured to enable the effective recombination of digital and non-digital resources over time, thereby generating sustainable competitive advantage in small firms.

Moreover, digital readiness is frequently conceptualized as a static set of antecedent conditions, offering limited insight into the organizational processes through which readiness actually emerges. Such a perspective recognizes that outcomes are not linearly deter-

mined by isolated variables, but emerge from the dynamic interaction and coordination of interdependent organizational elements within complex systems. As a result, there is a need to shift from a determinant-based perspective toward a process-oriented understanding of how internal organizational conditions are translated into digitally enabled outcomes. This limitation is particularly salient in small firms, which often face structural constraints, limited slack resources, and strong dependence on managerial cognition, yet remain underrepresented in empirical investigations of digital readiness and competitive advantage [21]. Consequently, there is a need to move beyond determinant-based explanations toward a process-oriented perspective that explains how internal organizational conditions are translated into digitally enabled outcomes.

This ambiguity is further reflected in empirical debates regarding the role of specific resources. While some studies emphasize the centrality of financial resources for expanding technological adoption [21], others argue that financial capacity alone is insufficient to explain successful digital transformation outcomes [22]. From a Resource-Advantage perspective, such inconsistencies suggest that competitive outcomes depend less on isolated resource endowments and more on how resources are integrated and deployed within organizational systems over time [8].

Addressing this gap, this study introduces Project Management Capability as the central organizational mechanism that links organizational factors to digital readiness. Conceptually distinct from dynamic capabilities, which operate at the strategic level by enabling firms to sense opportunities, seize them, and reconfigure resources [12], PMC is positioned as a meso-level execution capability that translates the strategic potential generated by dynamic capabilities into structured, coordinated organizational action [23–26]. While dynamic capabilities explain what the firm is able to sense and reconfigure, PMC explains how that reconfiguration is operationally enacted through structured and iterative processes. By framing project management as a capability rather than a set of tools, this research advances a systemic and process-oriented explanation of how organizations translate strategic intent into coordinated action.

Focusing on the lack of process-oriented and small-firm-specific explanations of digital readiness, this research aims to explain how organizational factors are translated into digital readiness through Project Management Capability in small firms, thereby providing a clearer understanding of the mechanisms that underpin successful technology adoption and long-term competitive advantage. To achieve this objective, the study adopts Resource-Advantage (R-A) Theory as its primary theoretical lens, complemented by a dynamic capabilities perspective that emphasizes the role of organizational processes in enabling the continuous reconfiguration of resources in response to environmental change [6,12]. This reinforces the need to identify the organizational mechanisms that enable such integration and deployment in practice.

Through a qualitative, cross-cultural study of small service-based businesses in Brazil and the United Kingdom, this research seeks to uncover insights into how organizational factors are managed in different contexts and how they contribute to successful digital transformation. The qualitative design enables the identification of interaction patterns and systemic configurations across cases, rather than isolated variable effects. The cross-contextual design strengthens the empirical relevance of the research by allowing the identification of consistent patterns across different institutional environments. The findings further reveal that differences in digital outcomes are primarily associated with firms' ability to structure, prioritize, and integrate digital initiatives rather than with resource availability alone. By examining these factors in detail, this study offers valuable contributions to both theory and practice, shedding light on how organizations can better align their internal resources to navigate the digital landscape and achieve long-term success [27].

2. Literature Review

2.1. Resource-Advantage Theory

The Resource-Advantage (R-A) Theory provides a dynamic framework to understand how organizations achieve and sustain competitive advantages in ever-evolving markets. This theory posits that firms compete by leveraging a diverse set of tangible and intangible resources, including financial, physical, legal, human, informational, and relational assets [6,8]. The heterogeneity and imperfect mobility of these resources among firms create opportunities for some organizations to establish a comparative advantage, leading to superior market positions [28].

Over time, Resource-Advantage Theory has evolved into a more comprehensive strategic and epistemological framework, emphasizing that competitive advantage does not arise from isolated resources, but from the way resources are integrated, coordinated, and applied within specific market contexts [7,27]. In this sense, value is created when firms successfully combine and deploy their resources to deliver superior products and services to the market, resulting in enhanced customer value and improved organizational performance [7,8].

Central to the R-A Theory is the notion that competition is a process of evolutionary disequilibrium. Firms continuously adapt, innovate, and reinvest in their resources to maintain or enhance their competitive positioning [28]. This dynamic view aligns with the concept of dynamic capabilities, which emphasizes the firm's ability to sense opportunities, seize them, and reconfigure resources in response to environmental changes [12]. In highly digital environments, this process becomes particularly critical, as firms must continuously renew and recombine their resources to respond to technological change and evolving market demands [29]. In the digital environment, companies have access to rich customer information that can guide their strategies. This advantage is further amplified in interactive, internet-enabled digital markets, where agility and strategic personalization play an increasingly critical role in maintaining competitiveness and delivering value [30].

Moreover, the R-A Theory underscores that competitive advantages are transient unless firms proactively innovate and reinvest in their resource bases. This proactive renewal involves anticipating market needs, acquiring or developing necessary resources, and dynamically aligning them to create and deliver value. Firms that excel in these areas are better equipped to navigate the complexities of modern markets and sustain their competitive edge [28]. From a systems perspective, these resources interact as part of an adaptive organizational system, in which competitive advantage emerges from the coordinated alignment of capabilities, knowledge, and digital assets [5].

Finally, the R-A Theory highlights the strategic importance of resource heterogeneity, integration, and renewal in fostering competitive advantages. By effectively managing and combining their resources, firms can achieve superior market performance and adapt to the ever-changing business landscape [8,31].

2.2. Digital Readiness

Digital readiness refers to the extent to which an organization is collectively prepared to engage in digital transformation and to purposefully leverage digital technologies in pursuit of strategic objectives [1,32]. Rather than reflecting the mere availability of digital tools, digital readiness captures a multidimensional organizational condition that integrates structural capabilities, strategic alignment, leadership orientation, and shared commitment to change [1,19]. This broader conceptualization also incorporates behavioral and adoption-related dimensions, as highlighted in the technology readiness literature, which emphasizes the role of organizational and individual predispositions toward technology use [20]. In this sense, digital readiness functions as an organizational precondition that shapes how firms

initiate and sustain digital transformation, understood here as the systemic process through which organizational processes, structures, and value creation mechanisms are reconfigured through digital technologies [32]. Accordingly, throughout this study, these two constructs are treated as conceptually distinct yet sequentially interdependent: digital readiness precedes and enables digital transformation, while digital transformation represents the enacted process through which organizational readiness is converted into realized change.

The conceptual roots of digital readiness can be traced to the theory of organizational readiness for change proposed by Weiner [19]. According to this perspective, readiness is a shared organizational state defined by commitment to change and collective capability to implement it [19]. When applied to the digital context, readiness extends beyond a mere willingness to adopt digital technologies, encompassing managerial, operational, and technological conditions that enable their effective deployment [1,32]. This reinforces the understanding of digital readiness as a socio-technical construct, in which human, organizational, and technological elements must be aligned as a precondition for initiating and sustaining digital transformation processes [5].

Building on this foundation, the digital transformation literature conceptualizes transformation as a systemic and ongoing process rather than a discrete technological upgrade. Vial [32] emphasizes that digital transformation involves the reconfiguration of organizational processes, structures, and value creation mechanisms through the pervasive use of digital technologies. This perspective is complemented by research on digital strategy and governance, which highlights the importance of coordinated implementation mechanisms and strategic alignment in enabling transformation outcomes [15,33]. Furthermore, digital capability development has been identified as a critical driver of innovation and performance in digital contexts [34]. From this perspective, digital readiness functions as a precondition for transformation, as organizations lacking sufficient preparedness often experience fragmented initiatives, increased complexity, and limited performance gains.

Building on prior research, Pingali et al. [1] advances the literature by explicitly conceptualizing and operationalizing digital readiness, particularly in the context of small and medium-sized enterprises (SMEs). They define digital readiness as a multidimensional construct encompassing digital resources, organizational capabilities, leadership orientation, and strategic intent, thereby capturing both the availability of technological assets and the organizational conditions required for their effective deployment within socio-technical systems [1]. This conceptualization aligns with broader evidence indicating that small firms follow heterogeneous digital transformation paths, shaped by their maturity levels, resource constraints, and contextual factors [3,4].

Importantly, digital readiness should not be understood as a static or one-time achievement. Instead, it represents a continuous developmental process through which organizations progressively align their resources, capabilities, and strategic priorities in response to evolving technological and competitive environments [1,32]. This dynamic perspective is particularly relevant in digitally intensive contexts, where firms must continuously adapt their capabilities to sustain competitiveness and innovation [34]. In environments characterized by rapid technological change, such as those associated with Industry 4.0 and emerging Industry 5.0 paradigms [35], digital readiness becomes essential for sustaining adaptive capacity and strategic renewal.

For small firms in particular, achieving digital readiness poses distinct challenges. In line with prior research, small firms are typically characterized by limited resource endowments, less formalized structures, and strong dependence on managerial decision-making [4,5]. As a result, many small firms exhibit strong managerial commitment toward digitalization while lacking adequate operational structures, technological infrastructure, and specialized skills to support coherent transformation efforts [1,19]. These constraints

are widely documented in global small and SME contexts, where resource limitations and capability gaps hinder the effective implementation of digital strategies [2,5]. This imbalance highlights the need for targeted strategies that explicitly address resource constraints and capability gaps, rather than relying on isolated or reactive technology adoption, which often leads to fragmented and ineffective transformation outcomes [5,32].

From a systems perspective, digital readiness represents a foundational condition for digitally enabled growth. North et al. [5] conceptualize small firms, as a subset of SMEs, as socio-technical systems characterized by resource constraints, lower formalization, and strong managerial centralization in which digital technologies generate value only when embedded within aligned organizational structures, knowledge bases, and decision-making processes. Their work reinforces the argument that without sufficient readiness, digital initiatives tend to remain fragmented, increasing complexity rather than enhancing performance.

2.3. Organizational Factors

Research emphasizes the importance of internal organizational factors over external elements in achieving digital readiness and a comparative advantage, in alignment with the Resource-Advantage (R-A) Theory. From this perspective, firms' ability to generate value depends not only on resource endowment, but on how internal organizational conditions enable the integration, coordination, and deployment of these resources [7,16].

In this context, organizational factors refer to internally embedded structures, processes, and routines that shape how firms mobilize resources and coordinate collective action in support of strategic and digital initiatives. These factors can be understood as a multidimensional system comprising cultural, cognitive, and structural elements that influence how organizations interpret, create, and apply knowledge in dynamic environments [17,18,36]. These factors encompass various dimensions, including the organizational structure, communication processes, and resource management, all of which interact with individual characteristics, such as skills and attitudes, as well as task-specific elements like complexity. Within the context of digital readiness, organizational factors play an important role in fostering adaptability, innovation, and operational efficiency [16].

They encompass core organizational dimensions, such as corporate culture, organizational learning, and knowledge management, which collectively constitute the internal resource base of the firm. Although these factors are associated with the development of adaptive and dynamic orientations [12,37], their impact on digital outcomes depends on how they are mobilized and coordinated through execution-oriented mechanisms, a role fulfilled, in this study's framework, by Project Management Capability. Organizational culture provides shared values and norms that guide behavior [17], organizational learning enables the continuous updating of routines and practices [36], and knowledge management facilitates the creation, transfer, and application of knowledge within and across organizational boundaries [18,38]. Together, these dimensions structure resource mobilization and condition digital readiness and strategic behavior [7]. They are summarized in Table 1.

Among these dimensions, corporate culture deserves particular theoretical attention, as it constitutes the deepest and most pervasive layer of the organizational system. According to Schein [17], culture operates at three interrelated levels—observable artifacts, espoused values, and underlying basic assumptions—meaning that its influence on organizational behavior extends far beyond formally stated norms. Because basic assumptions are largely tacit and taken for granted, culture shapes how organizational members interpret technological change, assess risk, and legitimize new practices, often without conscious deliberation [17,39]. Meta-analytic evidence based on the competing values framework fur-

ther indicates that distinct cultural orientations are systematically associated with different effectiveness outcomes, including innovation and employee attitudes [39]. In the context of digital transformation, cultures that value experimentation, tolerance of failure, and continuous learning provide fertile ground for the recombination of digital and non-digital resources, whereas rigid or risk-averse cultural assumptions operate as cognitive barriers that inhibit the reconfiguration of routines required by digitalization [40].

Table 1. Definition Organizational Factors.

Organizational Dimension	Definition	References
Corporate Culture	The shared values, beliefs, unwritten norms, and practices that define the identity and work environment of an organization and influence how individuals within the organization interact.	[17,39]
Knowledge Management	Knowledge management refers to the systematic organizational processes through which knowledge is created, shared, integrated, and applied to support decision-making, innovation, and strategic outcomes. It functions as a core organizational capability that links individual expertise with collective learning and competitive advantage.	[18,37]
Organizational Learning	Organizational learning represents the organization's capability to acquire, interpret, and apply knowledge by revising routines, practices, and underlying assumptions in response to feedback from the environment. It enables continuous adaptation, strategic renewal, and responsiveness in dynamic and uncertain contexts.	[36,38]

Source: The Authors (2026).

The literature on small-firm digitalization reinforces this dual role of culture as both enabler and barrier. Okfalisa et al. [41] identify two primary groups of barriers to successful digitalization: technical barriers, related to the scarcity of resources and infrastructure, and cultural barriers, which arise because digitalization demands profound changes in products, processes, management, and organizational structures, requiring new competencies and collaboration toward innovation. Consequently, technology adoption alone does not guarantee transformation success; readiness depends on whether cultural conditions support the organizational changes that digital technologies entail [32,41]. This cultural dimension is amplified in small firms, where culture is strongly shaped by the values, mindset, and risk disposition of the owner-manager [5,42]. Managerial attitudes toward digital technologies, including the failure to perceive their benefits or the fear of digitalization itself, have been shown to delay technology adoption even when external pressures favor it [43]. In such contexts, the emergence of a culture conducive to experimentation and learning is inseparable from leadership behavior, reinforcing the socio-technical interdependence between cultural, human, and structural elements emphasized throughout this study [5,17].

Empirical research further supports the relevance of these factors by demonstrating their impact on organizational effectiveness, innovation, and performance outcomes [37,39]. In particular, leadership-oriented knowledge practices and interorganizational knowledge transfer mechanisms have been shown to enhance firms' ability to respond to complex and rapidly changing environments [37,38].

The reviewed literature converges in demonstrating that these factors do not operate in isolation, but as interdependent components of an organizational system that influences decision-making processes, adaptation, and competitive performance in contexts marked by uncertainty and digital transformation [12,16–18,36]. From a multilevel perspective, organizational factors integrate micro-level elements (culture, learning, knowledge),

meso-level mechanisms (dynamic capabilities and resource integration), and macro-level outcomes, where digital readiness represents the emergent organizational state that enables digital transformation, understood as the systemic reconfiguration of processes, structures, and value creation through digital technologies [32], forming a coherent socio-technical system that underpins organizational adaptation and value creation [5,40].

It is also important to distinguish organizational culture from the broader national and institutional context in which firms are embedded. While corporate culture refers to internally shared values and assumptions [17], cultural, economic, and institutional environments at the country level also significantly shape how digital technologies are adopted and implemented [44,45]. Cross-country evidence indicates that the national context influences both the pace of technological adoption and the managerial interpretation of digital opportunities [45], and comparative research on Brazilian and British firms suggests that digital transformation challenges are filtered through distinct institutional and cultural conditions [46]. At the same time, digitalization increasingly transcends geographical and cultural boundaries, enabling even small firms to operate globally through digital channels [44]. These considerations underpin the cross-cultural design adopted in this study: examining small firms in Brazil and the United Kingdom allows the identification of organizational mechanisms that recur across different cultural and institutional environments, thereby distinguishing context-specific influences from systemic patterns [46]. Accordingly, national culture is treated here as a contextual boundary condition, whereas organizational culture is analyzed as an internal resource within the proposed framework.

This perspective is particularly relevant for small firms, where limited resources and less formalized structures increase dependence on internally embedded factors such as managerial cognition, knowledge practices, and organizational culture in shaping digital transformation trajectories [5,16]. However, despite conceptual and empirical advances, gaps remain regarding how these factors are enacted and articulated in organizational practice, especially in B2B contexts and marketing decisions mediated by digital technologies. To address this gap, this study adopts a qualitative multiple-case study design, as described in the following methodological section.

2.4. Project Management Capability

Project management has evolved from a predominantly technical function toward a strategic organizational capability that enables the coordination, integration, and execution of complex activities within dynamic environments. In project-based contexts, organizations do not merely manage tasks; they orchestrate interdependent resources, actors, and processes to deliver value under conditions of uncertainty [23]. This shift reflects a broader understanding of project management as a capability embedded within organizational systems, rather than a set of isolated tools or practices.

It is important to distinguish PMC from the broader concept of dynamic capabilities. Dynamic capabilities, as theorized by Teece [12], operate at the strategic level and refer to the firm's higher-order ability to sense market opportunities, seize them through strategic decisions, and reconfigure the resource base in response to environmental change. They are inherently strategic and dispositional, they describe what the firm is capable of perceiving and deciding. PMC, by contrast, operates at the meso level and is execution-oriented, it describes how strategic intent is translated into coordinated organizational action through structured, iterative, and adaptive processes [23–26]. In this sense, PMC does not replace or replicate dynamic capabilities; rather, it represents the organizational mechanism through which dynamic capabilities are enacted in practice. Without PMC, the strategic potential generated by dynamic capabilities remains unrealized, as firms lack the coordination infrastructure necessary to convert sensing and seizing into structured execution. This division

of theoretical labour, dynamic capabilities at the strategic level, PMC at the execution level, is central to the framework proposed in this study.

From a systems perspective, project management operates as a socio-technical mechanism that aligns human, organizational, and technological elements to support coordinated action [24]. This perspective is particularly relevant in digitally intensive environments, where transformation processes require continuous interaction between social structures, digital technologies, and decision-making routines. In such contexts, project management capability enables the organization to translate strategic intent into structured and adaptive processes that guide implementation.

Recent research reinforces this view by positioning project management as a central enabler of digital transformation. Systematic evidence shows that project management practices provide the structural and procedural foundation through which digital initiatives are implemented, monitored, and adapted over time [25]. Similarly, advances in agile project management highlight the importance of flexibility, responsiveness, and iterative learning in managing complex and uncertain transformation processes [26].

Building on these foundations, this study conceptualizes Project Management Capability (PMC) as the organizational ability to coordinate, integrate, and adapt interdependent resources, activities, and actors through structured and iterative processes in order to implement strategic initiatives [47]. In this sense, PMC functions as a meso-level execution capability that operationalizes resource integration and enables the translation of organizational conditions into structured and coordinated action, distinct from higher-order dynamic capabilities, which operate at the strategic level of sensing, seizing, and reconfiguring [12].

Project Management Capability is therefore understood as the mechanism through which organizations translate strategic intent into coordinated execution, particularly in environments characterized by complexity, interdependence, and continuous change [23–25].

Despite these advances, the literature remains fragmented in explaining how project management operates as an organizational capability that systematically links internal resources to digital transformation outcomes. In particular, limited attention has been given to the role of project management as a socio-technical mechanism that enables the integration and enactment of organizational factors within dynamic environments. Addressing this gap, this study conceptualizes Project Management Capability as a central organizational mechanism that connects resource integration to digitally enabled outcomes, thereby extending existing perspectives on project management and contributing to a systems-oriented understanding of digital transformation.

2.5. Conceptual Integration

Building on the theoretical foundations presented in the previous sections, this study advances a systems-oriented framework that explains how organizational resources are translated into digitally enabled outcomes through coordinated organizational processes.

In line with Resource-Advantage Theory, competitive advantage is understood as the outcome of how firms integrate and deploy heterogeneous resources to create superior value in the market [6–8]. However, while this perspective explains why resources matter, it provides limited insight into how resources are operationalized within organizational systems.

Addressing this gap, the present study integrates insights from organizational theory and digital transformation literature to propose a multilevel framework. At the micro level, organizational factors, such as culture, knowledge management, and organizational learning, represent the core resources that shape how firms interpret, mobilize, and apply knowledge in dynamic environments [17,18,36]. At the meso level, these factors contribute

to the development of capabilities that enable resource integration and adaptation [12]. Among these, culture occupies a foundational position, as it conditions the extent to which knowledge management and learning processes can be mobilized and, ultimately, the environment within which Project Management Capability operates [17,40].

Within this structure, digital readiness is conceptualized as the organizational outcome that reflects the firm's capacity to engage in and sustain digital transformation processes. Rather than being a static condition, digital readiness emerges as a dynamic and systemic state resulting from the alignment of organizational resources, capabilities, and strategic intent [1,32]. More specifically, digital readiness emerges as a non-linear outcome of the interaction between interdependent organizational elements, rather than as the result of isolated factors.

Central to this framework is Project Management Capability, which functions as the organizational mechanism that links resources to outcomes. Specifically, PMC enables the coordination and integration of organizational factors into structured and adaptive processes, thereby translating resource endowments into effective strategic action. In this sense, PMC operationalizes the logic of resource integration proposed by Resource-Advantage Theory, converting organizational potential into realized transformation outcomes.

Taken together, the framework can be summarized as follows:

- Resource-Advantage Theory: explains how value is created through resource integration;
- Organizational Factors: represent the internal resource base of the firm;
- Project Management Capability: acts as the mechanism that enables coordination and execution;
- Digital Readiness: represents the organizational outcome of this process and, simultaneously, the enabling precondition for digital transformation, understood as the systemic reconfiguration of organizational processes, structures, and value creation through digital technologies [32]. While digital readiness reflects the degree to which the organization is prepared to engage with digital change, digital transformation refers to the enacted process through which that change is realized in practice.

This integrated perspective advances the literature by providing a systemic explanation of how resources, capabilities, and processes interact to generate digital readiness, the organizational precondition that, in turn, enables digital transformation, particularly in small firms operating under resource constraints. The framework also provides the basis for the development of the conceptual model and propositions presented in the next section.

2.6. Conceptual Model

Building on the integration of Resource-Advantage (R-A) Theory, organizational factors, digital readiness, and project management literature, this study proposes a conceptual model (Figure 1) that explains how internal organizational conditions are translated into digitally enabled outcomes in small firms. The model adopts a systems-oriented perspective in which organizations are understood as socio-technical systems, where value emerges from the interaction and coordinated alignment of resources, capabilities, and processes rather than from isolated elements [24].

At its foundation, the model is grounded in Resource-Advantage Theory, which conceptualizes firms as bundles of heterogeneous resources that are imperfectly mobile and unevenly distributed across organizations [6,8]. From this perspective, competitive advantage is not determined by the mere possession of resources, but by the firm's ability to integrate, align, and deploy them effectively in response to market conditions [7,12]. Accordingly, the model positions organizational factors as the internal resource base of the firm, encompassing elements such as culture, knowledge management, organizational

learning, and leadership [17,18,36,37]. These factors shape how organizations generate, interpret, and apply knowledge, thereby influencing their ability to respond to digital transformation challenges.

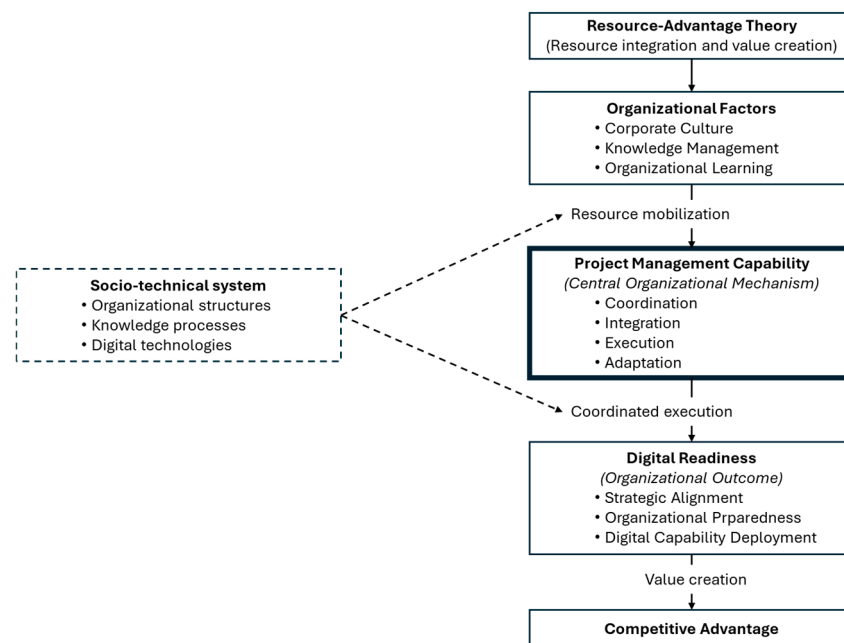


Figure 1. Conceptual model: Project Management Capability as the mechanism linking organizational factors to digital readiness. Source: authors.

However, consistent with both the theoretical and empirical findings of this study, organizational factors do not directly produce digital readiness. Instead, their impact depends on how they are enacted and articulated through organizational processes that enable coordinated action. In this regard, the model introduces Project Management Capability as the central organizational mechanism that links internal resources to digital transformation outcomes.

Project Management Capability is conceptualized as the organizational ability to coordinate, integrate, and execute initiatives in environments characterized by complexity, interdependence, and continuous change [23,24]. Extending contemporary perspectives on project management, this study frames PMC as a meso-level execution capability, distinct from dynamic capabilities, which operate at the strategic level, rather than a set of tools or formal procedures [25,26,47]. Through this capability, firms mobilize resources, align stakeholders, structure decision-making processes, and iteratively adapt initiatives, thereby translating strategic intent into coordinated execution.

Within this framework, Project Management Capability performs a critical integrative function. It enables the recombination of heterogeneous resources, supports cross-functional coordination, and facilitates the continuous adjustment of organizational actions in response to evolving digital environments. This is consistent with, but conceptually distinct from, dynamic capabilities: while dynamic capabilities provide the strategic orientation that defines what needs to be reconfigured and why [12,29], PMC provides the execution infrastructure that determines how that reconfiguration is structured and carried out in practice.

As a result of these processes, digital readiness is conceptualized as an emergent organizational outcome rather than a static antecedent condition. In this model, digital readiness reflects the degree to which organizations achieve alignment between strategic intent, organizational structures, knowledge processes, and digital initiatives [1,19]. In

this framework, digital readiness and digital transformation are treated as conceptually distinct yet sequentially interdependent: digital readiness is not an end in itself, but the organizational state that enables and sustains digital transformation, understood as the systemic reconfiguration of processes, structures, and value creation mechanisms through digital technologies [32]. Firms that achieve higher levels of readiness are therefore better positioned to initiate, execute, and sustain the transformation process itself. Firms with higher levels of Project Management Capability are more likely to exhibit coherent, integrated, and strategically aligned digital transformation processes, whereas those lacking such capability tend to rely on fragmented and reactive digital initiatives.

Finally, the model suggests that digital readiness contributes to competitive advantage by enabling firms to leverage digital technologies more effectively, enhance organizational responsiveness, and improve value creation processes. This outcome is consistent with Resource-Advantage Theory, which posits that superior performance arises from the effective integration and deployment of resources within dynamic competitive environments [8].

Overall, the proposed conceptual model shifts the analytical focus from identifying static determinants of digital transformation to explaining the organizational mechanisms through which transformation occurs. By positioning Project Management Capability as the central link between organizational factors and digital readiness, the model provides a process-oriented and systems-based explanation of how small firms convert internal resources into digitally enabled competitive outcomes.

3. Methodology

This paper employed a multiple-case study design to investigate the technological adoption processes of small service firms. This qualitative approach is particularly suitable for capturing interaction patterns and systemic configurations across cases, enabling a deeper understanding of how organizational elements jointly shape digital transformation outcomes [42]. The focus was on achieving a deep understanding of each case rather than emphasizing generalization. Cases were selected based on accessibility and openness to investigation, ensuring data quality and relevance. The research incorporated both primary and secondary data sources to provide a robust analytical foundation.

Data collection occurred between July 2023 and April 2024. Although the research adopted a cross-sectional design, retrospective evidence was also collected to reconstruct the firms' digitalization trajectories and understand how current digital readiness had emerged over time. This approach was particularly important because digital transformation is a cumulative and path-dependent process, and organizational outcomes often reflect decisions and practices developed over several years.

Cases were selected through purposive sampling based on three criteria: (i) small firm size (10–49 employees); (ii) service-sector operations; (iii) evidence of digital maturity, demonstrated through the use of digital tools in administrative processes, marketing activities, sales channels, or service delivery.

3.1. Data Collection

Primary data were gathered through a combination of in-depth interviews and participant observation. The interviews were designed to explore respondents' motivations, beliefs, and attitudes toward technology adoption, enabling the emergence of nuanced and context-specific insights [48,49]. Structured protocols guided the interviews (Appendix A), balancing direction and flexibility for emergent insights [50,51]. A total of 15 interviews of approximately 60 min were conducted. Respondents are identified in Table 2.

Table 2. Sample Characteristics.

Firm	Country	Sector	Employees	Digital Profile	Respondents
A	Brazil	Internationalization Consultancy	11	Migration from consultancy services to a digital platform	CEO (A1), COO (A2), Marketing Manager (A3)
B		Real Estate	23	Digitalization of property acquisition process	General Manager, (B1) Marketing Consultant (B2)
C		Education and Training	19	Expansion from in-person to online education	CEO (C1), Marketing Manager (C2), Operations Manager (C3)
D	UK	Business Consultancy	10	Development of a proprietary digital platform	CEO (D1), Chief Commercial Officer (D2)
E		Financial Consultancy	14	Digitally enabled global service delivery	Head of Business (E1), Head of Marketing (E2)
F		Non-profit	10	Development of digital learning solutions	CEO/Co-founder (F1), Director of Programmes (F2), Training Officer (F3)

Source: The Authors (2026).

Participant observation complemented the interviews, allowing the systematic recording of behavior patterns, environmental nuances, and unspoken dynamics within natural settings [52]. Observations were unstructured and undisguised, minimizing bias while capturing the subtleties of the phenomena [49]. A protocol was developed to ensure consistency in observation (Appendix B). In total, approximately 30 organizational meetings and activities were observed, including strategic planning sessions, marketing meetings, project discussions, staff meetings, onboarding processes, and performance reviews.

Secondary data consisted of internal and external documentary sources produced either by the participating firms or by third parties referring to them. These materials included company websites, internal reports and strategic documents (when available), marketing materials, newsletters, media articles, photographs, social media content, and other publicly available documents. Rather than serving as an independent unit of analysis, these sources were coded alongside interview transcripts and observation notes to contextualize each case, corroborate organizational narratives, and triangulate evidence regarding digitalization initiatives and organizational practices [53]. Due to confidentiality agreements and the anonymization of participating firms, internal documentary sources are not individually listed in the References Section. Publicly available materials were used exclusively as documentary evidence to support case interpretation and triangulation [53].

Before data collection commenced, the research protocols were submitted to and approved by the Research Ethics Committee of the Federal University of Paraná.

3.2. Sample Selection

The sample comprised six small service firms, three from Brazil and three from England, facilitating a transcultural analysis of organizational and environmental dynamics. CEOs and marketing managers, often the same individuals in smaller firms, were interviewed to understand their dual roles and perspectives. When available, additional specialized marketing staff were included [53].

Brazil and England were selected because both countries present a strong economic relevance of small firms and service industries, while exhibiting different levels of innovation and digital maturity. In Brazil, small firms play a critical role in employment generation and economic activity, yet they often face greater challenges related to innovation and digital transformation. Conversely, England benefits from a more mature innovation ecosystem, higher levels of digital development, and a stronger tradition of innovation among small and medium-sized enterprises [54]. The inclusion of both contexts aimed to increase analytical variation and strengthen the identification of organizational mechanisms associated with digital readiness that transcend specific institutional environments.

To preserve confidentiality, firms were coded as A–F. Firms A, B, and C are Brazilian, whereas Firms D, E, and F are English. Table 2 summarizes the characteristics of the participating firms.

3.3. Data Analysis

Data analysis was conducted systematically using ATLAS.ti 24 (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany) software, which supported the coding and categorization of themes aligned with the research objectives. This process identified recurring patterns and relationships, facilitating a structured exploration of qualitative data [55]. Content analysis further deepened understanding by examining the frequency and context of themes within the theoretical framework.

The coding process combined deductive and inductive approaches. Deductive codes were derived from the theoretical framework. Inductive codes emerged during data analysis when relevant themes not anticipated by the literature appeared repeatedly across cases.

The analysis followed two coding cycles. During the first one, interview transcripts, observation notes, and documentary evidence were coded line-by-line to identify meaningful units of analysis. During the second cycle, related codes were grouped into broader categories and patterns that reflected relationships among the constructs [51].

A formal codebook was developed throughout the analysis process, including code definitions, inclusion criteria, exclusion criteria, and illustrative examples. This iterative procedure helped maintain coding consistency and transparency [56]. Cross-case analysis was subsequently conducted to identify similarities and differences among firms and across national contexts.

3.4. Trustworthiness and Validity

The research adhered to robust methodological principles to ensure credibility and rigor. Triangulation was achieved by utilizing data from multiple respondents within each firm and combining primary and secondary sources, reinforcing the findings' robustness [51]. Transferability was enhanced through detailed descriptions of findings, allowing readers to relate the results to their own contexts, thus improving external validity [55]. Repeatability was maintained by employing consistent methods, protocols, and systematic documentation to enable replication [51]. Reliability was ensured through rigorous documentation and transparent reporting at all stages of the research, guaranteeing consistent results [55]. Finally, validity was strengthened by grounding the research design and analysis in theoretical models, such as those by Bollweg et al. [22] and Varadarajan [57], and by identifying patterns across cases to construct a coherent theoretical framework [58].

4. Results

The analysis that follows is structured to reveal the systemic configurations through which they interact. Three patterns are particularly salient: (i) how culture and knowledge management jointly shape the conditions under which PMC can operate effectively; (ii) how

PMC mediates the translation of these micro-level inputs into coordinated digital action; and (iii) how the presence or absence of systemic alignment distinguishes firms with integrated digital trajectories from those with fragmented ones.

The initial quantitative analysis of the codes revealed how small businesses mobilise their internal assets to achieve digital transformation, which echoes the view of Omrani et al. [16] that internal organizational factors play a more decisive role than external conditions. The frequency of the codes illustrates a prevalence of factors such as corporate culture, leadership, and people in both countries. Through the lens of Resource-Advantage (R-A) Theory, these results indicate that building a comparative advantage depends less on the mere adoption of isolated technologies and more on the systemic integration of heterogeneous human and organizational resources, a central condition of digital readiness [1].

It is worth noting that, of these three factors, “people” and “management/leadership” emerged as inductive codes that were not explicitly mentioned in the example by Varadarajan [7] used to construct the code, although they can be inferred from the author’s definition of strategic marketing. The percentages were calculated based on all strategic marketing codes.

The code “organizational learning” accounted for only 3.06% of all organizational codes, having been mainly linked to learning challenges for effective digitization. On the other hand, “knowledge management” accounted for 11.48% of organizational codes and was more related to meetings, training and tools used in knowledge management.

The socio-technical nature of Digital Readiness becomes evident when analysing the biggest obstacles faced by these organizations [5]. The co-occurrence analysis (Figures 2 and 3) shows that people represent the central challenge, with corporate culture and knowledge management acting as the main points of resistance. This corroborates Vial’s [32] premise, which emphasizes that digital transformation involves the reconfiguration of processes and structures. The lack of this organizational preparedness often prevents technological potential from being realised in practice, resulting in fragmented initiatives and increased complexity.

A cross-case examination of these co-occurrence patterns reveals an important systemic dynamic: in firms where corporate culture actively supported experimentation and knowledge-sharing (notably Firms E and F), knowledge management practices were more effectively mobilized, creating the organizational conditions under which PMC could function as a genuine integrating mechanism. By contrast, in firms where cultural resistance was present or knowledge transfer was restricted to managerial actors (as observed in Firms A and D), PMC was constrained, manifesting as ad hoc coordination rather than structured execution. This asymmetry illustrates a core systemic property of the framework: PMC’s effectiveness as a meso-level mechanism is not intrinsic, but contingent on the alignment of micro-level organizational factors. Digital readiness, in turn, emerges only when this multi-level alignment is sufficiently achieved.

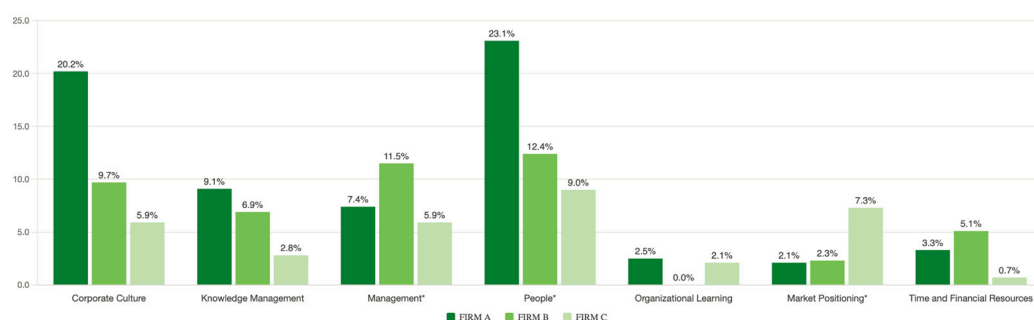


Figure 2. Organizational factors in Brazilian firms. NOTE: The * represents an inductive code. The percentages were calculated based on the total values of strategic marketing dimension. Source: authors.

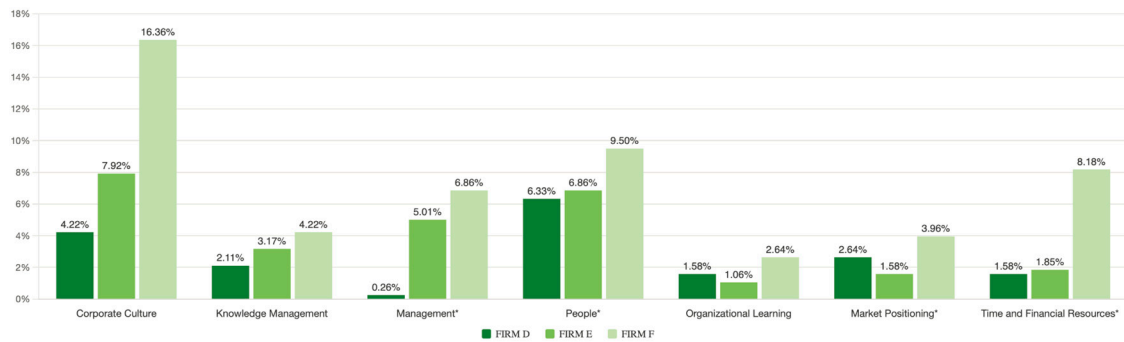


Figure 3. Organizational factors in English firms. NOTE: The * represents an inductive code. The percentages were calculated based on the total values of strategic marketing dimension. Source: authors.

Figure 4 illustrates the interconnections among organizational challenges identified in the analysis, structured as a network graph in which node size reflects the relative frequency or salience of each theme. The central node, “Challenges,” represents the overarching category, directly connected to four core factors: “People,” “Management/Leadership,” “Organizational Learning,” and “Time and Financial Resources.” Among these, “People” emerges as the second most prominent node, functioning as an intermediate hub that links the central challenges to three additional, more specific factors: “Corporate Culture,” “Resistance,” and “Knowledge Management.” This structure suggests that human-related aspects play a central mediating role in shaping how organizational challenges manifest, connecting broader structural constraints (e.g., resource and leadership limitations) to more behavioral and cultural dimensions (e.g., resistance to change and knowledge-sharing practices) within the firms analyzed.



Figure 4. Challenges related to organizational factors in Brazilian firms. Source: authors.

5. Discussion

The findings of this study underscore the importance of internal organizational factors in shaping digital transformation processes within small businesses. In line with previous research, elements such as culture, knowledge management, organizational learning and leadership have been shown to play a significant role in influencing how companies engage with digital technologies [17,18,36,37].

However, rather than acting as isolated precursors to digital readiness, these factors operate as interdependent components of an organizational system that require coordina-

tion, alignment and implementation to generate effective results [7,12]. One contribution of this study lies in demonstrating that the relationship between organizational factors and digital readiness is not direct but mediated by organizational mechanisms that enable their translation into coordinated action.

In particular, the results indicate that companies with more advanced and coherent digitalization trajectories are capable of mobilizing internal resources through structured and adaptive implementation practices. As evidenced by the contrasting cases of Firm A and Firm F, as well as the implementation of cross-functional routines like sprints and centralized project leadership (squads), this supports the interpretation of Project Management Capability as the primary organizational mechanism through which organizational factors are implemented and coordinated in their execution [23–26,47].

Empirical evidence from the case studies (summarized in Table 2 and illustrated in the cross-case analysis in Figures 2 and 3) demonstrates that companies with better digital outcomes tend to exhibit higher levels of coordination, integration and alignment across functions, decision-making processes, and digital initiatives. These companies are not necessarily those with the greatest availability of resources (as discussed in the subsequent qualitative accounts of Firms D, E, and F), but rather those that are best able to structure, prioritize and execute digital initiatives in a coherent and iterative manner, reinforcing the notion that competitive advantage depends on how resources are integrated and allocated [6,8].

A notable pattern emerging from the case studies is the distinction between fragmented and integrated digitalization trajectories. Companies with lower levels of digital maturity tend to implement isolated, function-specific digital initiatives, whilst more advanced companies demonstrate a greater degree of integration across channels, functions and processes. This reinforces the role of Project Management Capability as a coordination mechanism that enables the alignment of disparate initiatives into coherent transformation processes [23,25].

For instance, Firm A, despite reporting strong cultural commitment to digital growth and active knowledge management routines (daily sprints, structured team meetings), exhibited a systemic bottleneck at the PMC level: the absence of a dedicated digitalization leader created a coordination gap that prevented cultural intent from being converted into structured execution. In contrast, Firm F, operating under significant external constraints (limited internet access in remote communities), compensated through high cultural resilience and structured PMC, developing offline platform solutions that reflect the system's capacity for adaptive reconfiguration. These contrasting configurations illustrate that digital readiness is not the additive sum of individual factors, but the product of their systemic interaction, and that a weakness in any one level of the framework can disrupt the entire transformation process.

Although the literature often highlights financial constraints as a major barrier to small [21], the findings show that, in the present sample, time and financial resources were not considered determining factors for the success of the strategic digitisation process. The success of the companies surveyed reinforces the argument by Bollweg et al. [22] that financial capacity alone is insufficient to explain the results of digital transformation, and that managerial readiness and the company's willingness to lead the process carry much greater weight.

The statements made by managers illustrate this dynamic. Representatives from companies D and F pointed out that more time and financial resources facilitated growth. However, as the Programme Director at Company F acknowledges, the vital element is strategic direction: 'money is important [...] but it's also about having clear ideas and decisions [...] it's about making the decision: do I want to use this resource or not?' This

perception is in line with Hunt's [8] view that advantage arises from how resources are implemented, not just from having them.

This resource allocation decision reflects the adaptive capacity of firms [12]. A priority for investments in marketing and new technologies was observed, even in a scenario of more limited resources. Firm E illustrates this need, seeing technology as an essential mechanism for freeing up 'time resources' and dealing with increasingly digitised market demands.

However, the real bottleneck lies not in the tools, but in human integration. The Head of Marketing at Company E summarises the concept of digital readiness, updated by Vial [32], by stating that the biggest challenge is 'to ensure that all human effort contributes to the optimal functioning of the tools.' This confirms that digitisation is a reconfiguration of processes and structures, not just an IT upgrade.

Firm E mentioned that technology would help free up time for some activities, citing the overwhelming number of unread emails and the various tasks demanding their attention:

I have 800 emails unread from the past, I don't know, two years. So I can't reply to all of them. And it's a shame because I wish I could. And on top of that, we have the LinkedIn outreach that we need to do, and we have the client managing, and we have set up of new accounts, and we have to lead source new clients. I think more technology will be necessary (E1).

First The CEO of Firm D also commented on marketing efforts requiring time to gain traction: "I think that was probably one of the challenges, I think, as I mentioned before the marketing effort, it's almost like you just have to start to get a little bit of traction on one marketing platform and that can take time" (D2).

It is important to note that the findings also highlight the constraints faced by small businesses, particularly in terms of limited resources, less formalized structures and a heavy reliance on managerial decision-making [2,5]. These limitations are further exacerbated by low levels of structural formalization, which restrict the presence of standardized processes and formal coordination mechanisms. In such contexts, organizations rely more heavily on ad hoc routines and managerial coordination, thereby increasing the relevance of Project Management Capacity as an organizational framework that compensates for structural limitations. To achieve these objectives, companies have demonstrated strong concern for their employees. At Companies A, B, and C, evaluation routines, development plans, and valuing team opinions show an active effort to nurture human capital, recognising it as a fundamental force for innovation.

According to the Head of Marketing at Firm E, "The biggest challenge is to get all human effort to contribute to the optimal functioning of the tools" (E2). In other words, the challenge is not tool-related, but rather ensuring that people use technology to its fullest potential.

The code that had the highest occurrences was related to people, and interestingly, a connection between people and the inductive code about digitalization challenges was also observed. In all companies, there seems to be a concern for employees and their growth. Firm A and Firm C hold daily meetings, employee development plan, and the staff seem to enjoy working in the company. In Firm B, despite not having daily meetings, the concern for employees is even more evident. During meetings, it was clear that the manager always asked for employees' opinions, inquired about everyone's plan for the year, and praised good performances. In a newspaper article, the CEO mentioned that the work is only possible thanks to a skilled team, people who stay updated with trends to improve service.

In one of Firm A's internal documents, it was written that "The success of our company depends on the growth and well-being of its individuals because they are the driving force behind innovation, productivity, and overall progress. Investing in people's development is not just a choice but a necessity". Despite the effort in promoting employee's growth, Firm A and Firm C mentioned that there is internal resistance to technology adoption, and often, some individuals are already accustomed to certain tools, requiring a learning curve for migration. As postulated by Weiner [19], readiness for change requires a shared psychological and behavioural state that takes time to build into the entrenched routines of an organization. According to the CEO of Firm C:

When I started talking about this, there was a lot of internal resistance, for example, from the technical director, who never embraced digital, never embraced online, never embraced technology. He used to say at the time that it was a trend, that it was just an idea, it was a trend that would pass. And the other consultants also thought it was impossible for someone to learn from a video and so on. I persisted, and today I don't need to make much effort to show that this is the trend, period (C1—our translation).

The heterogeneity of resources in R-A Theory is also manifested through cultural diversity. While Brazilian firms reported more homogeneous teams, British firms (E and F) explicitly associated their capacity for innovation with diversity in terms of origins, ages and nationalities, translating this richness into socio-cultural advantages that leverage continuous improvement. As interviewee E1 stated, "Of course we are all different people, different ages, different locations, different origins, and therefore, at the level of cultural basis, we bring diversity and richness" (E2). Similarly, interviewee F2, states: "I think that also the diversity of the team brings the opportunity for that to continue improving" (F2).

At Firm E, the founder, drawing from the experience as one of the few women on a London trading floor, sought to create a more inclusive and diverse company. She actively challenges the traditional brokerage culture, fostering an open-door policy, and encouraging idea sharing and innovation. A news article highlighted her leadership style as a response to the lack of employee voice and female representation in traditional financial institutions, emphasizing her hands-on approach with the team. An online document further corroborated this, noting that Firm E's leadership creates a unique organizational culture that enhances strategic results. As demonstrated by Pingali et al. [1], leadership orientation is an indispensable multidimensional aspect of digital readiness in small business.

One notable aspect is that English companies also have an innovative culture, with some degree of differentiation or pioneering. Firm A sees itself as a pioneer in creating a platform for business internationalization; Firm B, similarly, considers itself a pioneer in the real estate industry by digitalizing processes to simplify them for consumers; and Firm C claims to be a pioneer in creating a Lean Training School in the region. Firm D, unable to find the desired solution in the market, decided to develop it internally despite the inherent risks. Similarly, Firm E found an opportunity to provide solutions where there was previously no space, despite working in a risky market. Meanwhile, Firm F has always maintained an innovative and resilient mindset creating a widely recognized methodology for its services.

Company F exemplifies the power of resilience over strict technological constraints. Operating in remote communities without basic Internet access, its leadership drives the development of solutions such as offline platforms similar to Moodle to address limited internet access. According to the CEO, this culture is their greatest strength, helping them navigate external challenges.

Corroborating with that, the Director mentioned that, despite the founders not having a business background and not understanding much about marketing, the company functions because of their passion for the business and projects. That is, it's the desire to make things happen that shapes the company's trajectory:

We're not necessarily natural marketers. We're trying to do the work. We love the work and we love the projects, and we're trying to make a company work and succeed so that we can do the project so we can do the work. Making the company work is like... It's something we have to do, but we don't necessarily... You know what I mean? I don't know. It's an interesting challenge. I am interested in that entrepreneurial stuff. We are a bit... we are entrepreneurs, but we're not like... None of us have been to business school. None of us have really learnt. We don't have that background. So I suppose we do the best we can and we do what we need to do. Our real passion, though, lies in the work (F3).

In his remarks, F3 emphasized the importance that he, as a manager, and the organization as a whole place on continuous learning. While acknowledging that he is not an expert in all aspects of business, he stated that his passion for the work is what keeps him motivated and moving forward. Moreover, for the Learning and Training Officer, it was the founders' stance that brought the innovative culture contributing to the companies' long-term strategic results:

How has [Firm F] evolved since its inception? I think that the two who founded it, have always had disruptive minds. So, being them, perhaps they think, let's say, that outside the box, I think that influences the leadership they have and how they present these ideas to the team, I think that influences it (F2).

He also adds that another influencing factor for such culture is being a smaller organization, as he knows people in larger organizations who don't have as much freedom to propose new things and take risks, often facing more bureaucracy and needing numerous approvals. This inclination to take risks is made possible by the more flexible structures typical of small. The training officer at Company F pointed out that smaller environments suffer less from the bureaucracy of approval common to large corporations, facilitating the continuous and proactive renewal and reinvestment postulated by R-A Theory [28].

In addition, as external events unfolded, they learned and increasingly utilized technologies as they realized their benefits, indicating that organizational learning drives technological adoption. Although there is initial resistance, once they understand the benefits of digitalization, they embrace it and strive to persist. According to A1: "I wouldn't even say that there was some resistance; I'd say it's more a lack of knowledge or... because once they see it, they say: how cool!" (A1—our translation). In Firm C, initially, the digital courses did not yield the same results as in-person ones, but they are learning the best way to develop it, because they know it is necessary. The Marketing Manager commented: "We have been approaching this carefully, trying to be a bit less technical and more focused on the product. It wasn't a lack of investment—there was a lot of investment—but rather a lack of knowledge in the product development process" (C2—our translation).

Similarly, F1 explained that past events had provided relevant reflections, leading to improvements in their digital approach, showing responsive adaptation [38]. For example, using different tools or sending optimized documents to reduce data consumption:

All that knowledge had already been used, and instead of making calls via Zoom, it was kind of like from what we learned last time, we organized it through WhatsApp. Similarly, things like making the PDFs lighter so they wouldn't consume too much data for the partners, so I did everything more personalized, according to what we learned from the first generation of Fellowship (F1).

Furthermore, the findings highlight that digital transformation in small businesses often unfolds through incremental, experimental and iterative processes, characterized by trial and error and learning by doing, reinforcing the role of organizational learning [36,38]. This suggests that organizational learning and knowledge management operate not merely as background conditions, but as active elements that support the continuous refinement and adjustment of digital initiatives through project-based implementation mechanisms [18,25,37].

When this learning fails to take shape, Knowledge Management challenges arise. Company D identified a serious gap, the Insight Gap, resulting from the disconnect between collected information and its effective use. By developing its own digital solution for this, the company demonstrated in practice the processes of knowledge creation and integration that are vital to strategic results. As the CEO stated, “There was a genuine need as well in terms of. . . , we found that we were putting full of information in different places and it was hard to bring it all together” (D2).

An internal document echoed this sentiment, justifying the tool’s development and highlighting the abundance of available tools and the difficulty of integrating them. The document noted: “Even when information is collected, a disconnect can exist between it and its actual use, known as the Insight Gap. This leads to ill-informed decisions, lost organizational knowledge, and wasted resources”. While related to knowledge management, this initiative also exemplifies the company’s and its leader’s innovative culture, seeking digital solutions to emerging challenges.

Furthermore, the need for a specific person to stimulate the digitalization of the company as a whole and marketing, in particular, became evident. As observed in the above quote, the digitalization of Firm C was strongly driven by the CEO (management/leadership). However, in other companies, although the initiative had full CEO support, it came from other actors. In Firm A, the Marketing Manager mentioned that it was an intensified movement by the CFO: “I think that’s one of his objectives. I feel that, right? I don’t know, but he has this goal anyway, let’s make this company as digital as possible because that’s what we need for everyone to breathe”. (A3—our translation). Corroborating with this view, A2 emphasized the need of a person and time to proceed with the digitalization process:

If we don’t have a fixed person, and if we don’t give the necessary cadence, digitalization doesn’t happen, it doesn’t happen, mainly because I need someone responsible. I think that’s the main point, the person who will lead digitalization. But this person can’t do it alone while handling other tasks as well. . . (A2—our translation).

In Firm B, as mentioned, it was the CEO’s daughter who, when joining her father’s company, brought a different vision to the business. The CEO fully supported the implementation of these technologies. According to Interviewee B2: “When the second generation, came in, he saw how the real estate market was very bureaucratic, 100% physical. If the person doesn’t go to the registry office, if they don’t go there, if they don’t pick up keys, nothing works, and the difficulties people had with that”. Subsequently, with the entry of a new director, the movement was intensified with new tools.

Complementary, according to the Marketing Manager of Firm C, the team can influence the process, but it must have the support of higher positions: “So, what I believe is this, it’s the vision of top leadership. . . does the team influence? The team can influence, but I still think that this top-down vision ends up subjugating the bottom-up” (C2—our translation). In summary, it is evident that there must be someone leading the digitalization process. This person does not need to be the CEO, but it needs to have their support.

Thus, it is possible to see that in Companies A, B, and C, digitisation required the driving force of key individuals (whether the CEO or CFO) with institutional support to ensure implementation. As Pingali et al. [1] point out, small companies often have strategic intent but fail without managerial guidance to coordinate the operational structure.

Furthermore, the findings reveal that organizational factors, such as leadership direction and a culture of innovation, play a crucial role in determining how digital initiatives are prioritised and implemented [37,39]. However, their influence only becomes effective when incorporated into routines and processes that enable coordination, learning and adaptation over time, a pattern consistent with the broader dynamic capabilities literature [12,29], but enacted in this study's framework specifically through Project Management Capability as the meso-level execution mechanism. In small businesses, this process is strongly influenced by the central role of the owner-manager, whose insight, experience and strategic direction directly shape the prioritisation and implementation of digital initiatives. This centralization amplifies the importance of Project Management Capability, given that decision-making, coordination and execution are generally concentrated among a limited number of actors [5,16].

When mature, this leadership embraces dynamic flows. Firm F provides ample room for experimentation for the team to test and evaluate innovations. Far from seeing Artificial Intelligence tools as competitive threats, managers at Firms F and E actively seek to reabsorb them to automate tasks and avoid human error, adding even more value to corporate work.

The Director of Programs of Firm F adds that the founders give a lot of space to everyone, which helps to develop this innovative culture:

The founders are very open and provide ample space for experimentation. So, on the one hand, there are things that they bring, that they want to do, that they would like to try, but they also give space, that if someone comes and says from the team I want us to do this, 'What do you think? Is there room for that? No?' So, for me, culture is made on both sides. The leaders of an organization are key, but also, the culture of space to speak, to say if not to... to be like constructive criticism, and also to bring other alternatives and options (F1).

This innovative attitude was also noticeable in one of the meetings where the CEO's first question to the team was if they were using artificial intelligence and modern applications like ChatGPT. One team member replied in concordance but said that always checked to see if it aligned with the company's positioning. He praised the usage and gave some tips on how to leverage it best, such as using different prompts, challenging the tool, etc.

It is interesting to note that he has a very optimistic view of technology and does not see it as a threat, even when developed applications overlap with the services they provide. For example, they have a methodology that uses videos to give voice to communities. The Director acknowledges that with artificial intelligence, many videos will be made without the need for filming, but sees this much more as a positive than a negative point: "That can be another great tool if we can absorb it again into our collaborative way of working... We can always incorporate it into that way of working and it will add value" (F3).

The same proactive stance towards technology can be seen in a statement from the Head of Marketing at Firm E. According to him, the more digital things are, the better, as this helps avoid human error: "Anything that can be automated, precisely to avoid human error, great" (E2).

Another interesting aspect is that, in general, employees in lower positions reported that the strategic marketing digitalization had already reached its limit, but the CEO always commented that there was still much to be done in this regard. According to the CEO of Firm A: "I think we end up staying at a first layer, in a first degree, maybe in implementation, and in the comfort zone, when we could go further" (A1—our translation).

This aligns with recent literature that Digital Readiness is not a static achievement, but a process of continuous development [1,32].

On the other hand, the Marketing Manager of the same company commented: “As the company has grown a lot, I think we have some things to improve, even in digitalization, but there’s nothing that I say, ‘we don’t have this,’ you know, nothing that is really missing” (A3—our translation). Similarly, the CEO of Firm C mentioned, “So far, we haven’t figured out the strategy to scale and have large volumes and recurrences in the company. And this is our biggest challenge right now” (C1—our translation), and the Chief of Operations of the same firm said: “Look, I confess to you that we are in the best moment of marketing strategy that we’ve had since I’ve been here” (C3—our translation).

This interpretation allows digital readiness to be reframed, shifting from a static prerequisite to a dynamic organizational outcome that emerges from coordinated action [1,19]. Companies that rely on fragmented, reactive or ad hoc digital initiatives tend to achieve limited results, whilst those that adopt more structured and coordinated approaches achieve more consistent and scalable outcomes. In many cases, digital technologies are initially adopted in a reactive and operational manner, with little alignment to broader strategic objectives. However, companies that progress to more advanced stages of digitalization demonstrate a shift from tactical adoption to strategic integration, in line with the literature on digital transformation [15,32–34].

Even with the use of artificial intelligence and other applications, firms are concerned with the form of communication and how their market positioning is being addressed. The other companies also mentioned how they want to be perceived. Firm D, for example, commented that as they developed their knowledge management tool, they realized their positioning was different from what the company preached, prompting them to begin the process of separating the companies to convey a more coherent message to the market. As the CEO stated, “The missions kind of didn’t align” (D2).

Thus, as the company becomes more digital, it also tends to communicate this through a clear positioning. Thus, there may be a spin-off for another company or for a product with another brand, even if it belongs to the same group. For example, Firm C presents itself as a group but has made efforts to create new branches, such as the courses platform, which has a different name, or the automation sector, which, despite being part of the large umbrella, is also presented differently. According to the CEO: “The goal of this was primarily to start positioning ourselves differently in the market, and secondly, with the growth in revenue, there is also a dissolution in relation to taxes, right?” (C1—our translation).

Regarding knowledge management, despite their flexibility, the use of digital tools to make knowledge more accessible is common, and, as the organization grows, the need for these tools increases. According to A3: “We were able to speed up our internal communication with WhatsApp and other tools. As we expanded and had more people in different time zones, we started incorporating additional tools and other resources”.

Moreover, as previously mentioned, these companies strive to maintain close relationships with their employees, which aids in the dissemination of information. They establish routines of meetings and workflows to facilitate this process. For example, Firm A operates through project sprints and holds daily meetings, sometimes collectively and sometimes individually. It was observed in several meetings with the team that there was clear organization and a good flow of information. The meetings ran smoothly and effectively. Likewise, according to the CFO:

We have individual meetings for planning, daily stand-ups, and retrospectives within each department’s sprint. Additionally, we have two collective meetings during each 15-day sprint. One is a team meeting where everyone gets updated on everything happening within the company, including a bit of personal talk.

We also have a monthly all-hands meeting, a four-hour session where I present major changes, new developments, a recap of the previous meeting, ongoing projects, and negotiations (A2—our translation).

Another aspect contributing to knowledge management, observed in two companies, is the use of more flexible structures, such as squads, where projects have leaders responsible for centralizing information. Still according to A2: “We are starting to assign project leaders now. Previously, everyone managed everything simultaneously, which worked to some extent. This allowed us to identify who is better suited for leadership and who excels as a specialist, focusing on execution”. Similarly, E2 said: “Organizing and centralizing processes internally brought significant benefits. Tasks that used to be slow have become faster and more efficient.”

As they reach this maturity, market positioning needs to be adjusted. Mission incompatibilities (as in the case of Firm D) or the need for tax efficiency (Firm C) have led to brand separation strategies (spin-offs and new verticals), reflecting the new heterogeneous capabilities built by the organization. Finally, to sustain continuous flow in dynamic market conditions, these firms consolidate their management by structuring routines (such as Firm A’s sprints and Firm E’s centralisation). These actions highlight the organization as a socio-technical adaptive system [5], in which Digital Readiness allows human and technological assets to cohesively drive competitive advantage.

A comparative analysis of the cases also indicates that these patterns are consistent across different national contexts, suggesting that the mechanisms linking organizational factors to digital outcomes are not context-specific, but are structurally embedded in the way small businesses organize and execute their transformation processes. This reinforces a systemic perspective, in which value creation emerges from the interaction and alignment of organizational elements, rather than from isolated factors [24].

Overall, this research contributes to the literature by shifting the focus from identifying the determinants of digital transformation to explaining the organizational mechanisms through which transformation occurs. By positioning Project Management Capability as the link between organizational factors and digital readiness, the study provides a systemic, process-oriented and capability-based explanation of how small businesses convert internal resources into digitally enabled outcomes, aligning with Resource Advantage Theory and contemporary perspectives on digital transformation [7,8,12].

6. Conclusions

This research set out to explain how organizational factors translate into digital readiness in small firms. The main findings reveal that internal factors, such as corporate culture, knowledge management, and organizational learning, do not directly generate digital readiness. Instead, their influence is strictly mediated by Project Management Capability (PMC), which operates as the central organizational mechanism coordinating and integrating these resources into coherent digital initiatives.

6.1. Theoretical Contributions and Practical Implications

This study advances the literature on digital transformation, organizational theory, and project management by offering a process-oriented and systems-based explanation of how internal organizational conditions are translated into digitally enabled outcomes in small firms. This distinction is theoretically significant: by treating digital readiness as the organizational precondition and digital transformation as the enacted process, the study provides a more precise conceptual architecture that clarifies the sequencing and interdependence of these constructs.

First, this research contributes to the digital transformation and digital readiness literature by shifting the analytical focus from a determinant-based perspective toward a process-oriented understanding of how digital readiness emerges. Prior studies have predominantly conceptualized digital readiness as a set of antecedent conditions—such as technological resources, managerial commitment, or strategic intent—without sufficiently explaining how these elements are operationalized within organizations [1,19,32]. By contrast, this study conceptualizes digital readiness as an emergent organizational outcome, resulting from the coordinated interaction of resources, capabilities, and processes within socio-technical systems [5]. In doing so, it addresses a critical gap in the literature by explaining not only what enables digital transformation, but how such transformation is enacted in practice.

Second, the study extends Resource-Advantage (R-A) Theory by providing a micro-foundational and process-based explanation of resource integration. While R-A Theory emphasizes that competitive advantage arises from the effective integration and deployment of heterogeneous resources [6–8], it offers limited insight into the organizational mechanisms through which such integration occurs. This research advances the theory by demonstrating that resource integration is not an abstract or automatic process, but one that depends on organizationally embedded coordination mechanisms that structure action over time. By empirically linking organizational factors to digital outcomes through a mediating mechanism, the study deepens the explanatory power of R-A Theory in contemporary digital contexts.

Third, and most importantly, this study introduces Project Management Capability (PMC) as a central organizational mechanism that connects internal resources to transformation outcomes. Although prior research has acknowledged the importance of implementation processes in digital transformation, project management has often been treated as a technical or operational function rather than as a strategic organizational capability. By conceptualizing PMC as the organizational ability to coordinate, integrate, and execute interdependent activities under conditions of complexity and change [23–26], this study repositions project management within the broader capability-based view of the firm.

Importantly, this conceptualization explicitly differentiates PMC from dynamic capabilities, extending the distinction introduced in the theoretical framework. Dynamic capabilities operate at the strategic level, enabling firms to sense opportunities, seize them, and reconfigure resources in response to environmental change [12]. PMC, by contrast, operates at the meso level as an execution-oriented capability that provides the coordination infrastructure through which dynamic capabilities are enacted in practice. In this sense, the two constructs are complementary but occupy distinct theoretical positions: dynamic capabilities define the firm's strategic orientation and adaptive potential, while PMC determines whether and how that potential is converted into structured organizational action. This theoretical division of labour clarifies the role of execution capabilities in value creation processes and responds directly to calls for more precise capability-based explanations of digital transformation outcomes.

Fourth, the study contributes to the literature on organizational factors by demonstrating that elements such as culture, knowledge management, organizational learning, and leadership do not exert a direct effect on digital outcomes. Instead, these factors function as an interdependent resource base whose impact depends on how they are mobilized, aligned, and enacted within organizational systems. This finding challenges linear and factor-based models of digital transformation and supports a more systemic perspective in which outcomes emerge from the interaction of multiple organizational dimensions [12,17,18,36].

Fifth, this research contributes to the growing body of systems-oriented studies by conceptualizing digital transformation as a socio-technical and emergent phenomenon. By integrating insights from systems theory and project management, the study shows that digital readiness is not the result of isolated interventions, as evidenced empirically by the contrasting systemic configurations observed across the six cases, in which variations in digital outcomes were consistently associated with differences in the alignment between micro-level organizational factors and meso-level execution mechanisms, but of coordinated interactions between organizational structures, knowledge processes, and digital technologies [24]. This perspective aligns with and extends existing systems research by emphasizing the role of organizational mechanisms in enabling system-level coherence and adaptation.

Finally, the study offers an important empirical contribution by focusing on small firms, a context that remains underexplored in the digital transformation literature. By adopting a qualitative, cross-cultural design, the research provides rich insights into how resource constraints, managerial centralization, and limited formalization shape the way digital transformation unfolds in practice. The findings demonstrate that differences in digital outcomes are less associated with resource availability and more with the ability to structure, prioritize, and coordinate digital initiatives, reinforcing the central role of Project Management Capability.

Taken together, these contributions advance the literature by proposing a multi-level, process-oriented, and systems-based framework in which:

- Organizational factors represent the resource base;
- Project Management Capability functions as the central coordinating mechanism;
- Digital readiness emerges as an organizational outcome;
- And competitive advantage is achieved through effective resource integration.

By moving beyond static and factor-based explanations, this study provides a more comprehensive understanding of how organizations convert internal resources into digitally enabled value, particularly in resource-constrained environments.

The managerial contributions of this study demonstrate that digital readiness in small firms should not be treated as an isolated technological event, but as an evolution of the organization's sociotechnical capabilities. For managers, the focus should shift toward strengthening Project Management Capability (PMC), which serves as the central mechanism for integrating heterogeneous resources (such as culture, organizational learning, and knowledge management) and converting strategic intent into coordinated execution. The findings suggest that the structuring, prioritization, and integration of digital initiatives are more critical to superior performance than the mere availability of financial resources, challenging the perception that capital scarcity is an insurmountable barrier to digital success. Furthermore, leadership plays a critical role in guiding the operational structure and fostering an organizational culture that supports experimentation and continuous development. By aligning these internal factors through coordinated processes, small firms can ensure that technological transformation results in superior value creation and long-term competitive sustainability.

6.2. Limitations and Future Recommendations

While this study advances a systems-based and process-oriented understanding of digital readiness, its scope leaves several theoretical and empirical avenues unexplored, which open promising directions for future research.

First, although the study identifies Project Management Capability (PMC) as a central integrative mechanism, it does not fully unpack the internal architecture of this capability. Future research could move beyond treating PMC as a unified construct and instead

investigate its micro-foundations, such as coordination routines, governance structures, temporal pacing, and decision-making logics. This would allow scholars to examine how different configurations of PMC produce distinct digital transformation trajectories, potentially identifying archetypes of capability deployment across firms.

Second, the study conceptualizes digital readiness as an emergent outcome, but does not explicitly model its developmental stages. Future research could adopt a processual and longitudinal perspective to map how organizations evolve from fragmented digital initiatives toward systemic integration. Such studies could identify critical transition points, path dependencies, and tipping mechanisms that explain why some firms successfully scale digital transformation while others remain locked in early-stage adoption.

Third, the cross-cultural design reveals structural similarities across contexts, yet deeper institutional and environmental influences remain underexplored. Future studies could incorporate multi-level analyses to examine how national institutional logics, industry structures, and ecosystem dynamics interact with organizational factors and capabilities. This would enable a more nuanced understanding of how context shapes the enactment of digital transformation processes.

Fourth, the role of individual actors, particularly in small firms, emerges implicitly but is not theorized in depth. Future research could integrate micro-level perspectives, such as managerial cognition, leadership sensemaking, and digital mindset, to explain how strategic intent is formed and translated into coordinated action. This line of inquiry would be especially valuable for understanding how agency interacts with structural constraints in resource-limited environments.

Fifth, although the study acknowledges the presence of digital technologies, it does not explicitly theorize their evolving role as active components within socio-technical systems. Future research could explore how emerging technologies, such as artificial intelligence, automation, and data-driven systems, reshape coordination mechanisms, redistribute decision authority, and alter the boundaries between human and technological agency. This would extend the framework toward a more dynamic and technology-embedded understanding of organizational systems.

Finally, future research could advance this framework through mixed-method and quantitative designs, enabling the testing and refinement of the proposed relationships across larger samples. In particular, examining mediation, moderation, and configurational effects (e.g., through SEM) could provide deeper insights into how different combinations of organizational factors and capabilities lead to superior digital outcomes.

Taken together, these directions suggest that digital readiness should not be viewed as a static construct or a linear outcome, but as a continuously evolving, multi-level phenomenon shaped by the interplay of organizational structures, human agency, and technological systems. Expanding research along these lines can significantly deepen our understanding of how firms build and sustain digitally enabled competitive advantage.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Research Ethics Committee (or Ethics Committee) of the Applied Social Sciences Sector at the Federal University of Paraná (protocol code 69910623.6.0000.0214 on 16 June 2023).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. All participants signed a Free and Informed Consent Form (TCLE) approved by the Research Ethics Committee, which ensured voluntary participation, confidentiality, anonymity, and the right to withdraw from the study at any time.

Data Availability Statement: The data supporting the findings of this study are available from the corresponding author upon reasonable request. Due to ethical considerations and compliance with the Brazilian General Data Protection Law (Lei Geral de Proteção de Dados—LGPD, Law No. 13,709/2018), the interview data contain information that could compromise participant privacy and therefore cannot be made publicly available. Requests for access to the data will be considered on a case-by-case basis, subject to ethical approval and applicable legal and institutional requirements.

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Appendix A

Table A1. Research Protocol.

	English Version	Portuguese Version
Block 1		
Central question—general objective	How would you describe the digitalization, that is, the insertion of digital technologies to create value, in your company?	Como você descreve a digitalização, ou seja, a inserção de tecnologias digitais para criar valor na sua empresa?
	And how does it occur in your marketing activities?	E como ocorre esse processo nas suas atividades de marketing?
Subquestions	Tell me about the company's history and adoption of new technologies. What was the process like 10 years ago, and 5 years ago, leading up to the present moment?	Conte-me sobre a história da empresa e a adoção de novas tecnologias. Como foi o processo 10 anos atrás, e 5 anos, em uma regressão até o momento presente?
	Are you strategically concerned with the long run? Describe how do you see the company in the future.	Vocês se preocupam estrategicamente com o longo-prazo? Descreva como você vê a empresa no futuro.
	Describe how do you try to create long-term value for your customers	Descreva como a sua empresa tenta criar valor de longo prazo para seus consumidores
	What are the main difficulties you face when trying to implement digital technologies?	Quais são as principais dificuldades que você enfrenta ao implementar novas tecnologias digitais?
	Please describe how is your relation with your clients, suppliers and stakeholders, in general	Por favor descreva a sua relação com clientes, fornecedores e stakeholders, em geral.
	Describe how do you think the relationship with other companies and stakeholders influences digitalization?	Descreva como a relação da empresa com outras empresas e stakeholders influencia a digitalização.
	Describe how environmental factors, such as the government, the economy and the country's culture, influence the digitalization process	Descreva como fatores ambientais, como o governo, a economia e a cultura do país influenciam o processo de digitalização.
	And how about the digitalization's drivers and barriers? How would you describe them?	E sobre os impulsionadores e barreiras da digitalização? Como você os descreveria?
	How would you describe the marketing strategy within your company? What are the difficulties?	Como você descreve a estratégia de marketing da sua empresa? Existem dificuldades?
	Describe your role in technology implementation and the companies' strategy, please.	Descreva o seu papel na implementação de novas tecnologias e na estratégia empresarial, por favor.

Table A1. Cont.

	English Version	Portuguese Version
Block 2		
Central question—first specific objective	Describe how is the digitalization process according to the management of your company? That means the internal processes that can bring more efficiency to it.	Descreva é o processo de digitalização de acordo com a gestão na sua empresa? Ou seja, compreendendo os processos internos que podem ser mais efetivos com o uso de tecnologias digitais.
Subquestions	How do you think the digitalization of these processes affects long-term performance? You can think about it in a retrospective manner.	Como você acha que a digitalização desses processos influencia a performance de longo prazo? Pense de forma retrospectiva, desde a implementação até o momento presente.
	Describe how organizational aspects are influenced and influenced by it? Like the culture and the organizational learning.	Descreva quais organizacionais influenciam e são influenciados por isso? Como a cultura e o aprendizado organizacional.
	Describe how interorganizational aspects are influenced and influenced by it? For example, your relationship with suppliers, customers and competitors.	Descreva quais aspectos inter-organizacionais influenciam e são influenciados por isso? Por exemplo, sua relação com fornecedores, consumidores e concorrentes.
	Describe how environmental aspects are influenced and influenced by it? For example, the market, the government, etc.	Descreva quais aspectos ambientais influenciam e são influenciados pela administração digital? Como o mercado, o governo, etc.
Block 3		
Central question—second specific objective	And regarding the digital marketing strategy? That means, the channels you use to communicate with customers?	E com relação à estratégia de marketing digital, ou seja, os canais utilizados para estabelecer uma comunicação e um relacionamento com os consumidores?
Subquestions	How do you think the digitalization of these processes affects long-term performance? Again, you can think about it in a retrospective manner.	Como você acha que a digitalização desses processos influencia a performance de longo prazo? Novamente, pense de forma retrospectiva, desde a implementação até o momento presente.
	Describe how organizational aspects are influenced and influenced by digital marketing?	Descreva quais organizacionais influenciam e são influenciados pelo marketing digital?
	Describe how interorganizational aspects are influenced and influenced by digital marketing?	Descreva quais aspectos inter-organizacionais influenciam e são influenciados pelo marketing digital?
	Describe how environmental aspects are influenced and influenced by digital marketing?	Descreva quais aspectos ambientais influenciam e são influenciados pelo marketing digital?
Block 4		
Central question—fourth specific objective	And how about the digital sales channels? Describe how it works, please.	E com relação aos canais de venda digitais? Descreva como funcionam, por favor.
Subquestions	How do you think the digitalization of these processes affects long-term performance?	Como você acha que a digitalização desses processos influencia a performance de longo prazo?
	Describe how organizational aspects are influenced and influenced by digital sales channels?	Descreva quais organizacionais influenciam e são influenciados pelos canais de venda digitais?
	Describe how interorganizational aspects are influenced and influenced by digital sales channels?	Descreva quais inter-organizacionais influenciam e são influenciados pelos canais de venda digitais?
	Describe how environmental aspects are influenced and influenced by digital sales channels?	Descreva quais ambientais influenciam e são influenciados pelos canais de venda digitais?

Table A1. Cont.

	English Version	Portuguese Version
Block 5		
Central question—first specific objective	And regarding the digitalization of your offer. How do you aggregate digital elements to it? For example: a QR Codes, digital payments, or any other benefit.	E com relação à digitalização da sua oferta? Como você agrega elementos digitais a ela? Por exemplo um QR Code ou pagamentos digitais, ou algum outro benefício digital.
Subquestions	Describe how do you think the digitalization of these processes affects long-term performance.	Descreva como você acha que a digitalização desses processos influencia a performance de longo prazo.
	Describe how organizational aspects are influenced and influenced by digital services?	Descreva quais organizacionais influenciam e são influenciados pelos serviços digitais?
	Describe how interorganizational aspects are influenced and influenced by digital services?	Descreva quais aspectos inter-organizacionais influenciam e são influenciados pelos serviços digitais?
	Describe how environmental aspects are influenced and influenced by digital services?	Descreva quais aspectos ambientais influenciam e são influenciados pelos serviços digitais?
Block 6		
Wrap-up question	Can I say that the main points of the marketing digitalization within your company strategy are [summary of the highlights]? Is there anything else you want to emphasize?	Posso dizer que os aspectos principais da digitalização de marketing na estratégia da sua empresa são [resumo dos pontos principais]? Tem mais alguma coisa que você gostaria de enfatizar?

SOURCE: The author (2024).

Appendix B

Table A2. Observational Protocol.

Analysis Category	Examples that Are Sought to Be Observed	Factual Observations	Analyses or Interpretations	Post-Observational Reflections
How is digital administration carried out according to organizational, environmental, and interorganizational factors and its impact in the companies' performance.	- Digital softwares, e.g., management systems, financial systems, software for administration, etc. - Relationship with suppliers and other stakeholders, strategic alliances, supply chain management. - Relation with governmental regulations and the market. - Organizational culture and structure. - Organizational management - Possible product personalization through digital means. - Inclusion of digital elements in the physic store.			
How is digital marketing carried out according to organizational, environmental, and interorganizational factors and its impact in the companies' performance.	- Digital marketing technologies, like social media management systems, online advertising, etc. - Communication and relationship with consumers. - Relation with suppliers and other stakeholders through digital marketing channels. - Content production and organizational structure. - Market trends.			

Table A2. Cont.

Analysis Category	Examples that Are Sought to Be Observed	Factual Observations	Analyses or Interpretations	Post-Observational Reflections
How are digital sales channels carried out according to organizational, environmental, and interorganizational factors and its impact in the companies' performance.	- Digital sales channels, like the management of e-commerce, applications, etc. - Analyses of data sales and the use of information. - Possible actuation in marketplaces and platforms. - Sales logistics through digital sales channels.			
How are digital services carried out according to organizational, environmental, and interorganizational factors and its impact in the companies' performance.	- Digital services technologies, like digital payments management. - The company's willingness to enhance its offering with digital elements (according to its culture, management, etc.). - Digital maturity of consumers (acceptance of the offer) and competitor's pressure. - New ways of better satisfy customers in a given in each environmental setting.			

NOTE: The second column provides a few practical examples related to the observations, but everything depends on the context, and new categories may emerge. SOURCE: The author (2024).

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