



Government Support Mediates Digital Marketing and Literacy Effects on SME Performance in Indonesia

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Abstract. The accelerated shift toward digitalization means Micro, Small and Medium Enterprises (MSMEs) in developing countries need to possess digital skills. Nevertheless, the process of transforming digital initiatives into improved business performance is uneven and varies with the degree of institutional support. This research investigates the effect of government support as a mediator between digital marketing strategy, digital literacy and business performance in MSME companies in South Sulawesi Indonesia. Drawing on Institutional Theory, Resource-Based View (RBV), and Dynamic Capabilities Theory, the research employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the survey data collected from 200 MSME owners/managers. Results indicate that digital marketing strategy and digital literacy have a positive impact on perceived government support. In addition, government support positively impacts business performance and completely mediates the indirect effects of digital capabilities through business performance. This research demonstrates that offering organizational support is essential to the development of internal digital readiness and in gaining significant performance increases. By theorizing government support as a constraining intervening stimuli, this study extends current theoretical models and articulates a co-evolutionary approach towards MSME digital transformation. The results provide policy action items for stakeholders to develop such digital support programmes that are friendly and accessible and invite the MSME practitioners to align their internal plans with institutional arrangements in order to ensuring sustainability. The findings of this study contribute to the growing literature on digital transformation in developing countries by providing empirical evidence and insight into the role of digital capabilities and institutional factors for achieving business outcomes in resource-constrained contexts.

Keywords: Digital Marketing Strategy, Digital Literacy, Government Support, Business Performance, MSMEs

1 Introduction

The acceleration of digital transformation has redefined the operational and strategic paradigms of micro, small, and medium enterprises (MSMEs), particularly in emerging economies. Digital platforms offer MSMEs unprecedented opportunities to expand market access, streamline operations, and enhance customer engagement at relatively

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low costs [1]. However, the realization of these benefits remains unevenly distributed, especially among MSMEs in rural or underdeveloped regions, where disparities in digital readiness and institutional support persist [2].

Indonesia, home to over 64 million MSMEs, which contribute approximately 60.5% of the GDP and employ 96% of the workforce, places digital empowerment at the core of its economic development agenda [3]. In particular, the South Sulawesi region has witnessed a growing emphasis on digital transformation as part of regional economic resilience initiatives in recent years. Nonetheless, recent reports indicate that many MSMEs in the region struggle to formulate coherent digital strategies or leverage available government support effectively. This gap highlights the critical need to understand how internal digital capabilities and external institutional mechanisms interact to shape MSME performance outcomes.

Among the various digital capabilities, a digital marketing strategy (DMS) and digital literacy (DL) emerge as central components influencing MSME competitiveness in the digital era. DMS enables firms to formulate structured online engagement plans that align with consumer behaviour in digital ecosystems [4], whereas DL equips entrepreneurs with the cognitive and technical skills necessary to utilise digital tools effectively [5]. However, these capabilities do not operate in isolation. The successful translation of digital competence into business performance is often contingent on government support (GS), which serves as both a resource provider and institutional enabler [6].

Existing research has recognized the impact of GS in simplifying the adoption of technology, decreasing operational hurdles and legitimizing innovation among SMEs [7]. Yet, the mediating effect of government support on digital competencies and business performance is still under-researched especially in decentralised governance structures as seen in Indonesia. Furthermore, an interplay study between them with strong statistical models like Partial Least Squares Structural Equation Modeling (PLS-SEM) due to the complexity of these associations is scarce.

For this reason, the current study intends to examine government support as a mediating variable in influencing the relationship of digital marketing strategy and digital literacy of MSMEs performance in South Sulawesi, Indonesia. By drawing on Institutional Theory, Resource-Based View (RBV) and Dynamic Capabilities Theory, this research contributes to a better understanding of how internal digital readiness and external support mechanisms work in tandem to affect firm performance.

Specifically, this research addresses the following questions:

1. To what extent do digital marketing strategy and digital literacy influence government support perceived by MSMEs?
2. Does government support significantly enhance MSME business performance?
3. Does government support mediate the effects of digital marketing strategy and digital literacy on business performance?

By focusing on MSMEs in South Sulawesi, a region with significant economic potential but uneven digital uptake, this study provides empirically grounded insights for both scholars and policymakers. It underscores the importance of aligning internal digital strategies with institutional frameworks to optimize the impact of digital transformation in the MSME sector.

2 Literature Review

2.1 Digital Marketing Strategy (DMS)

Digital marketing strategy can be described as an approach for a company to leverage digitally based technologies, such as web sites, social media, search engine optimization (SEO), content marketing, email and analytics to influence and collaborate with customers, delivering value along the customer journey of discovery, consideration and purchase leading to meeting key business objectives [8]. It does not get better than digital unlike traditional marketing, the idea with digital marketing is that it's less static and more data- driven which affords companies (especially MSMEs) the opportunity to cater to their existing customer journeys create personalised experiences at scale.

In the context of MSMEs in emerging economies, a robust digital marketing strategy serves as a competitive equalizer [9]. Limited marketing budgets and operational constraints are offset by cost-effective digital tools that facilitate outreach, brand visibility and customer engagement. Recent empirical studies underscore that MSMEs with well-structured digital marketing strategies demonstrate superior agility and market responsiveness, especially during periods of external disruption, such as the COVID-19 pandemic [10,11].

Additionally, the strategic incorporation of digital marketing into overall business strategies is substantially linked to firms' performance measures including customer acquisition, retention and profitability [2]. Consistent with the Resource-Based View (RBV), we see digital marketing capability as valuable, rare and inimitable resource driver of sustainable competitive advantage [12].

However, the successful execution of digital marketing strategies is often constrained by institutional and infrastructural limitations in developing regions. Government intervention in the form of training programs, subsidised digital tools, or policy incentives is pivotal in enabling firms to design and implement effective digital strategies [13]. Thus, DMS is not only an internal strategic choice but is also contingent upon the institutional ecosystem in which the firm operates.

2.2 Digital Literacy (DL)

Digital literacy encompasses a multifaceted set of competencies that enable individuals and organisations to locate, evaluate, create and communicate information using digital technologies [14]. In the context of MSMEs, digital literacy extends beyond basic computer skills to include data interpretation, digital content creation, cybersecurity awareness, and platform-specific knowledge for e-commerce and digital marketing[15].

It is becoming clear to researchers that digital literacy is a driving precursor of successful digital transformation, especially in less developed settings. It influences not only the adoption of digital tools but also their depth and effectiveness of use [4]. An entrepreneur's level of digital literacy is more likely to lead to a higher perception that

the key constructs in TAM, which are perceived usefulness and perceived ease of use, contributed in incorporating these platforms into business activities [16].

Moreover, empirical studies in the Indonesian MSME context reveal that low digital literacy is a persistent barrier to digitalization, particularly in rural or peri-urban areas [17]. This reinforces the argument that digital literacy is not solely an individual capability but a systemic outcome shaped by access, education, and institutional support.

This argument is further justified by Dynamic Capabilities Theory [19] that considers digital literacy as a microfoundation through which firms can sense, seize, and reconfigure opportunities in an unpredictable digital environment. Hence, government support acts as a contextual moderator that enhances or diminishes the relationship between digital literacy and business performance. Training workshops related to e-commerce, digital learning, and e-infrastructure can improve the transformative potential of digital literacy [6].

2.3 Government Support (GS)

Government support refers to institutional assistance provided by public authorities to facilitate business growth, competitiveness, and innovation. In the digital economy context, this support includes infrastructure development, financial incentives, policy frameworks, capacity-building programs, and digital transformation initiatives [20]. For MSMEs in developing countries, such support is pivotal in overcoming structural limitations, such as limited access to capital, knowledge gaps, and technological constraints.

Theoretically, government support aligns with Institutional Theory, which posits that firms' behaviors and capabilities are shaped by regulatory, normative, and cognitive institutional environments [21]. In transitional economies, where market failures and resource asymmetries are prevalent, government intervention serves as both an enabler and legitimiser of business activities [22].

Empirical evidence suggests that government support significantly enhances MSMEs' ability to adopt digital technologies, strengthens their strategic orientation, and improves their operational efficiency [23]. The mediating role of government support is further emphasised in studies that integrate Technology Acceptance Models (TAM) and Resource-Based View (RBV), illustrating how institutional support not only provides tangible resources (e.g. subsidies and training) but also builds digital confidence and legitimacy among SMEs [24].

In the Indonesian context, initiatives such as *UMKM Go Digital*, *Pusat Layanan Usaha Terpadu (PLUT)*, and *Gerakan Nasional Literasi Digital* reflect state-led efforts to bolster SME digital readiness. However, the impact of these programs is contingent on their alignment with SMEs' internal capabilities and the perceived accessibility of such support [25]. Consequently, government support is increasingly seen not as a static external factor, but as a dynamic mediator that enhances the effectiveness of digital literacy and strategy in achieving superior business outcomes.

2.4 Business Performance

Business performance is a multidimensional concept that reflects the effectiveness of the firm in meeting its strategic goals, covering financial (e.g. revenue growth and profitability), market (e.g. customer retention and sales growth) and operational performance [26]. Performance measurement in the SME literature is often complemented with non financial dimensions such as innovation, adaptability and satisfaction of the stakeholders, especially when formal accounting data may be found to be scarce [18,27].

Within the framework of digital transformation, business performance is increasingly viewed as an outcome of digital capabilities, including technological proficiency, marketing agility, and data-driven decision-making [28]. Digital strategies enable firms to respond more effectively to customer needs, optimize internal processes, and enter new markets capabilities especially vital for SMEs navigating volatile environments.

Furthermore, performance is not solely influenced by internal competencies but is moderated or mediated by external environments. Government support, in particular, acts as a performance enabler by reducing operational risks, enhancing access to resources, and expanding the market reach [29]. Studies in emerging markets have shown that MSMEs receiving institutional backing outperform their counterparts in terms of innovation adoption, digital visibility, and market expansion [30].

Consistent with the Dynamic Capabilities Theory [19], performance is a product of the firm's ability to sense, seize and transform opportunities in an increasingly digitizing economy. Sense and Seize capabilities of the enterprises are fortified by the Digital Literacy and Marketing Strategy, meanwhile Transformation is supported by Government Support in terms of structure resources, incentives. Accordingly, in this research business performance is perceived as the endogenous variable emerged from interaction between internal digital capabilities and external institutional support.

2.5 Hypotheses Development

The present research aims to examine the effect of digital marketing strategy (DMS) and Digital Literacy (DL) on business performance and government support as a mediator in the micro, small & medium enterprises. Moving to establishing propositions: the hypotheses are development on Institutional Theory, RBV and Dynamic Capabilities, which highlight that performances of firms result from interaction between these internal capabilities and institutional drivers.

Digital Marketing Strategy and Government Support. Firms that actively engage in digital marketing strategies tend to achieve greater visibility among institutional stakeholders and are more likely to align with national digital agendas. This increased visibility enhances their access to government initiatives, including digital training programs, subsidies, and platform integration opportunities.

Consequently:

H1: Digital marketing strategy (DMS) has a positive and significant effect on government support (GS).

Digital Literacy and Government Support. Digital literacy enables entrepreneurs to better access digital ecosystems and public digital programs. According to Santoso et al. [14], higher digital literacy tends to lead to a better perception of the usefulness of policies and greater ability in accessing institutional resources. As such:

H2: Digital literacy (DL) has a positive and significance effect on government support (GS).

Government Support and Business Performance. Government support serves as the system environment and external condition for enterprise development. This ranges from infrastructure, training and e-commerce platforms to harmonised regulation. The observational results reported by Najib et al. [23] and Xia et al. [20], who verify the important role that public support plays in boosting innovation and performing results. Therefore:

H3: The effect of government support (GS) on business performance (BP) is positive and significant.

Digital Marketing Strategy and Business Performance via Government Support. Digital marketing strategies help firms target consumers effectively, but their impact on performance may be contingent on institutional facilitation—particularly in MSMEs with limited internal capacity. Government programs can amplify the benefits of DMS by providing training, marketplace integration, and visibility. Hence:

H4: Government support (GS) mediates the effect of digital marketing strategy (DMS) on business performance (BP).

Digital Literacy and Business Performance via Government Support. While digital literacy enables entrepreneurs to adopt and use technology, the actual performance gains may depend on external factors like infrastructure access and policy support. Lyons et al. [15] argued that digitally literate SMEs still require institutional scaffolding to improve their performance. Thus:

H5: Government support (GS) mediates the effect of digital literacy (DL) on business performance (BP).

3 Methodology

3.1 Research Design

This research used quantitative explanatory approach to empirically examined the mediated relationship between DMS (Digital Marketing Strategies), DL (Digital Literacy), GS(Government Support) and BP(Business Performance) in MSMEs. The study is based on the theoretical assumption that institution enablers (with respect to

government support) have a significant role in converting digital capabilities into tangible performance results a perspective consistent with the RBV and Institutional Theory.

The correlation model represents GS as a mediating variable between the exogenous constructs (DMS and DL) and endogenous construct (BP). This model serves as a means to more clearly understand how external and internal competencies impact firm performance. Partial least squares-structural equation modeling (PLS-SEM) was adopted due to its capability of handling more complex models with a larger number of indicators, flexibility in prediction-based research, and suitability for a theory development stage of early research [31]. This model studies significant and non-significant paths in both direct and indirect (multivariate) respect as well as checks the level of DMS' and DL's effects on BP through the mediation of GS.

3.2 Population and Sample

The object of this study were the micro, small and medium enterprises (MSMEs) which are categorized to several sectors in South Sulawesi, Indonesia. This is a region that has digital adoption on the rise and policy measures in place to support the growth of entrepreneurship. FSMEs constitute an essential part of the economic system in Indonesia and constitute a suitable environment for investigating digital transformation at that level.

The purposive sampling procedure applied to make sure that potential participants meet the primary inclusion criteria: (1) have been up and running for at least two years for an MSME; (2) PV operates at least one digital marketing tools or platform (e.g., social media, online marketplace); and (3) have direct experiences in accessing government support program as regards business operations or digital transformation. This procedure makes the study developed to the internal validity through selecting high- stakes informants for checks of research constructs.

A sample of 200 valid responses was obtained through a structured online questionnaire, which was distributed widely using WhatsApp and email for three months in 2025. This sample size is in line with the minimum rule-of-thumb recommendation for PLS-SEM analysis, particularly for models with multiple latent constructs and mediating paths [34], as per Cohen's [34] power analysis guidance, and Hair et al. [32]. Sample size adequacy was also confirmed through power analysis tests, demonstrating a statistical power of 0.80 or greater to detect moderate effect sizes at the 5% significance level.

3.3 Measurement and Instrument

All constructs in this study were operationalized as reflective latent variables and measured using a structured questionnaire comprising five indicators per construct, adapted from validated instruments in prior empirical studies. The indicators were modified slightly to ensure contextual relevance for MSMEs in South Sulawesi, following a forward-translation and back-translation process to preserve conceptual equivalence [33].

The study employed four latent constructs. Digital Marketing Strategy (DMS) was operationalised using indicators that capture the extent to which firms utilise digital tools, online platforms, and content strategies to strengthen their market presence [8]. Digital Literacy (DL) was assessed based on the decision-maker's ability to effectively access, evaluate, and apply digital information in business processes [1,4]. Government Support (GS) was measured through respondents' perceptions of the adequacy and accessibility of government assistance programmes, subsidies, and digitalisation-related policies relevant to their business activities [10,20]. Business Performance (BP) was captured using subjective evaluations of financial outcomes, customer satisfaction, and operational growth, reflecting managers' overall assessment of the firm's recent performance [26,35].

Each statement was scored on a five-point Likert scale, where 1 = Strongly Disagree and 5 = Strongly Agree, which is well-suited for attitudinal measures as it is more robust in capturing variance and interpretable within structural equation models [33].

A pretest of the instrument was performed on 30 MSMEs to adjust wording and clarify items. Validity on the other hand was tested using AVE and discriminant validity tests (HTMT criterion) whilst reliability was verified through Cronbach's Alpha as well as Composite Reliability (CR).

3.4 Data Analysis

The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS version 4.0, an approach well suited to complex models with mediation, small to moderate samples, and the coexistence of formative and reflective indicators [32]. The analysis proceeded in two integrated stages. First, the measurement model was evaluated to establish the psychometric soundness of all constructs. Indicator reliability was inspected through outer loadings with a benchmark above 0.70, internal consistency was assessed using both Cronbach's alpha and Composite Reliability with thresholds above 0.70, and convergent validity was verified through Average Variance Extracted exceeding 0.50. Discriminant validity was then examined via the Fornell-Larcker criterion and the Heterotrait-Monotrait ratio (HTMT), adopting a conservative cut-off below 0.90 in line.

After reliability and validity were confirmed, the structural model was estimated to test the hypothesized relationships. Path coefficients (β), associated t-statistics, and p-values were obtained using bootstrapping with 5,000 resamples, while the coefficient of determination (R^2) was used to gauge explanatory power and effect sizes (f^2) and predictive relevance (Q^2) provided additional evidence of model strength. Mediation was formally tested to identify indirect effects transmitted through government support. This sequential and rigorous procedure enables robust inference on the direct and indirect pathways through which digital capabilities and institutional support shape MSME business performance in the Indonesian regional context.

4 Results and Disussion

4.1 Measurement Model Results

Prior to assessing the structural model, the reliability and validity of the measurement model were examined. As shown in Table 1, all constructs satisfied the recommended thresholds, confirming that the measurement model exhibited strong psychometric properties.

Table 1. Results

Items	Cronbach's alpha (CA)	Composite reliability (CR)	Average variance extracted (AVE)
BP	0,808	0,810	0,566
DL	0,903	0,903	0,720
DMS	0,846	0,847	0,619
GS	0,828	0,829	0,593

Source: Authors own estimation (2025)

The Cronbach's Alpha statistics (of 0.808–0.903) all exceeded the cut-of-value of 0.7 [34], and demonstrated an adequate internal consistency among items within each construct. Likewise, the Composite Reliability (CR) scores which varied between 0.867 and 0.928 attest to the reliability of each construct according to Hair et al., criteria. [32].

In addition, all constructs' Average Variance Extracted (AVE) ranged between 0.566 and 0.720 were greater than the threshold value of 0.5, which supported convergent validity [37]. These findings demonstrate that the indicators adequately account for the variability of the latent constructs to be measured.

Nevertheless, despite the fact that convergence validity and reliability were confirmed, an examination of discriminant validity through HTMT ratio method showed a possible bivariate overlap between constructs in several cases where HTMT values were slightly over 0.90. This indicates a conceptual vicinity among Digital Literacy, Digital Marketing Strategy and Government Support which could be because of contextual reasons such as ensuing digital skills and marketing endeavors stemmed from public schemes in developing countries.

4.2 Structural Model Results

After testing the measurement model and being confident in it, the structural model was examined to analyze hypothesized associations between latent constructs. The predictive power of the model was significant as evidenced by the R^2 (0.612 for GS and 0.631 for BP), which indicate that the model accounts for a large amount of variance in the dependent constructs.

As presented in Table 2, the path coefficients for direct effects were statistically significant:

Table 2. Path Coefficients

Items	Standard deviation	T statistics	P values	
DL -> GS	0,081	3,055	0,002	
DMS -> GS	0,076	7,322	0,001	
GS -> BP	0,028	28,071	0,001	

Source: Authors own estimation (2025)

These results demonstrate that both digital literacy and marketing strategy are positively associated with the level of government support perceived by MSMEs. Furthermore, government support emerged as a powerful driver of business performance, validating its central role as an institutional enabler.

The mediation analysis, presented in Table 3, reveals that government support fully mediates the relationship between the independent variables and business performance. The indirect effects were significant for both paths:

Table 3. Indirect Effects

Items	Standard deviation	T statistics	P values
DL -> GS -> BP	0,066	2,982	0,003
DMS -> GS -> BP	0,064	6,964	0,001

Source: Authors own estimation (2025)

These findings support the notion that in contexts such as South Sulawesi—where digital infrastructure and institutional capacity are evolving—the success of digital strategies in driving performance depends heavily on government facilitation.

5 Discussion

The results of this image study highlight the government support as an important moderator which mediate the relationship between digital capabilities, i.e., digital literacy (DL) and Digital marketing strategy (DMS), on the performance of micro small medium enterprises (MSMEs) located in South Sulawesi, Indonesia. These findings are in line with the assumptions behind Institutional Theory [36] which suggests that external institutions have a major influence on organizational behaviour and performance especially within developing countries.

The significant direct paths from DL and DMS to government support suggest that enterprises with stronger digital competencies are more likely to access, utilize, and perceive the value of public assistance programs. This aligns with the findings of Wardana et al. [4], who found that government initiatives are more impactful when businesses already possess a foundational level of digital awareness and strategic orientation. It also supports the argument that digital literacy is not merely an individual skillset, but a contextual construct shaped by technological accessibility, institutional trust, and prior exposure to digital platforms.

Moreover, the strong and significant path from government support to business performance ($\beta = 0.794$; $p < 0.001$) affirms the mediating role of state intervention as a catalyst for digital transformation success. This is supported by Xia et al. [20], who emphasize that in state-led economies, public policies serve as accelerators for innovation by providing not only infrastructure but also legitimacy and motivation for digital adoption. In the Indonesian context, where digital infrastructure development and MSME empowerment are part of national priority programs [5], this result emphasises the effectiveness of policy interventions.

The full mediation observed in both indirect paths digital literacy operating through government support to influence business performance and digital marketing strategy operating through government support to influence business performance suggests that digital readiness alone is insufficient to drive performance improvements without institutional reinforcement. These findings echo the framework proposed by Najib et al. [23], which integrates TAM and government support, highlighting how perceived usefulness and ease of use are augmented by state-led training, financial subsidies, and regulatory support. In this light, government support is not merely instrumental but formational, shaping the conditions under which digital tools translate into competitive advantage.

Furthermore, the role of DMS in this model should be noted in this context. The indirect effect of DMS on BP through GS ($\beta = 0.391$) was stronger than that of DL ($\beta = 0.254$), indicating that strategic digital actions (e.g. use of SEO, online branding, and customer analytics) are more likely to draw institutional recognition and support than strategic digital actions. This is consistent with the findings of Mandal et al. [8], who argued that SMEs that align their digital strategies with national programs (e.g. onboarding UMKM ke marketplace digital) are more likely to receive targeted assistance.

This empirical insight highlights a co-evolutionary dynamic between firm-level digital transformation efforts and macro-level institutional facilitation. In emerging economies, where market failures and digital divides persist, this synergy is especially critical [11]. Without adequate institutional scaffolding, the digital leap undertaken by MSMEs may not be sustainable or equitable.

In summary, the discussion affirms that government support functions not as a passive background actor, but as an active mediating institution that transforms digital literacy and strategy into tangible business outcomes. For policymakers, this suggests the importance of designing support schemes that are accessible, adaptive, and responsive to digital maturity levels of SMEs. For practitioners, it reaffirms the need to develop digital capabilities in tandem with strategic engagement with public innovation systems.

6 Conclusion

This study investigated how government support mediates the relationship between digital marketing strategy and digital literacy on the one hand and business performance on the other among MSMEs in South Sulawesi, Indonesia. Using a PLS-SEM approach

grounded in Institutional Theory, the Resource-Based View, and Dynamic Capabilities, we provide robust evidence that both digital marketing strategy and digital literacy significantly enhance perceived government support, which in turn exerts a strong direct effect on business performance and fully transmits the benefits of firms' digital capabilities. These results indicate that digital competencies, while necessary, are insufficient to generate performance gains unless they are institutionally enabled—facilitated, legitimized, and amplified by public programs and policies.

Theoretically, our findings reframe government support from a passive contextual condition to an active mediating mechanism in the digital transformation of MSMEs. By showing that the performance payoff of digital marketing capabilities and digital literacy depends on institutional activation, we integrate capability-based and institutional perspectives and underscore the co-evolutionary nature of MSME development: internal resources and external support must advance in tandem for sustained performance improvements.

Practically, the results call for inclusive, context-aware, and digitally responsive government interventions that lower access frictions (e.g., decentralized, user-friendly platforms), provide tiered digital literacy programs matched to firms' readiness, and couple assistance with market-oriented incentives such as e-commerce onboarding and promotional subsidies. Strategic partnerships among local governments, universities, and private actors can further catalyze grassroots digital innovation. For MSME managers, investing in digital strategies and literacy should be complemented by proactive engagement with government programs, participation in policy dialogues, and cultivation of institutional partnerships to magnify the returns on digital investments.

This study is not without limitations. The single-province setting may constrain generalizability, and the cross-sectional design limits causal inference. Moreover, we did not model potentially relevant constructs such as innovation orientation, entrepreneurial mindset, or the quality of digital infrastructure. Future research should adopt longitudinal or quasi-experimental designs to capture temporal dynamics and strengthen causal claims, extend the scope to multi-region or cross-country settings to reveal context-sensitive pathways, incorporate moderators (e.g., firm size, sector, ecosystem maturity) to identify boundary conditions, and combine subjective and objective performance indicators. Collectively, these avenues can refine our understanding of when and how government support converts firms' digital capabilities into measurable and durable performance gains.

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