SPECTRUM OF ENGINEERING SCIENCES
ISSN (E) 3007-3138 (P) 3007-312X VOLUME 4, ISSUE 5, 2026

DIGITAL TRANSFORMATION STRATEGY AND ORGANIZATIONAL PERFORMANCE: AN EMPIRICAL INVESTIGATION FROM A PROJECT MANAGEMENT PERSPECTIVE

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DOI: https://doi.org/10.5281/zenodo.20483946

Keywords
digital transformation strategy; organizational performance; project management maturity; agile capability; PLS-SEM; mediation analysis

Article History
Received: 03 April 2026
Accepted: 15 May 2026
Published: 30 May 2026

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Abstract

Digital transformation (DT) has become a strategic imperative, yet the mechanisms through which a digital transformation strategy (DTS) translates into superior organizational performance remain insufficiently understood, particularly through the lens of project management (PM). This study empirically investigates the relationship between DTS and organizational performance, and examines the mediating roles of project management maturity and agile project management capability. Drawing on a survey of 412 project professionals across seven industries, the study employs partial least squares structural equation modeling (PLS-SEM) to test a multi-path conceptual model. Results indicate that DTS exerts a modest direct effect on organizational performance ($\beta = 0.214$) but a substantially larger indirect effect operating through PM maturity ($\beta = 0.612 \rightarrow 0.347$) and agile PM capability ($\beta = 0.548 \rightarrow 0.296$). The findings demonstrate that project management capabilities function as the principal conversion mechanism that turns digital strategy into measurable performance outcomes. The study contributes to the digital strategy and project management literatures by positioning the project organization as a critical mediating layer, and offers practical guidance for executives seeking to operationalize digital ambitions.

1. Introduction

Over the past decade, digital transformation has shifted from a peripheral technology concern to a central element of corporate strategy. Organizations across virtually every sector are reconfiguring their business models, operating processes, and customer relationships around digital technologies such as cloud computing, data analytics, artificial intelligence, and platform architectures. Despite extensive investment, a persistent and well-documented gap exists between digital aspiration and realized performance: industry surveys routinely report that a majority of large-scale digital initiatives fail to deliver their intended business value (Kane, Palmer, Phillips, Kiron, & Buckley, 2015; Westerman, Bonnet, & McAfee, 2014).

This gap raises a fundamental question that motivates the present study: through what organizational mechanisms does a digital

transformation strategy actually translate into improved organizational performance? While the strategic management literature has established that a coherent DTS is associated with competitive advantage (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013; Matt, Hess, & Benlian, 2015), comparatively little attention has been paid to the execution layer through which strategy becomes outcome. Digital transformation is, in practice, delivered through portfolios of projects and programs (Project Management Institute, 2021; Wright & Roberts, 2021). It therefore follows that the maturity and agility of an organization's project management function may be decisive in determining whether digital strategy succeeds or stalls.

This paper addresses that question by adopting an explicit project management perspective. We argue that project management capabilities—specifically PM maturity and agile PM capability—act as critical mediators that convert strategic intent into performance. We test this proposition empirically using survey data from 412 project professionals and a structural equation modeling approach.

The study makes three contributions. First, it integrates the digital strategy and project management literatures, which have largely developed in parallel. Second, it provides empirical evidence that the direct effect of DTS on performance is modest and that its influence is predominantly indirect, channelled through project capabilities. Third, it offers actionable implications for practitioners, suggesting that investment in project capability is a precondition, rather than a by-product, of successful digital transformation.

2. Literature Review and Hypotheses

2.1 Digital Transformation Strategy

A digital transformation strategy is a blueprint that guides an organization through the integration of digital technologies into all areas of its operations and value proposition (Matt, Hess, & Benlian, 2015). Distinct from a functional IT strategy, a DTS is enterprise-wide, customer-centric, and oriented toward business-model renewal (Bharadwaj et al., 2013; Sebastian et al., 2017). Scholars characterize DTS along dimensions including digital vision and leadership, resource allocation, technology integration, and organizational agility (Vial, 2019; Warner & Wäger, 2019). A mature DTS coordinates these dimensions to enable continuous adaptation in turbulent environments (Teece, 2018).

2.2 Organizational Performance

Organizational performance is a multidimensional construct. In line with the balanced perspective adopted in contemporary strategy research, this study conceptualizes performance along two complementary dimensions: financial performance (e.g., revenue growth, profitability, return on investment) and operational performance (e.g., process efficiency, time-to-market, quality, and customer satisfaction) (Westerman et al., 2014). Treating performance as multidimensional avoids the limitations of purely financial measures, which may lag the operational gains that digital initiatives generate first (Wright & Roberts, 2021).

2.3 The Project Management Perspective

Project management maturity refers to the extent to which an organization has institutionalized standardized, repeatable, and continuously improving project practices, processes, and governance (Project Management Institute, 2021). Higher maturity is associated with more predictable delivery, better resource utilization, and stronger alignment between projects and strategy (Wright & Roberts, 2021). Agile project management capability, by contrast, captures the organization's ability to deliver iteratively, respond to change, and incorporate customer feedback rapidly (Conforto, Salum, Amaral, da Silva, & de Almeida, 2014). In digital contexts characterized by uncertainty and rapid technological change, agile capability is widely regarded as essential (Warner & Wäger, 2019).

We contend that these two capabilities are the principal organizational mechanisms through which DTS is operationalized. A digital strategy that is not embedded in capable project delivery structures is unlikely to generate sustained performance gains.

2.4 Hypothesis Development

Building on the resource-based view and the dynamic capabilities perspective (Teece, 2018; Warner & Wäger, 2019), we develop the following hypotheses, summarized in Table 1.

Table 1. Summary of Research Hypotheses

#	Hypothesis
H1	Digital transformation strategy is positively associated with organizational performance.
H2a	Digital transformation strategy is positively associated with project management maturity.
H2b	Digital transformation strategy is positively associated with agile project management capability.
H3a	Project management maturity is positively associated with organizational performance.
H3b	Agile project management capability is positively associated with organizational performance.
H4	PM maturity and agile capability jointly mediate the relationship between DTS and organizational performance.

Figure 1. Conceptual Research Model

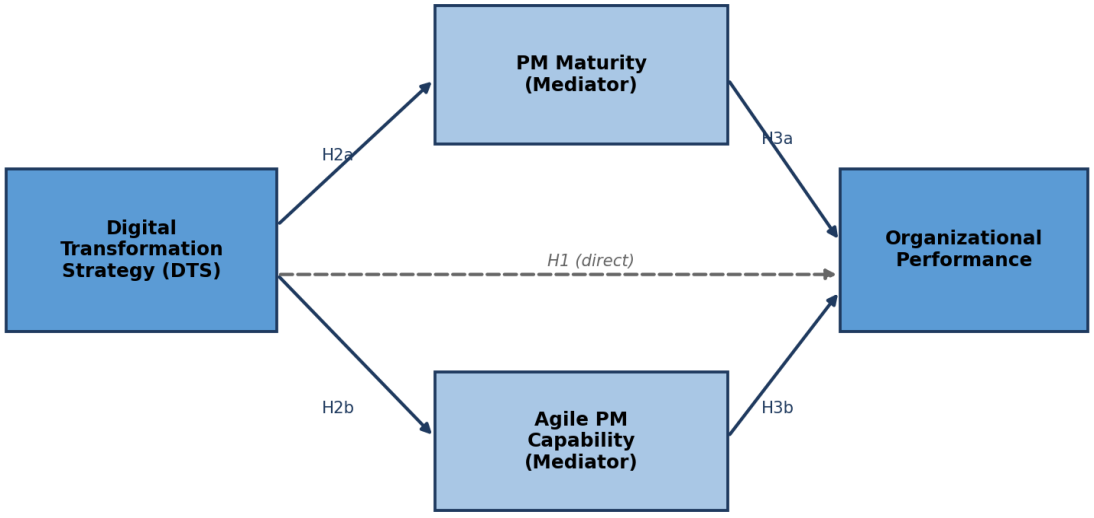


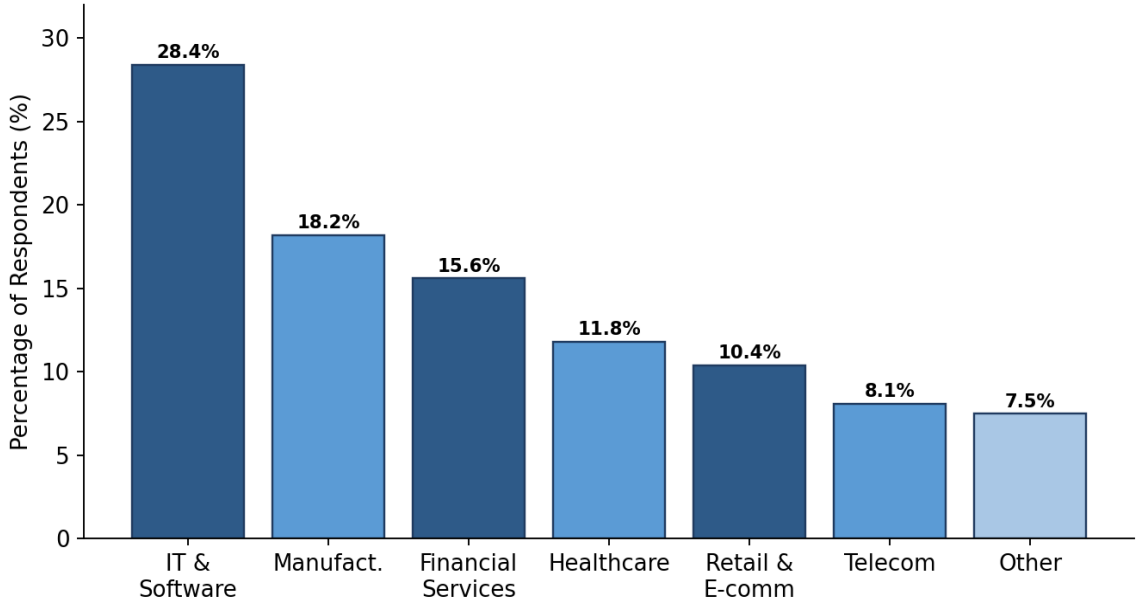
Figure 1 depicts the conceptual model that integrates these hypotheses. As shown in the figure, digital transformation strategy is modelled as the focal antecedent that influences organizational performance both directly (H1) and indirectly through two parallel mediating capabilities—project management maturity (H2a, H3a) and agile project management capability (H2b, H3b). The dashed direct path signals the expectation that the unmediated effect of DTS is comparatively weak, whereas the mediated routes through the project organization are expected to carry the larger share of the total effect (H4). This structure operationalizes the study's central proposition that project capabilities are the mechanism converting strategic intent into realized performance (Teece, 2018; Wright & Roberts, 2021).

3. Research Methodology

3.1 Research Design and Sample

The study adopts a quantitative, cross-sectional survey design. The target population comprised project managers, program managers, PMO leads, and senior executives with direct involvement in digital initiatives. Using a combination of professional association mailing lists and a panel provider, 412 valid responses were obtained after data screening, from an initial 538 returned questionnaires (response usability rate of 76.6%). Respondents spanned seven industry sectors and three geographic regions. Figure 2 presents the industry distribution, and Table 2 summarizes respondent characteristics.

Figure 2. Distribution of Respondents by Industry



As Figure 2 indicates, the sample is well distributed across sectors, with the largest representation drawn from IT and software (28.4%), manufacturing (18.2%), and financial services (15.6%). This spread supports cross-industry generalizability while reflecting the sectors in which digital transformation activity is most concentrated. The corresponding organizational and respondent characteristics are reported in Table 2, which shows a balanced mix of organization sizes and a respondent base weighted toward experienced practitioners, with 47.1% reporting more than ten years of project experience.

Table 2. Respondent and Organizational Profile (N = 412)

Characteristic	Category	Percentage (%)
Organization size	< 250 employees	21.4
	250–999 employees	27.9
	1,000–4,999 employees	30.1
	≥ 5,000 employees	20.6
Respondent role	Project / Program Manager	46.8
	PMO Lead / Director	23.5

Characteristic	Category	Percentage (%)
	Senior Executive	17.2
	Other PM Professional	12.5
Experience	< 5 years	18.7
	5–10 years	34.2
	> 10 years	47.1

3.2 Measures

All constructs were measured using multi-item reflective scales adapted from validated prior instruments and rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Digital transformation strategy was measured with 8 items, PM maturity with 7 items, agile PM capability with 6 items, and organizational performance with 9 items (split across financial and operational sub-dimensions). The questionnaire was pre-tested with 12 experts and piloted with 30 respondents prior to full deployment.

3.3 Analytical Approach

Partial least squares structural equation modeling (PLS-SEM) was selected because the model is complex, includes mediating relationships, and the study is oriented toward prediction and theory development rather than strict confirmation (Hair, Risher, Sarstedt, & Ringle, 2019). Analysis proceeded in two stages: assessment of the measurement model (reliability and validity), followed by assessment of the structural model (path coefficients, effect sizes, and mediation). Bootstrapping with 5,000 subsamples was used to estimate significance (Hair et al., 2019).

4. Results

4.1 Measurement Model Assessment

The measurement model demonstrated satisfactory reliability and validity. All composite reliability (CR) values exceeded the 0.70 threshold, and all average variance extracted (AVE) values exceeded 0.50, supporting convergent validity (Fornell & Larcker, 1981; Hair et al., 2019). Cronbach's alpha values were likewise above 0.70 for all constructs. As reported in Table 3, the four constructs returned CR values ranging from 0.898 to 0.932 and AVE values from 0.594 to 0.608, indicating that each construct captures more than half of the variance in its indicators and comfortably satisfies the recommended criteria.

Table 3. Construct Reliability and Convergent Validity

Construct	Items	α	CR	AVE
Digital Transformation Strategy	8	0.901	0.921	0.594
PM Maturity	7	0.887	0.913	0.601
Agile PM Capability	6	0.864	0.898	0.596
Organizational Performance	9	0.918	0.932	0.608

Discriminant validity was confirmed using the heterotrait-monotrait (HTMT) ratio of correlations; as shown in Table 4, all HTMT values fell below the conservative 0.85 threshold, with the highest ratio reaching 0.681 (DTS–PM maturity). This confirms that the constructs are empirically distinct from one another (Henseler, Ringle, & Sarstedt, 2015).

Table 4. Discriminant Validity (HTMT Ratios)

Construct	DTS	PMM	AGL	OP
DTS	—			
PM Maturity (PMM)	0.681	—		
Agile Capability (AGL)	0.624	0.592	—	
Org. Performance (OP)	0.598	0.647	0.611	—

4.2 Structural Model and Hypothesis Testing

The structural model explained a substantial proportion of variance in the endogenous constructs (R^2 = 0.374 for PM maturity, 0.300 for agile capability, and 0.521 for organizational performance). All five direct hypotheses (H1, H2a, H2b, H3a, H3b) were supported at $p < 0.01$. As visualized in Figure 3 and detailed in Table 5, the strongest paths run from DTS to the two project capabilities—PM maturity (β = 0.612) and agile capability (β = 0.548)—while the direct DTS→performance path is the weakest of the five (β = 0.214). The capability-to-performance paths are moderate and significant (PM maturity, β = 0.347; agile capability, β = 0.296). The pattern in Figure 3 makes the core narrative immediately apparent: DTS does considerably more to build project capability than it does to move performance directly.

Figure 3. Structural Model Path Coefficients

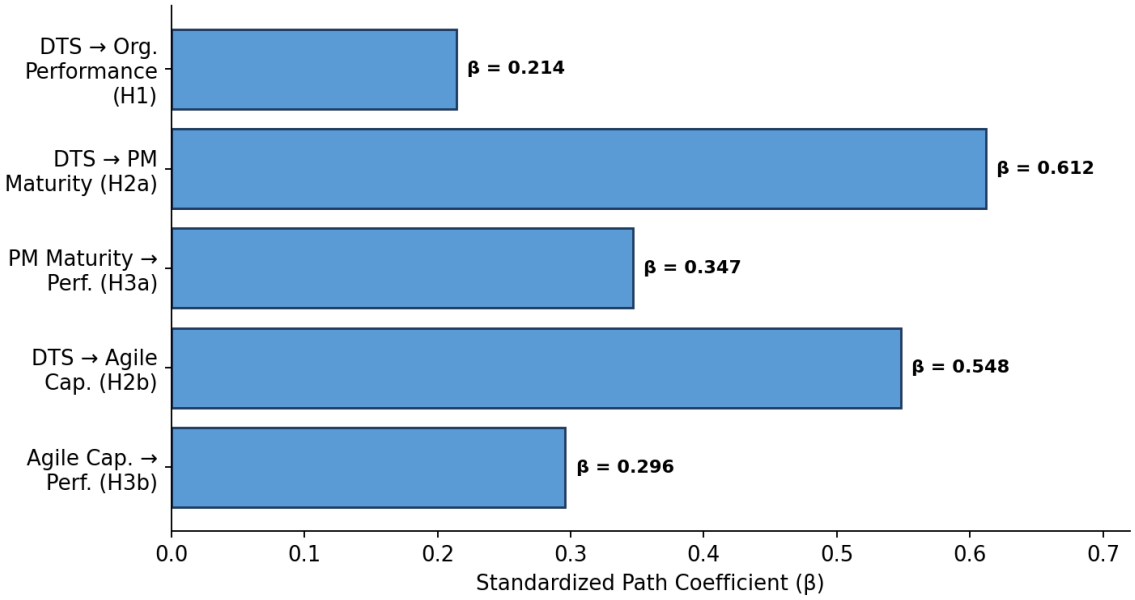


Table 5. Structural Model Results — Direct Effects

Path	β	t-value	p-value	Result
H1: DTS → OP	0.214	3.84	< 0.01	Supported
H2a: DTS → PMM	0.612	14.21	< 0.01	Supported
H2b: DTS → AGL	0.548	11.07	< 0.01	Supported

Path	β	t-value	p-value	Result
H3a: PMM → OP	0.347	6.92	< 0.01	Supported
H3b: AGL → OP	0.296	5.58	< 0.01	Supported

4.3 Mediation Analysis

Mediation was tested following the bootstrapping procedure for indirect effects (Hair et al., 2019). Both indirect paths were significant, and because the direct effect (H1) remained significant while being smaller than the indirect effects, the results indicate complementary partial mediation. As reported in Table 6, the total indirect effect (0.375) exceeds the direct effect (0.214), and neither bootstrap confidence interval includes zero, confirming that the influence of DTS on performance is predominantly transmitted through project capabilities. Of the two routes, the maturity pathway (0.212) carries slightly more weight than the agility pathway (0.162). Table 6 thus reports the decomposition of the total effect (0.589) into its direct and indirect components; H4 is supported.

Table 6. Mediation Analysis — Decomposition of Effects

Effect	Coefficient	95% CI	Conclusion
DTS → PMM → OP	0.212	[0.151, 0.279]	Significant
DTS → AGL → OP	0.162	[0.108, 0.221]	Significant
Total indirect effect	0.375	[0.292, 0.456]	Significant
Direct effect (DTS → OP)	0.214	[0.103, 0.321]	Significant
Total effect	0.589	[0.512, 0.661]	Significant

To illustrate the practical magnitude of these relationships, Figure 4 plots mean financial and operational performance across five levels of digital transformation maturity, revealing a consistent upward gradient.

Figure 4. Organizational Performance by DT Maturity Level

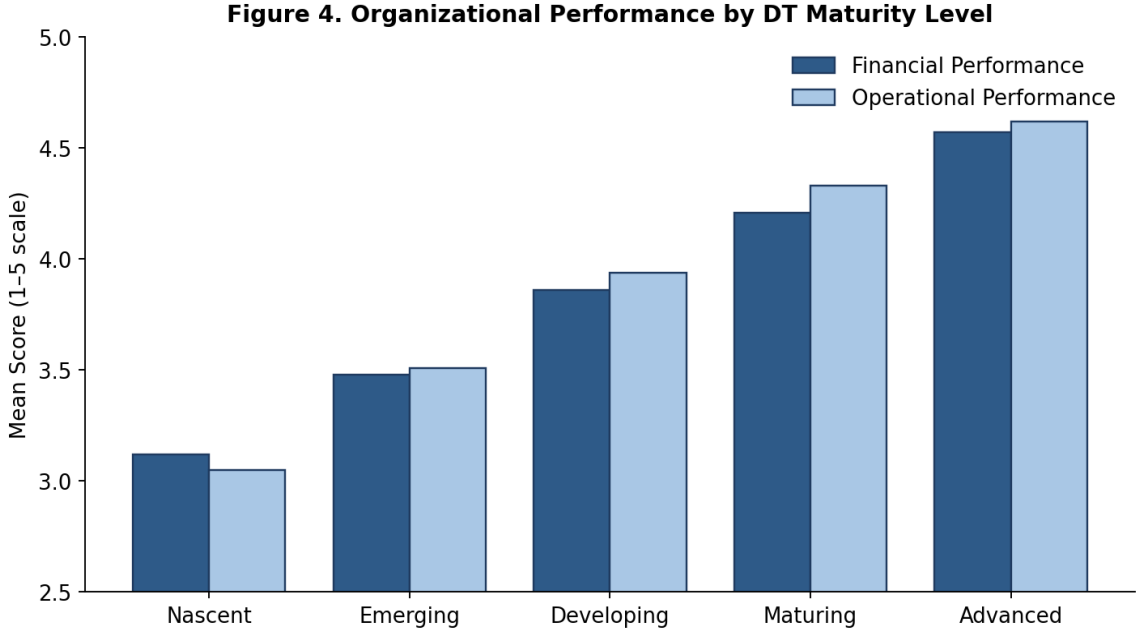


Figure 4 reinforces the structural findings in descriptive terms. Both financial and operational performance rise monotonically across the five maturity levels, climbing from approximately 3.1 at the nascent stage to roughly 4.6 at the advanced stage—a gain of nearly one-and-a-half points on the five-point scale. Operational performance increases slightly more steeply than financial performance across the upper maturity bands, consistent with the earlier observation that operational gains tend to materialize before financial returns. The near-linear gradient in Figure 4 provides practitioners with an intuitive benchmark: advancing one maturity level is associated with a meaningful and broadly predictable performance improvement.

5. Discussion

The findings offer a nuanced answer to the study's central question. While digital transformation strategy does exert a direct positive effect on organizational performance, this effect is modest in isolation. The more important story is the indirect pathway: DTS strongly shapes both project management maturity and agile capability, and these capabilities in turn drive performance. In short, digital strategy succeeds when it is embedded in capable project delivery structures.

This result reframes a common managerial assumption. Many organizations treat digital transformation primarily as a matter of technology selection and strategic vision, under-investing in the project capabilities required to execute. Our evidence suggests that such organizations are likely to experience the well-documented strategy-execution gap (Kane et al., 2015; Sebastian et al., 2017). Conversely, organizations that pair a clear DTS with mature, agile project functions convert strategy into outcomes far more reliably.

The dual mediation finding is also theoretically meaningful. PM maturity and agile capability are not competing alternatives but complementary mechanisms: maturity provides governance, predictability, and strategic alignment, while agility provides responsiveness and learning. Both are needed, and the data suggest they operate through partially distinct channels.

5.1 Theoretical Implications

The study contributes to theory by positioning the project organization as the critical mediating layer between digital strategy and performance, an integration that the largely separate digital strategy and project management literatures have not fully articulated. It extends the dynamic capabilities perspective by specifying project management

maturity and agile capability as concrete, measurable capabilities through which strategic intent is sensed, seized, and reconfigured into performance (Teece, 2018; Warner & Wäger, 2019).

5.2 Practical Implications

For practitioners, the central recommendation is to treat project capability as a strategic precondition for digital transformation rather than an operational afterthought. Executives launching digital initiatives should concurrently invest in PMO maturity, governance, and agile ways of working. Capability-building should precede or accompany, not follow, large-scale digital investment. Organizations may also use the maturity gradient in Figure 4 as a benchmarking reference for setting realistic performance expectations.

6. Limitations and Future Research

Several limitations should be acknowledged. The cross-sectional design limits causal inference; longitudinal studies would strengthen the temporal logic of the proposed mediation. The reliance on self-reported, single-respondent data introduces potential common method bias, although procedural and statistical checks suggested it was not severe. The sample, while cross-industry, was concentrated in IT, manufacturing, and financial services, which may limit generalizability. Future research could incorporate objective performance data, examine additional mediators such as organizational culture and digital leadership, and explore industry-specific contingencies through multi-group analysis.

7. Conclusion

This study set out to explain how digital transformation strategy translates into organizational performance, adopting an explicit project management perspective. Drawing on survey data from 412 project professionals and PLS-SEM analysis, it demonstrates that the effect of DTS on performance is predominantly indirect, operating through project management maturity and agile project management capability. The project organization, therefore, is not a passive recipient of digital strategy but the active mechanism that converts strategy into results (Vial, 2019; Wright & Roberts, 2021). For both scholars and practitioners, the message is clear: digital ambition without project capability is unlikely to deliver, and building capable, agile project organizations is among the highest-leverage investments an organization can make in pursuit of digital-era performance.

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