

DIGITAL TRANSFORMATION AND ORGANIZATIONAL PERFORMANCE: THE MEDIATING ROLE OF INNOVATION CAPABILITY

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Abstract

Digital transformation has become a strategic imperative for small and medium-sized enterprises seeking stronger innovation and organizational performance. This study examined the direct effect of digital transformation on organizational performance, its effect on innovation capability, and the mediating role of innovation capability. A quantitative, explanatory, cross-sectional design was applied to secondary survey data from 200 SMEs across food and beverage, textile and fashion, services, craft and creative, and light manufacturing sectors. Partial least squares structural equation modelling was used to assess the measurement model, structural paths, explained variance, and mediation effects. Digital transformation significantly improved organizational performance ($\beta = 0.316$, $p < 0.001$), strongly enhanced innovation capability ($\beta = 0.676$, $p < 0.001$), and innovation capability significantly predicted organizational performance ($\beta = 0.464$, $p < 0.001$). The indirect effect through innovation capability was significant ($\beta = 0.314$, $p < 0.001$), with a variance accounted for of 49.8%, confirming complementary partial mediation. Digital transformation explained 45.7% of the variance in innovation capability, while digital transformation and innovation capability jointly explained 51.4% of organizational performance. The findings indicate that SMEs achieve stronger outcomes when digital investments are combined with innovation-oriented routines, employee capability development, and strategic alignment, highlighting innovation capability as a central mechanism linking digital transformation with performance and organizational adaptability.

Keywords: *Digital Transformation, Innovation Capability, Organizational Performance, Small and Medium-Sized Enterprises, Sustainable Performance*

Received: 06/04/2026

Revised: 07/05/2026

Acceptance: 14/05/2026

Publication: 22/05/2026

Introduction

In today's technologically driven markets, digital transformation has emerged as one of the key strategy priorities for organizations aiming to boost competitiveness, operational agility, and future performance. It is not just about the use of digital tools by individual members of staff, but also organised changes in the way of working, structures, capacity, decision systems, and value-creation mechanisms. Small and medium businesses find that digitalization can help them be more efficient, accessible to markets, engaging with their customers, and resilient, yet the conditions for its adoption are often limited by small budgets, lack of skills, uncertainties about technology, and low level of strategic integration (Eller et al., 2020). The conditions require an analysis of not only the adoption of digital technologies, but also how companies transform digital investments into capabilities and measurable results.

Digital transformation is viewed here as a capability of the organizations in which they adopt digital technologies and combine them with managerial routines, employees' capacities, and their operational processes. It is dependent on the microfoundations that enable organizations to identify technological opportunities, restructure resources, and convert technological digital initiatives into better performance (Sousa-Zomer et al., 2020). The capability-based perspective is especially important since the adoption of a particular technology does not necessarily lead to organizational improvement. Digital transformation is not only technical, but also organizational, which means it involves changing the strategic orientation, leadership, organizational culture, governance, and coordination of various departments (Hanelt et al., 2021). It also has the capacity to transform customer relationships, competitive dynamics, data application, and business models in various functional areas (Verhoef et al., 2021).

The dynamic capabilities perspective offers a useful theoretical framework that can be used to understand the impact of a digital transformation on organizational performance. Companies need to feel the pulse of new digital opportunities, leverage the opportunities with the right investments, and restructure resources to create value. Research evidence from SMEs reveals that digital transformation contributes to customer value creation because firms do not just rely on technology but also apply managerial flexibility and responsiveness, and organizational learning (Matarazzo et al., 2021). Digital initiatives can also help to redesign products, production processes, service delivery systems and business models, thus offering several avenues to improve the competitive capabilities of firms (Bresciani et al., 2021). The performance benefits are not likely to materialise automatically, however, as firms have a wide range of capabilities in terms of how they can effectively use digital technologies. The ability to innovate could be a key linkage between digital transformation and the performance of an organisation. Digital technologies provide greater information access, enhance communication, speed up experimentation and aid data-informed decisions. Under such conditions, a firm may be able to better develop and test new ideas, and put them into practice. Empirical evidence suggests that digital technologies can positively influence innovation performance by providing greater knowledge flows, collaborative opportunities, and organizational flexibility (Usai et al., 2021). Digital transformation also has been linked to better financial, operational, and market performance in SMEs, but the extent to which its effects manifest depends on the capabilities of the organizations and their implementation conditions (Teng et al., 2022).

In resource-restricted companies, digital orientation and digital capability are particularly crucial, as it decides whether digital initiatives become part of the organization's routine. SMEs with greater digital orientation are more likely to consider technological change as a priority, invest in digital projects, and develop capacities to tackle environmental disruption (Rupeika-Apoga et al., 2022). Digital transformation can thus be considered as an intermediate organizational process, which enables the creation of innovation capability and, in turn, generates more comprehensive performance gains. Previous studies have revealed the possibility of digital transformation having a causal impact on innovation performance through innovation-related factors, which align with the idea that digitalisation can generate value by bolstering firms' innovative capacity (Chen & Kim, 2023).

Digital transformation also relates to the performance of sustainability, resilience, and agility in the organization for the long-term. Digitalization cannot be understood as an isolated technical intervention and must be aligned with the human resources, the activities and business objectives, the environment, and the development strategies of the SME (Melo et al., 2023). Digital adoption, digital drive, and digital culture are also found to influence innovation results, indicating that digital transformation is a comprehensive process within the organizations (Wang & Zhang, 2025).

Although this area of study seems to be gaining momentum, there is still not a lot of clarity on how digital transformation affects organisational performance in SMEs. The literature mostly focuses on direct relationships, and fewer research studies have evaluated the role of innovation capability as a mediating process. This study thus examines the impact of digital transformation on organizational performance and tests the mediation role of innovation capability between digital transformation and organizational performance. The study is new in the literature because it combines the concepts of digital transformation, innovation capability, and organizational performance under one empirical model and because it explains how the digital capability of SMEs can be translated to greater organizational performance.

Objectives of the study:

1.To examine the effect of digital transformation on organizational performance.

2.To assess the effect of digital transformation on innovation capability.

3.To determine whether innovation capability mediates the digital transformation–performance relationship.

2. Methodology

2.1 Research Design and Conceptual Model

In this paper, secondary analysis of firm-level survey data was conducted using a quantitative, explanatory, cross-sectional design to study the relationship between digital transformation, innovation capability, and organizational performance. Partial least squares structural equation modelling (PLS-SEM) was utilized due to the presence of three latent variables, several reflective indicators, direct model structural variables, and an indirect mediation model between the variables. The independent variable, digital transformation, was specified, followed by the mediator, innovation capability, and the dependent variable of organizational performance. The four hypotheses were tested: The first hypothesis was that digital transformation positively influenced organizational performance; the second hypothesis was that digital transformation positively influenced innovation capability; the third hypothesis was that innovation capability positively influenced organizational performance; and the fourth hypothesis was that innovation capability mediated the relationship between digital transformation and organizational performance.

2.2 Data Source and Analytical Sample

The data comprised the answers from 200 SMEs from the four industry segments (food & beverage, textile & fashion, services, craft & creative, and light manufacturing). Twenty-one variables were included in the analytical file: 15 construct indicators and six organizational characteristics (sector, firm age, number of employees, revenue, digital maturity, and market scope). There were five indicators for each principal construct. Data were checked for missing data, duplicates, coding problems, and out-of-range data. There were no missing observations and no duplicate observations were found; all 200 enterprises were kept. The construct indicators were assessed on a five-point scale from 1 to 5 (Yustian & Ratnapuri, 2026).

2.3 Measurement and Operationalization of Variables

The indicators of digital transformation were operationalized as five smart digital capability indicators (SDC1–SDC5) measuring the organizational ability in the field of digital transformation, namely in the adoption, integration, and use of digital technologies. Innovation capability was operationalized into five green innovation indicators (GI1–GI5), which were considered as the context-specific manifestation of the firm's innovation capability in the development and implementation of new or improved products, processes, technologies, and organizational practices. Org. performance was measured in terms of five sustainable performance indicators (SP1–SP5) that reflected the firm's capacity to achieve and sustain economic, operational, strategic and sustainable outcomes. The higher the score, the more the individual possessed the indicated constructs. Control variables – sector, firm age, employee size, revenue levels, maturity in digital and market scope – were dummy-coded for the adjusted analyses.

2.4 Data Preparation and Preliminary Analysis

The contents of the data set were analyzed in Python to check for: Coding consistency, Response ranges, Missing values, Duplication of cases, and distributional properties. The three main constructs were computed as means, standard deviations, minimum and maximum values, skewness and kurtosis, and the organisational characteristics were computed as frequencies and percentages. For the supplementary correlation, regression, and bootstrap mediation analyses, mean composite scores were the average of the five indicators of each construct. The first PLS-SEM analysis was carried out keeping all the indicators as reflective measures of the respective constructs. Bivariate relationships were analysed with Pearson correlation coefficients and statistical significance was determined for two-sided p values < 0.05.

2.5 Measurement and Structural Model Assessment

The outer loadings were standardized, Cronbach's alpha, rho_A, composite reliability, average variance extracted, the Fornell–Larcker criterion, heterotrait–monotrait ratios and interconstruct correlations were used to assess the reflective measurement model. The outer loadings were set at a minimum of 0.70, the reliability coefficients at 0.70, the AVEs at 0.50 and the heterotrait–monotrait ratios at <0.85. The inner-model values of collinearity were measured by variance inflation factors, and values below 3.3 were deemed to be acceptable. Standardized path coefficients, standard errors, t-statistics, p-values, bias-corrected 95% bootstrap confidence intervals, R², adjusted R², and Cohen's f² effect sizes were used for the evaluation of the structural model. 0.02 was considered a "small" effect; 0.15 was a "medium" effect; 0.35 was a "large" effect. The standardized root mean square residual, normed fit index, squared Euclidean distance, and geodesic distance were used to evaluate model fit.

2.6 Mediation, Robustness, and Bias Assessment

The mediating effect of the innovation ability was explored by estimating the total, direct, and indirect effects of

digital transformation on organizational performance. Standard errors, t-statistics, p-values, and bias-corrected 95% confidence intervals were generated by bootstrap resampling, and the indirect effect was deemed significant if the confidence interval did not contain zero. When both direct and indirect effects were significant and in the same direction, then complementary partial mediation was determined, and the variance accounted for was defined as the indirect effect/total effect. Two types of ordinary least-squares mediation and controlled mediation analyses were performed, using construct composite scores, and controlling for sector, firm age, employee size, revenue level, digital maturity, and market scope. Harman's single-factor procedure was used for screening potential common method bias effects. The analysis was based on an anonymized secondary dataset provided, which contained no personally identifiable data and was analysed according to the conditions of access and license of the dataset.

3. Results

3.1 Sample and Organizational Characteristics

A total of 200 SMEs were analysed. There were no missing observations and no duplicate observations were detected. The three biggest sectoral groups were textile and fashion firms (27.5%), food and beverage firms (25.5%), and service firms (22.5%). The vast majority of enterprises had been in business for three to five years (36.5%), had 11–20 employees (31.0%), and were in the lower middle income group (37.5%). When it comes to technological development, 43.0% of firms had intermediate digital maturity, 40.0% had basic digital maturity, and the 17.0% had advanced digital maturity. The majority of firms (38.0%) catered to local markets, 28.0% catered to regional markets, and 11.5% catered to export markets. The organizational features of enterprises included in the study are presented in Table 1.

Table 1. Organizational characteristics of the included enterprises

Characteristic	Category	n	%
Sector	Food and beverage	51	25.5
	Textile and fashion	55	27.5
	Services	45	22.5
	Craft and creative	27	13.5
	Light manufacturing	22	11.0
Firm age	<3 years	50	25.0
	3–5 years	73	36.5
	6–10 years	45	22.5
	>10 years	32	16.0
Employees	1–5	42	21.0
	6–10	51	25.5
	11–20	62	31.0
	21–50	27	13.5
	>50	18	9.0
Revenue level	Low	35	17.5
	Lower-middle	75	37.5
	Middle	42	21.0
	Upper-middle	26	13.0
	High	22	11.0
Digital maturity	Basic	80	40.0
	Intermediate	86	43.0
	Advanced	34	17.0
Market scope	Local	76	38.0
	Regional	56	28.0
	National	45	22.5
	Export	23	11.5

3.2 Descriptive Statistics and Correlations

The mean digital transformation score was 2.902 ± 0.709 , and the mean innovation capability score was 2.986 ± 0.673 . The mean score of organizational performance was found equal to 2.738 ± 0.684 . Skewness varied from -0.041 to 0.217 , and Kurtosis ranged from 0.264 to 0.531 , showing no significant deviation from distributional symmetry. Innovation capability ($r = 0.675$, $p < 0.001$) and organizational performance ($r = 0.628$, $p < 0.001$) were both found to be positively correlated with digital transformation. Additionally, innovation capability was positively correlated with organizational performance ($r = 0.677$, $p < 0.001$). As shown in Figure 1, the average scores for DT, innovation capability, and organizational performance were represented. Table 2 shows the descriptive statistics and construct correlations.

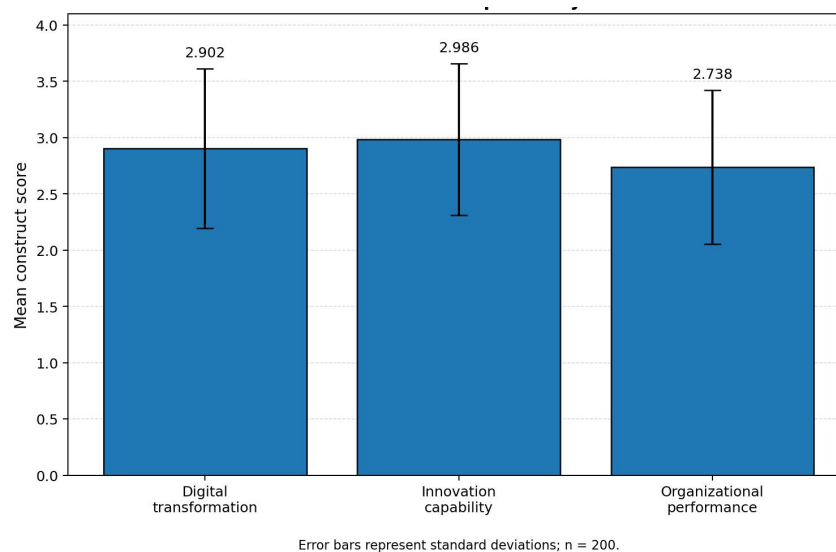


Figure 1. Mean scores of the study constructs.

Table 2. Descriptive statistics and correlations of the principal constructs

Construct	Mean	SD	Minimum	Maximum	Skewness	Kurtosis	1	2	3
1. Digital transformation	2.902	0.709	1.000	5.000	0.217	0.264	1.000	NA	NA
2. Innovation capability	2.986	0.673	1.000	5.000	-0.041	0.531	0.675	1.000	NA
3. Organizational performance	2.738	0.684	1.000	5.000	0.186	0.440	0.628	0.677	1.000

3.3 Measurement Model Evaluation

All indicators demonstrated satisfactory indicator reliability. The outer loadings of digital transformation ranged from 0.906 to 0.943, innovation capability ranged from 0.876 to 0.941, and organizational performance ranged from 0.913 to 0.942. Cronbach's alpha ranged from 0.951 to 0.960, rho_A ranged from 0.954 to 0.960, and composite reliability ranged from 0.963 to 0.969. Convergent validity was supported by all average variance extracted values from 0.838 to 0.862, which are greater than 0.50. The heterotrait–monotrait ratios were from 0.656 to 0.708. Correlations of the square root of the average variance extracted for each construct with the other constructs were below the threshold for discriminant validity. Table 3 shows the reliability and validity of the measurement model.

Table 3. Reliability, convergent validity, and discriminant validity

Construct	Loading minimum	Loading maximum	Cronbach's α	rho_A	CR	AVE	$\sqrt{\text{AVE}}$	HTMT
Digital transformation	0.906	0.943	0.960	0.960	0.969	0.862	0.928	NA
Innovation capability	0.876	0.941	0.951	0.954	0.963	0.838	0.915	NA
Organizational performance	0.913	0.942	0.958	0.959	0.968	0.857	0.926	NA

3.4 Structural Model and Hypothesis Testing

To support H1, digital transformation had a significant positive direct effect on organizational performance ($\beta = 0.316$, $t = 4.510$, $p < 0.001$). Digital transformation also had a significant positive impact on innovation capability ($\beta = 0.676$, $t = 18.637$, $p < 0.001$), which supported H2. H3 was supported by the high value of innovation capability's contribution to organizational performance ($\beta = 0.464$, $t = 6.576$, $p < 0.001$). The variance in innovation capability was 45.7% explained by digital transformation. When innovation capability was combined with digital transformation, 51.4% of the variance in organizational performance could be accounted for. The adjusted R^2 values obtained were 0.454 and 0.509, respectively. The impact on the Innovation Capability of digital transformation was significant ($F^2 = 0.841$). Innovation capability had a medium effect on organizational performance ($F^2 = 0.240$), and the direct effect of digital transformation on organizational performance was small after controlling for innovation capability ($F^2 = 0.112$). As can be seen from Figure 2, there are many direct and indirect effects of the study constructs. The variance explained for innovation capability and organizational performance is displayed in Figure 3. Table 4 presents the structural paths and results of the hypothesis testing.

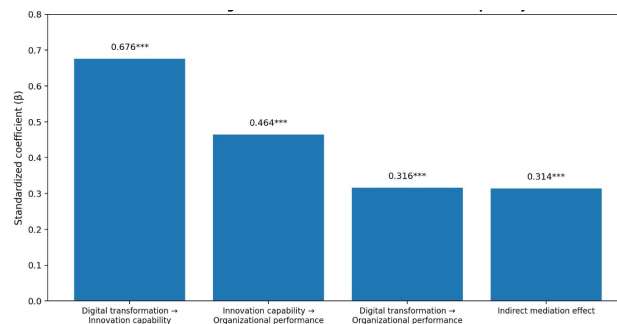


Figure 2. Direct and indirect structural effects

Table 4. Structural model and direct-effect hypothesis testing

Path	β	SE	T	p	CI lower	CI upper	f ²	R ²	Adjusted R ²
DT → OP	0.316	0.070	4.510	<0.001	0.179	0.454	0.112	0.514	0.509
DT → IC	0.676	0.036	18.637	<0.001	0.598	0.740	0.841	0.457	0.454
IC → OP	0.464	0.071	6.576	<0.001	0.326	0.598	0.240	0.514	0.509

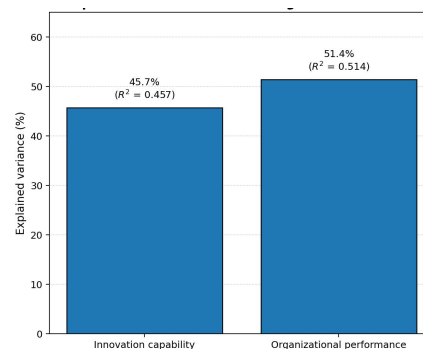


Figure 3. Explained variance in the endogenous constructs

3.5 Mediation and Robustness Analysis

The indirect effect of digital transformation on organizational performance via innovation capability was also found to be statistically significant ($\beta = 0.314$, $t = 6.249$, and $p < 0.001$). The bias-corrected 95% confidence interval was (0.219, 0.415), which does not contain zero. The direct effect did not change substantially after the mediator was added, which led to the complementary partial mediation and helped to support H4. The overall impact of digital transformation on the performance of the organization was 0.630. The indirect effect represented 49.8% of the overall effect and illustrates that about half of the relationship between digital transformation and organizational performance was mediated through innovation capability. The indirect effect was similar in the supplementary composite-score analysis, at 0.303, 95% bootstrap CI 0.198–0.413. The indirect effect was also statistically significant after adjusting for the following variables: sector, firm age, firm size, revenue, digital maturity, and market scope (0.342, 95% CI: 0.232–0.474). The model was estimated with a good fit (SRMR = 0.030 and NFI = 0.960). The results of the mediation, robustness, and model fit analyses are presented in Table 5.

Table 5. Mediation, controlled analysis, and model-fit statistics

Analysis	Effect/statistic	Estimate	SE	t	p	CI lower	CI upper
PLS-SEM	Indirect effect	0.314	0.050	6.249	<0.001	0.219	0.415
PLS-SEM	Direct effect	0.316	0.070	4.510	<0.001	0.179	0.454
PLS-SEM	Total effect	0.630	NA	NA	NA	NA	NA
PLS-SEM	VAF	49.8	NA	NA	NA	NA	NA
Composite-score model	Indirect effect	0.303	0.054	NA	<0.001	0.198	0.413
Controlled model	DT → IC	0.671	0.051	13.178	<0.001	NA	NA
Controlled model	IC → OP	0.505	0.074	6.810	<0.001	NA	NA
Controlled model	DT → OP	0.262	0.071	3.702	<0.001	NA	NA
Controlled model	Indirect effect	0.342	NA	NA	<0.001	0.232	0.474
Model fit	SRMR	0.030	NA	NA	NA	NA	NA
Model fit	NFI	0.960	NA	NA	NA	NA	NA
Model fit	d ULS	0.104	NA	NA	NA	NA	NA
Model fit	d G	0.120	NA	NA	NA	NA	NA

4. Discussion

The results show that the importance of digital transformation is more than just evident; it has a significant impact on the performance of the organization both directly and indirectly by increasing the innovation capability. The direct effect suggests

that companies can achieve a tangible performance improvement when they use digital technologies in their operations, management, and/or strategy. The indirect effect of this value is that some of this value is generated based on the impact that digital transformation has on the organization's ability to create and implement innovation. The findings thus argue for a capabilities perspective whereby digital resources yield better effects when they are transformed to organizational practices, knowledge processes, and adaptive mechanisms.

Adoption of digital transformation and organizational performance have a positive correlation, which aligns with research indicating that digital programs lead to better firm performance when having sufficient IT capabilities and a digital orientation. But digital technologies can improve process effectiveness, timeliness, and availability of data, coordination, responsiveness to customers, and decision quality — all of which require the capability of aligning investments in digital technologies with the organization's strategic priority. Taking innovation capability into account, the significant direct path in this study indicates that digital transformation also had an impact on organizational performance, independent of its impact on innovation capability. This finding aligns with the notion that digitalization can drive performance improvement through various mechanisms, such as operational optimization, quickening information flow, lower transaction costs, and better use of resources (Barba-Sánchez et al., 2024).

There was also a positive impact on innovation capability from digital transformation. This was the strongest structural relationship in the model, with a significant difference between firms that had become digital and those that had not, in terms of their ability to develop and implement innovative solutions. Digital systems provide the opportunity to disseminate real-time data, enhance internal and external communication, and experiment with products, services and processes. The study of transformation capabilities also highlights the importance of building the competency of organizations in recognizing opportunities, coordinating them and adapting continuously, which is not just about implementing technology, but also about developing the skills needed to be digitally innovative (Gupta et al., 2024). The current study findings support this argument as they indicate that digital transformation was a key antecedent of the innovation capability.

The capability of innovation also had a significant positive impact on organizational performance. The fact that this finding suggests that companies that had the highest capacity to bring new ideas and processes into place and adapt their offerings had the best performance outcomes. The ability of innovation can enhance market responsiveness, differentiation, productivity, and the efficient usage of organizational knowledge. Research investigating digital transformation strategy has found that innovation positively impacts the effectiveness of the organization, as it helps organizations react to changes in the competitive environment and technological development in a faster way (Rubio-Andrés et al., 2025). With this current outcome, it is therefore once again concluded that innovation is not only a consequence of digitalization, but likewise an organizational capability producing an outcome.

The mediation analysis demonstrated that innovation capability has a partial mediation effect between digital transformation and organizational performance. The variance accounted for was about 49.8%, which meant that nearly half of the total effect was through the pathway of innovation, and the rest through other organizational pathways. The direct and indirect effects that digital transformation has on performance are complementary and partial; that is, digital transformation has a positive direct effect and a positive indirect impact on the enhancement of innovation capabilities. Previous studies have shown that digital transformation is beneficial for innovation outcomes by mediating with intermediate factors that enable companies to convert digital information into timely actions and innovative responses, such as big data competence and organisational agility (Xu et al., 2024). It is thus remarkable that the mediation result confirms the hypothesis that innovation ability is an essential, but not unique, driver of the creation of digital value.

The results also align with studies that focus on the interdependencies between the various aspects of digital skills in SMEs. Big data analytics, digital platforms and network capabilities have been proven to work together in supporting innovation and performance of micro, small and medium enterprises. This evidence implies that in addition to the technological resources, the firms need complementary relational and digital resources (Bhatti et al., 2025). This thinking is further explored in the present model where innovation capability is proposed as one of the organizational links between digital transformation and performance.

The explained variance values show that the model was quite relevant to the prediction. Digital Transformation explained 45.7% of the variance in Innovation capability, and Digital Transformation and Innovation capability explained 51.4% of the variance in the Organizational performance. Together, these results suggest that both constructs accounted for relevant constructs of organisational outcomes, but that other constructs like leadership, employee skills, organisational culture, uncertainty within the environment, as well as financial resources, can also affect organisational outcomes. Research on open innovation has also demonstrated that the digital transformation has the ability to enhance the performance of innovation, which in turn fosters dynamic capabilities for the company to absorb outside knowledge and coordinate collaborative innovation activities (Qiu & Chang, 2025).

The outcomes are also relevant for sustainable competitiveness. Responsible management, stakeholder engagement, and sustainability practices can help drive digital transformation for better long-term performance. SMEs suggest that digitalization of Corporate Responsibility activities could enhance sustainable competitive performance through better transparency, communication with stakeholders, and strategic responsiveness (Ahmad et al., 2024). Therefore, digital transformation should not be understood as the mere acquisition of some digital tools but should be viewed as a programme within the organization itself.

The results also indicate that companies should focus on investing in digital infrastructure and conditions to promote innovation at the same time. Along with strategic technology adoption, staff training, multi-functional cooperation, flexible organization, and adapting to the environment are required. This alignment is especially crucial for SMEs, which have limited resources and require a more efficient use of investment in digital to create sustainable innovation and performance outcomes. (Wang & Zhang, 2025). The study validates that innovation capability is one of the key mechanisms by which digital transformation is able to enhance organizational performance and still has a meaningful direct contribution to digital transformation.

5. Conclusion

Digital transformation is a key factor that influences organizational performance, and innovation ability is one of the major mediators in this process. The results demonstrate that digital transformation has a positive impact on performance and is also linked to increased ability of firms to develop, embrace, and implement innovative solutions. Innovation capability, in turn, is a significant driver of organizational effectiveness, suggesting that digital investments have more added value when integrated into adaptive processes, shared knowledge practices, and innovation oriented practices. The model shows that digital transformation affects performance via two routes: the complementary partial mediation. The high percentage of the explained variance in innovation capability and organizational performance also validates the relevance of the proposed model. The results highlight the need for SMEs to integrate digital technologies with strategic alignment, employee capability building, cross-functional cooperation, and flexible organisational structures. Managers are urged to thus think of digital transformation as a broader capability-building process and not just a technology acquisition. The model should be tested in other sectors, regions, and/or longitudinal settings to strengthen causal interpretation and the generalizability of the findings across varying organizational contexts in the future.

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