“Digital transformation strategy and faculty performance in Omani universities: The mediating role of digital transformation”

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ARTICLE INFO	Noha Ahmed (2025). Digital transformation strategy and faculty performance in Omani universities: The mediating role of digital transformation. *Problems and Perspectives in Management*, *23*(3), 700-714. doi:10.21511/ppm.23(3).2025.50
DOI	http://dx.doi.org/10.21511/ppm.23(3).2025.50
RELEASED ON	Friday, 26 September 2025
RECEIVED ON	Tuesday, 10 June 2025
ACCEPTED ON	Wednesday, 17 September 2025

JOURNAL	"Problems and Perspectives in Management"
ISSN PRINT	1727-7051
ISSN ONLINE	1810-5467
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
44	2	12

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

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DIGITAL TRANSFORMATION STRATEGY AND FACULTY PERFORMANCE IN OMANI UNIVERSITIES: THE MEDIATING ROLE OF DIGITAL TRANSFORMATION

Abstract

Digital transformation has become a key driver of competitiveness in higher education, with Omani universities investing heavily in technology to enhance teaching, research, and institutional performance. Yet, empirical evidence on how these strategic efforts influence faculty outcomes remains limited. This study aims to demonstrate that effective digital strategies enhance faculty performance in Omani universities by leveraging digital transformation as a mediating mechanism, while overcoming challenges of readiness, organizational support, and execution.

A quantitative, cross-sectional survey was administered between April and May 2025 across public and private universities in Oman. The sample included academic staff with master's and doctoral qualifications, who are most engaged in research, teaching innovation, and technological adoption. From 340 valid responses, reliability and validity analyses confirmed robust measures (Cronbach's alpha = 0.748–0.985; validity coefficients > 0.865). Descriptive analysis showed that 63.2% of respondents held favorable views of institutional digital initiatives. Correlation analysis revealed strong positive relationships among digital transformation strategy, digital transformation, and faculty performance ($r = 0.837–0.901$, $p < 0.001$). Regression results indicated that the digital transformation strategy explained 74.65% of the variance in faculty performance, which rose to 90.47% with the inclusion of digital transformation. Bootstrapping further confirmed an indirect effect ($\beta = 0.379$, $p < 0.001$), supporting partial mediation.

This study provides timely evidence from 2025 that well-structured digital strategies significantly enhance faculty productivity, teaching quality, and research engagement. The findings emphasize embedding digital transformation within institutional strategies to strengthen academic performance and sustain competitiveness.

Keywords higher education, academic productivity, technology adoption, teaching effectiveness, research engagement, organizational competitiveness, Oman

JEL Classification I23, O33, M15

Type of the article: Research Article

Received on: 10th of June, 2025
Accepted on: 17th of September, 2025
Published on: 26th of September, 2025

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Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

The rapid advancement of digital technologies has placed unprecedented pressure on higher education institutions to adapt and innovate. Digital transformation is no longer confined to technological upgrades but represents a fundamental restructuring of academic practices and institutional strategies. Effective digital integration has become essential for improving teaching quality, increasing research productivity, and ensuring the long-term sustainability of universities.

Despite this urgency, a persistent gap remains between the development of digital transformation strategies and their actual impact on

http://dx.doi.org/10.21511/ppm.23(3).2025.50

faculty performance. Universities continue to launch initiatives aimed at accelerating digital adoption, yet the mechanisms by which these efforts translate into improved teaching effectiveness, research engagement, and academic outcomes remain unclear. This disconnect raises critical concerns about whether strategic investments in digital transformation consistently deliver measurable academic benefits.

The issue is particularly acute in higher education systems where national policies explicitly promote digitalization as a cornerstone of competitiveness and future progress. In Oman, for instance, universities are expected to align their institutional strategies with broader digital transformation agendas. However, the extent to which these strategies succeed in enhancing faculty outputs is not well understood.

This lack of clarity constitutes a significant scientific problem: while digital transformation is widely recognized as a strategic necessity, the pathways through which it influences faculty performance remain insufficiently explored. Addressing this problem is essential for advancing both academic knowledge and practical policy in higher education.

1. LITERATURE REVIEW AND HYPOTHESES

Advances in digital technologies have reshaped higher education, making digital transformation a core driver of innovation, efficiency, and competitiveness. Unlike isolated technology adoption, digital transformation refers to the comprehensive integration of digital tools into organizational processes, cultures, and strategies with the aim of enhancing value creation and ensuring sustainability (Matt et al., 2015; Vial, 2019). This shift has positioned digital transformation as a strategic imperative for universities that must adapt to evolving expectations from students, governments, and global markets (Hashim et al., 2021; Warner & Wäger, 2019). The relevance of this issue has been heightened by global disruptions, including the COVID-19 pandemic, which accelerated the need for flexible digital infrastructures in higher education (Bond et al., 2021; Rapanta et al., 2020).

Universities worldwide are increasingly developing formalized strategies to align digital initiatives with long-term institutional goals. These strategies aim to avoid fragmented implementation and ensure that technological adoption is mission-driven and integrated with institutional vision (Hess et al., 2016; Vial, 2019). Frameworks such as Gartner's Digital Maturity Model and the Strategy-Aligned Transformation Model provide universities with mechanisms to assess readiness and build agility into the transformation process (Gartner, 2018; Van Horne & Zhang, 2016). Such frameworks highlight that successful transformation requires not only infrastructure but also leadership support, governance structures, and risk-responsive planning (Chanias & Hess, 2016).

Leadership commitment and institutional culture have been widely identified as critical enablers of successful transformation. Westerman et al. (2014) and Kane et al. (2019) emphasize that visionary leadership shapes coherent strategies, while Liang et al. (2017) note that cultural openness to change enables sustained adoption. In higher education, the absence of these enabling conditions often results in resistance, inefficiencies, or failure to achieve intended outcomes (Lichtenthaler, 2020). This underlines the importance of aligning strategic intent with organizational readiness and faculty capacity.

Digital transformation strategies are not pursued for their technical novelty alone; they are designed to strengthen institutional performance and competitiveness. Emerging technologies such as artificial intelligence, big data, and the Internet of Things provide opportunities for improved decision-making, innovative teaching, and more efficient administration (Bharadwaj et al., 2013; Porter & Heppelmann, 2015; Davenport, 2018). Moreover, market pressures and accreditation requirements demand that universities establish robust digital infrastructures to meet rising expectations for personalized learning and data governance (Fitzgerald et al., 2014; Tiwana et al., 2010).

Nonetheless, many institutions still adopt a technology-centric approach without addressing organizational culture and human resources. As AlNuaimi et al. (2022) note, universities that neglect the human dimension of transformation often fail to realize its benefits. Reviews of higher education practices reveal recurring barriers: fragmented vision, inadequate leadership engagement, resource constraints, and entrenched resistance to change (Fernández et al., 2023; Singun, 2025). These limitations highlight the need for strategies that extend beyond planning to encompass execution, change management, and investment prioritization.

Insights from other sectors illustrate the transformative potential of digital strategies. In healthcare, telemedicine and AI-driven diagnostics have revolutionized service delivery (Topol, 2019), while in manufacturing, predictive analytics and IoT applications have reshaped productivity and competitiveness (Porter & Heppelmann, 2015). These cases demonstrate that when digital strategies are embedded into broader organizational frameworks, they produce measurable performance improvements – an implication highly relevant for higher education.

Faculty members are at the core of institutional success, and their performance – commonly assessed through teaching quality, research productivity, and service contributions – is essential to competitiveness (Altbach et al., 2017; Bergmark & Westman, 2016). Digital transformation directly influences these roles by enabling flexible learning environments, reducing administrative burdens, and providing access to new pedagogical and research tools (Daniel, 2020; Selwyn, 2022). Analytics and AI further expand research potential, supporting advanced data management and predictive modeling (Nicholas et al., 2020).

At the same time, digitalization introduces challenges. Studies caution that faculty may face technostress, increased workloads, and new forms of professional pressure when adapting to digital demands (Gorrell, 2023). These unintended consequences underline the importance of considering the human dimension of digital initiatives and providing adequate institutional support.

A recurring theme in the literature is the centrality of digital competence among faculty. Al-Emran et al. (2020) and Al-Saedi et al. (2019) highlight that digitally literate faculty engage more effectively with new platforms, fostering pedagogical innovation. Training and professional development programs have been shown to strengthen digital readiness, creating conditions for sustainable transformation (Bond et al., 2018). Without adequate capacity-building, even well-designed strategies struggle to generate positive outcomes.

In the Omani context, digital transformation is a priority at the national policy level, with higher education institutions expected to align with government-led digitalization agendas. Empirical research emphasizes that faculty skills, funding, and organizational culture are decisive for the effectiveness of these initiatives (Al-Hasani & Husin, 2021). Recent evidence points to the role of faculty mindsets, readiness, and perceptions of institutional support in shaping the success of digital strategies (Al Sabbagh, 2024). Case studies also show that continuous engagement by academic staff contributes to greater efficiency and improved student outcomes (Kayanja et al., 2025). These findings demonstrate that faculty are not passive recipients of digital strategies but active participants whose engagement determines the success of transformation.

The literature suggests that digital transformation strategies serve as a bridge between institutional vision and measurable outcomes, fostering collaboration, productivity, and innovation (Kohli & Melville, 2019; Smith, 2023). Yet significant gaps remain. First, most research emphasizes organizational performance, with limited attention to faculty-level outcomes. Second, the mediating role of digital transformation itself has rarely been tested empirically, leaving unclear how strategies translate into improvements in teaching, research, and engagement. Third, evidence from emerging contexts such as Oman is scarce, even though these systems are actively implementing national digitalization policies. Finally, longitudinal analyses of the sustainability of transformation efforts remain underdeveloped (Henriette et al., 2016; Lichtenthaler, 2020).

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Accordingly, this study aims to demonstrate that effective digital strategies enhance faculty performance in Omani universities by leveraging digital transformation as a mediating mechanism, while overcoming challenges of readiness, organizational support, and execution.

Based on the reviewed literature, the following hypotheses are proposed:

H1: Digital transformation strategy positively influences the performance of Omani faculty members.

H2: Digital transformation strategy positively influences digital transformation among Omani faculty members.

H3: Digital transformation positively influences the performance of Omani faculty members.

H4: Digital transformation mediates the relationship between digital transformation strategy and the performance of Omani faculty members.

2. METHODS

This study adopted a quantitative field design to demonstrate that effective digital strategies enhance faculty performance in Omani universities by leveraging digital transformation as a mediating mechanism, while overcoming challenges of readiness, organizational support, and execution.

Following a hypothetico-deductive approach, the study utilized validated survey instruments, structured data collection, and inferential statistical analysis. This design was selected because it allows empirical testing of causal relationships and the quantification of mediation effects in organizational contexts.

The research was conducted in Oman between April and May 2025, targeting faculty members from both public and private universities. Oman was selected as the study context because of its government-driven agenda to promote digital transformation in higher education, positioning universities as central actors in achieving national competitiveness. The time frame of April–May was chosen because it coincided with the active academic semester, ensuring that faculty members were engaged in teaching and research activities and thus well-positioned to provide informed responses about digital transformation practices.

The population comprised academic faculty members, as they are central actors in implementing digital transformation initiatives. A purposive stratified sampling strategy ensured representation across major universities and academic ranks.

The minimum required sample size was determined using the Krejcie and Morgan (1970) formula

$$n = \frac{z^2 p(1-p)}{e^2}, \quad (1)$$

with parameters set at $Z = 1.96$ (95% confidence level), $p = 0.50$ (maximum variability), and $e = 0.04$ (margin of error). This produced a minimum of 294 respondents. To strengthen generalizability and account for non-responses, 400 questionnaires were distributed. After screening, 340 valid responses were retained, representing an effective response rate of 85%.

Table 1 presents the respondents' demographic profile.

Table 1. Demographic characteristics of the study sample

Demographic Variable	Categories	Frequency	Percentage (%)
Gender	Male	197	58.0%
	Female	143	42.0%
University Name	Sultan Qaboos University	105	31.0%
	Muscat University	92	27.0%
	Dhofar University	48	14.0%
	University of Buraimi	44	13.0%
	Others	51	15.0%
Type of University	Public	292	86.0%
	Private	48	14.0%

The sample consisted of 58% men and 42% women, with 86% from public universities. Respondents were affiliated with four major Omani universities, including Sultan Qaboos University (31%), Muscat University (27%), Dhofar University (14%), University of Buraimi (13%), and others (15%).

This distribution mirrors the structure of Oman's higher education sector, dominated by public institutions.

The data collection instrument was a structured questionnaire comprising 21 items, each measured on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). Three constructs were included:

- Digital Transformation Strategy (DTS): 7 items adapted from Teng, Wu, & Yang (2022), modified to reflect the higher education context.
- Digital Transformation (DT): 6 items adapted from Fanny et al. (2024).
- Faculty Performance (FP): 8 items developed by the researcher to capture teaching, research, and service performance.

Table 2 provides an overview of the constructs and item codes.

A pilot test was conducted with 50 faculty members to assess clarity, content validity, and reliability. Feedback led to minor revisions in wording, and all constructs demonstrated satisfactory internal consistency (Cronbach's alpha > 0.70). The decision to limit the instrument to 21 items was made to ensure respondent engagement while covering the essential dimensions of each construct.

Data were collected using an online questionnaire distributed directly to faculty members' institutional emails. Participation was voluntary, and each participant was allowed to respond once. No repeated measures were taken. The survey was administered between April and May 2025 across four major Omani universities, aligning with the semester period to capture active academic experiences.

Data analysis was performed using R statistical software. A multi-stage analytical procedure was employed:

1. Reliability and Validity Analysis: Internal consistency tested through Cronbach's alpha and composite reliability; convergent validity via Average Variance Extracted (AVE); discriminant validity via correlation analysis.
2. Descriptive and Inferential Statistics: Means, standard deviations, and frequency distributions calculated; one-sample t-tests examined deviations from the neutral midpoint (3.0).
3. Correlation and Regression Analysis: Pearson's correlation assessed bivariate associations; multiple regression and ANOVA examined the direct effects of DTS and DT on FP.
4. Mediation Analysis: The mediating effect of DT was tested using the Baron and Kenny (1986) approach and bootstrapping with 5,000 resamples (Efron & Tibshirani, 1994).

The conceptual model guiding the analysis is shown in Figure 1.

The study was approved by the Local Research Ethics Committee (LREC) under the following details:

- Approval No.: UT-620-386-2025
- Approval Date: April 27, 2025
- Review Type: Fast-track

All participants received detailed information about the study's objectives, confidentiality protections, and voluntary nature. Written informed consent was obtained before participation. Respondents were assured that they could withdraw at any point without penalty. No personal identifiers were recorded, and responses were stored securely in password-protected files accessible only to the principal investigator.

Table 2. Study variables, items, and codes

Code	Variable	Role	Statements	No. of statements
X	Digital Transformation Strategy	Independent	From S1 to S7	7
M	Digital Transformation	Mediator	From S8 to S13	6
Y	Faculty Performance	Dependent	From S14 to S21	8

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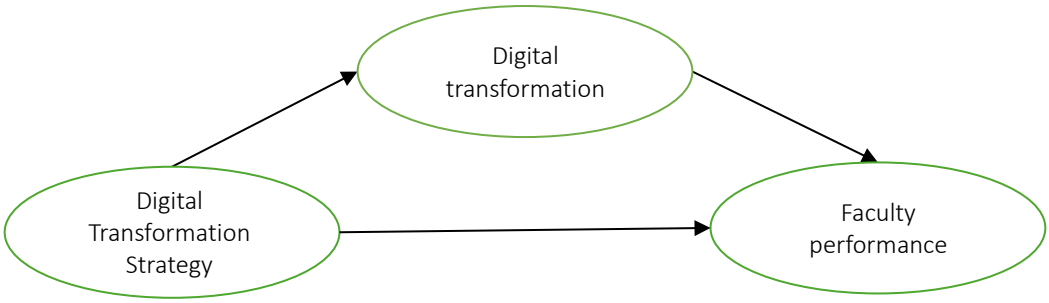

Figure 1. Research model

To ensure transparency and reproducibility, the full questionnaire is provided in Appendix A.

3. RESULTS

Table 3 reports the Cronbach's alpha and validity coefficients for each questionnaire item, along with the corresponding values for each variable included in the study.

According to Table 3, the Cronbach's alpha values reached a minimum of 0.748, while the validity coefficients were no lower than 0.865. These values confirm, at the 95% confidence level, that the dataset demonstrates adequate reliability and validity. Accordingly, the subsequent statistical analyses and hypothesis testing will be based on this data.

To identify the items associated with each variable, the researcher coded the statements as S1 through

Table 3. Reliability and validity analysis of questionnaire statements

Statement	Cronbach's Alpha	Validity	Rank
Our university's digital transformation strategy can improve performance	0.911	0.954	Excellent
Our university's digital transformation strategy can improve competitiveness	0.890	0.943	Good
Our university's digital transformation strategy can fundamentally change processes	0.921	0.960	Excellent
Our university's digital transformation strategy can improve student experience and satisfaction	0.864	0.930	Good
Our university's digital transformation strategy can improve innovation capabilities	0.845	0.919	Good
Our university's digital transformation strategy can improve decisions	0.748	0.865	Acceptable
Our university's digital transformation strategy can improve efficiency	0.841	0.917	Good
Overall for X (Digital Transformation Strategy)	0.819	0.887	Good
In our university, we collaborate on questions regarding digitization	0.843	0.918	Good
In our university, there is a culture that encourages development	0.752	0.867	Acceptable
Digital tools contribute to new ways of working that have spread through the university	0.985	0.992	Excellent
Digital tools enable me to achieve goals and visions that help develop the university	0.908	0.953	Excellent
Digital tools have led us to organize the university differently from before	0.847	0.920	Good
Our university's digital transformation maturity compared to peers is good	0.841	0.917	Good
Overall for M (Digital Transformation)	0.913	0.954	Excellent
I consistently maintain high quality in my academic and administrative responsibilities with the help of digital tools	0.975	0.945	Excellent
The use of digital technologies has improved my ability to complete tasks within deadlines	0.766	0.875	Acceptable
I can quickly adapt to changes in work processes due to digital transformation	0.892	0.891	Good
Digital transformation has enhanced my ability to deliver engaging and effective lectures or training sessions	0.954	0.918	Excellent
Digital tools and platforms have increased my research output and the quality of my publications	0.821	0.906	Good
I effectively collaborate with colleagues and students using digital platforms	0.892	0.944	Good
The integration of digital tools has affected your work-life balance positively.	0.749	0.865	Acceptable
Digital transformation has positively impacted my overall job performance as an academic staff member	0.859	0.927	Good
Overall for Y (Faculty Performance)	0.918	0.944	Excellent

Table 4. Frequency distribution of responses

Statement	Strongly Disagree		Disagree		Natural		Agree		Strongly Agree	
	#	%	#	%	#	%	#	%	#	%
Independent Variable: Digital Transformation Strategy (X)										
S1	48	14.12%	44	12.94%	38	11.18%	98	28.82%	112	32.94%
S2	36	10.59%	48	14.12%	68	20.00%	81	23.82%	107	31.47%
S3	44	12.94%	52	15.29%	74	21.76%	79	23.24%	91	26.76%
S4	44	12.94%	47	13.82%	54	15.88%	91	26.76%	104	30.59%
S5	39	11.47%	34	10.00%	57	16.76%	95	27.94%	115	33.82%
S6	34	10.00%	39	11.47%	61	17.94%	89	26.18%	117	34.41%
S7	41	12.06%	41	12.06%	65	19.12%	79	23.24%	114	33.53%
Mediator Variable: Digital Transformation (M)										
S8	28	8.24%	33	9.71%	62	18.24%	96	28.24%	121	35.59%
S9	33	9.71%	37	10.88%	59	17.35%	102	30.00%	109	32.06%
S10	27	7.94%	30	8.82%	60	17.65%	94	27.65%	129	37.94%
S11	33	9.71%	39	11.47%	74	21.76%	88	25.88%	106	31.18%
S12	39	11.47%	41	12.06%	73	21.47%	87	25.59%	100	29.41%
S13	29	8.53%	31	9.12%	64	18.82%	84	24.71%	132	38.82%
Dependent Variable: Faculty Performance (Y)										
S14	24	7.06%	29	8.53%	87	25.59%	95	27.94%	105	30.88%
S15	22	6.47%	29	8.53%	89	26.18%	83	24.41%	117	34.41%
S16	35	10.29%	39	11.47%	64	18.82%	89	26.18%	113	33.24%
S17	41	12.06%	40	11.76%	67	19.71%	88	25.88%	104	30.59%
S18	32	9.28%	51	14.78%	70	20.29%	87	25.22%	105	30.43%
S19	42	12.54%	57	17.01%	65	19.40%	71	21.19%	100	29.85%
S20	40	11.76%	52	15.29%	59	17.35%	87	25.59%	102	30.00%
S21	41	12.06%	52	15.29%	61	17.94%	79	23.24%	107	31.47%

S21. Table 4 presents the frequency distribution of these items across the five categories of the Likert scale.

The descriptive results revealed that most respondents indicated agreement or strong agreement with the items concerning digital transformation strategy, digital transformation, and faculty performance. More than 60% consistently selected positive response options, reflecting a generally favorable view of digital initiatives within higher education.

One-sample t-tests were performed for all questionnaire items against the neutral midpoint (3.0).

Since the p-values for all questionnaire items were below the 5% threshold, the null hypothesis was rejected. At the 95% confidence level, the t-test results provide statistical evidence that responses are skewed toward the positive side of the scale (agreement). This indicates that, overall, participants generally agreed.

Table 5. Results of one-sample t-test for individual statements

Statement	t-test value	P-value	Statement	t-test value	P-value
S1	43.21	0.002	S12	44.13	0.000
S2	39.10	0.008	S13	37.24	0.009
S3	37.63	0.005	S14	39.18	0.007
S4	28.67	0.004	S15	41.58	0.041
S5	38.59	0.003	S16	35.42	0.006
S6	31.58	0.021	S17	37.68	0.003
S7	29.53	0.021	S18	32.91	0.000
S8	41.26	0.005	S19	31.64	0.007
S9	43.37	0.044	S20	38.72	0.009
S10	40.48	0.007	S21	43.74	0.012
S11	37.24	0.003			

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Table 6. One-sample t-test analysis by variables

Variables	t-test value	P-value
Digital Transformation Strategy (X)	40.64	0.001
Digital Transformation (M)	43.25	0.000
Faculty Performance (Y)	44.94	0.000

Table 6 demonstrates that all study variables achieved significance at the 95% level, leading to the rejection of the null hypothesis. The results suggest a clear tendency among respondents to agree or strongly agree with the items.

Hypothesis testing was carried out through Pearson's correlation analysis of the study variables, and the outcomes are displayed in Table 7.

The Pearson correlation results indicated strong and positive relationships among all three constructs. Digital transformation strategy was highly correlated with digital transformation ($r = 0.901$, $p < 0.001$) and with faculty performance ($r = 0.864$, $p = 0.001$). Similarly, digital transformation demonstrated a strong positive correlation with faculty performance ($r = 0.837$, $p < 0.001$).

A mediation framework explains how an independent variable (X) influences a dependent variable (Y) through a mediator (M). In this framework, X affects M, which in turn impacts Y, while also allowing for the direct effect of X on Y independent of the mediation process. One of the most widely cited procedures for testing mediation was introduced by Baron and Kenny (1986).

In mediation analysis, the emphasis is generally placed on evaluating the total, direct, and indirect effects, with particular attention given to whether the indirect effect (ab) is statistically significant. As noted by MacKinnon (2008), this can be evaluated using the Large Sample Wald Test. The Wald test is designed to assess whether the product term ab differs significantly from zero, building on the earlier Sobel test (1982), which provides a first-order standard error estimate.

$$z = \frac{ab}{\sqrt{\left(as_b\right)^2 + \left(bs_a\right)^2}}. \quad (2)$$

Bootstrapping, first advanced by Efron and Tibshirani (1994), is a resampling method used to approximate standard errors and construct confidence intervals, particularly when traditional statistical assumptions are not met. By generating numerous bootstrap samples, the method produces repeated estimates of the indirect effect (ab)). The variability across these estimates, expressed as their standard deviation, serves as the bootstrap-based standard error for ab. This procedure allows for the development of a Wald-type *z*-test to assess the significance of the indirect effect.

The proposed model is illustrated in Figure 2.

The model evaluates how X affects Y directly and indirectly. If the direct association between X and Y diminishes while the indirect effect via the mediator (M) remains significant, this provides evidence that M mediates the relationship by transferring part of X's influence to Y. If the direct effect weakens but remains significant, the mediation is classified as partial; if it becomes statistically non-significant, the mediation is considered complete.

An analysis of variance (ANOVA) for regression models integrating the mediator will be discussed in the next section. This analysis will test the significance of each model and evaluate the regression coefficients to determine the extent of the direct, indirect, and total effects. A summary of these results is provided in Table 8.

Table 7. Correlation matrix of study variables

Variables		X	M	Y
Digital Transformation Strategy (X)	R		90.10%	86.40
	Sig. Value		0.000	0.001
Digital Transformation (M)	R	90.10%		83.70%
	Sig. Value	0.000		0.000
Faculty Performance (Y)	R	86.40%	83.70	
	Sig. Value	0.001	0.000	

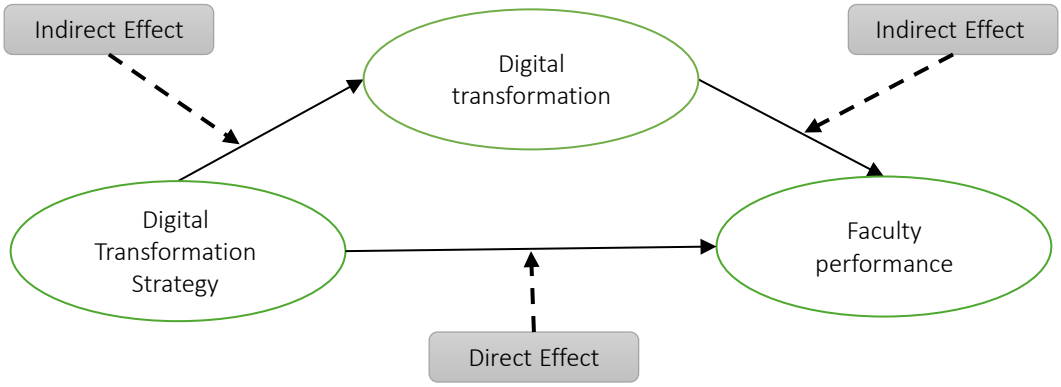

Figure 2. Mediation model of digital transformation

Table 8. Regression model results

Models	Dependent Variable	Independent variables	R^2	Sig.
Model 1: *Y = f(X)*	FP (Y)	DTS (X)	74.65%	0.000
Model 2: *M = f(X)*	DT (M)	DTS (X)	81.18%	0.000
Model 3: *Y = f(M)*	FP (Y)	DT (M)	70.06%	0.000
Model 4: *Y = f (X, M)*	FP (Y)	DTS (X)	11.07%	0.004
		DT (M)	79.40%	0.000

Based on Table 8, the following results were obtained.

Model 1: Digital transformation strategy significantly predicted faculty performance ($R^2 = 74.65\%$, $p < 0.001$).

- Model 2: Digital transformation strategy significantly predicted digital transformation ($R^2 = 81.18\%$, $p < 0.001$).
- Model 3: Digital transformation significantly enhanced faculty performance ($R^2 = 70.06\%$, $p < 0.001$).
- Model 4: Both digital transformation strategy and digital transformation jointly predicted faculty performance ($R^2 = 90.47\%$, $p < 0.001$), with digital transformation acting as a mediator.

Table 9 displays the total, direct, and indirect effects of the mediator, derived using bootstrapping.

From Table 9, the following results were obtained.

The results provide statistical evidence at the 95% confidence level that the mediator variable significantly influences the dependent variable.

We can conclude the regression equations for the models as follows:

$$\underset{(R^2=74.65\%)}{FP} = \underset{(0.000)}{0.071} + \underset{(0.001)}{1.405}\ DTS, \quad (3)$$

$$\underset{(R^2=81.18\%)}{DT} = \underset{(0.026)}{0.046} + \underset{(0.000)}{1.149}\ DTS, \quad (4)$$

$$\underset{(R^2=70.06\%)}{FP} = \underset{(0.037)}{0.057} + \underset{(0.000)}{1.071}\ DT, \quad (5)$$

$$\underset{(R^2=90.47\%)}{FP} = \underset{(0.036)}{0.087} + \underset{(0.004)}{0.604}\ DT + \underset{(0.000)}{0.651}\ DTS. \quad (6)$$

Table 9. Bootstrap estimates of effects

Type of Effect	Coefficient	SE	z-value	p-value	95% CI lower	95% CI upper
Total	1.405	0.023	44.345	0.000	1.124	1.805
Direct (X → Y)	1.026	0.072	7.021	0.000	0.857	1.325
Indirect (X → M_1 → Y)	0.379	0.452	1.209	0.001	0.290	0.643

http://dx.doi.org/10.21511/ppm.23(3).2025.50

Table 10. Summary of hypothesis testing

No.	Hypothesis	Decision
H_1	Digital transformation strategy positively influences the performance of Omani faculty members.	Accepted
H_2	Digital transformation strategy positively influences digital transformation among Omani faculty members.	Accepted
H_3	Digital transformation positively influences the performance of Omani faculty members.	Accepted
H_4	Digital transformation mediates the relationship between digital transformation strategy and the performance of Omani faculty members.	Accepted

Based on these findings, all four hypotheses (H1 to H4) were supported with statistically significant results. The summary of hypothesis testing is provided in Table 10.

4. DISCUSSION

This study provides empirical confirmation that digital transformation functions as a critical mediator between institutional strategies and faculty performance in Omani universities. The results demonstrate that while strategic formulation is essential, performance improvements at the faculty level occur primarily when strategies are operationalized through digital transformation initiatives. This interpretation is particularly relevant in the context of Oman's Vision 2040, where digitalization is positioned as a driver of higher education competitiveness.

Hypothesis 1 was supported, showing that digital transformation strategy positively influences faculty performance ($\beta = 1.026$, $p < 0.001$). This finding is consistent with Kohli and Melville (2019), who argued that strategic coherence enhances organizational productivity. Our results extend this view by providing faculty-level evidence: in Omani universities, strategies that are well aligned with institutional missions directly contribute to improvements in teaching, research, and service. In contrast, poorly aligned or symbolic strategies appear insufficient to generate faculty gains, a finding that underscores the necessity of connecting digital planning to academic practice.

Hypothesis 2 confirmed the strong relationship between digital transformation strategy and digital transformation ($\beta = 0.901$, $p < 0.001$). This resonates with Matt et al. (2015) and Chanias and Hess (2016), who emphasized that strategies produce impact only when executed effectively. The current study contributes by contextualizing this within higher education: Omani universities that actively implement strategic digital initiatives show measurable progress in transformation, while those with static or symbolic strategies achieve little. This reinforces the danger of treating strategy as rhetoric rather than action.

Hypothesis 3 demonstrated that digital transformation positively influences faculty performance ($\beta = 0.837$, $p < 0.001$). This aligns with Daniel (2020) and Al-Emran et al. (2020), who found that digitalization enhances pedagogical innovation, efficiency, and collaboration. Our findings build on these works by showing that faculty themselves perceive digital transformation as a direct enabler of performance, particularly in the post-COVID era, where online and hybrid teaching, digital research tools, and collaboration platforms have become mainstream. Thus, digitalization is not only institutionally beneficial but also individually empowering for academics.

Hypothesis 4 confirmed the mediating role of digital transformation in the strategy-performance relationship (indirect $\beta = 0.379$, $p < 0.001$). This supports Warner and Wäger (2019), who conceptualized digital transformation as a dynamic capability that bridges strategy with outcomes. The results of the current study refine this understanding in the higher education context by showing that strategies in Omani universities do not automatically yield performance gains. Instead, transformation serves as the "missing link" that converts strategic intent into tangible academic outcomes.

From a theoretical perspective, the findings advance the application of dynamic capability theory in higher education by empirically vali-

dating digital transformation as a mediating mechanism. This strengthens the argument that institutional performance improvements require not only strategic intent but also adaptive processes that translate strategies into practice.

From a practical perspective, the results imply that university leaders must move beyond strategy formulation to invest in digital infrastructure, faculty competence-building, and cultural change. Without these elements, strategies risk remaining aspirational.

The explanatory power of the regression models (e.g., R^2 = 81.18% for digital transformation strategy → digital transformation; R^2 = 74.65% for digital transformation strategy → faculty performance) highlights the robustness of the framework, though limitations must be acknowledged. The cross-sectional design constrains causal inference, and reliance on self-reported data may introduce response bias, despite strong reliability and validity (Cronbach's alpha > 0.74). Future research should employ longitudinal designs, integrate objective performance metrics, and explore moderating variables such as leadership style, institutional support, and digital literacy.

This study contributes to scholarship and practice in four ways. First, it provides rare empirical evidence in higher education on the mediating role of digital transformation in linking strategies to faculty performance. By showing that strategies alone do not guarantee performance gains, it highlights transformation as the operational mechanism through which intent becomes impact. Second, while much prior research has examined institutional-level outcomes (e.g., infrastructure or governance), this study focuses directly on faculty, offering new insights into how academics perceive and benefit from transformation. Third, the study contributes context-specific evidence from Omani universities, where digital transformation is policy-driven under Vision 2040. This extends global understanding by illustrating how transformation unfolds in emerging higher education systems. Finally, by empirically validating a model grounded in dynamic capability theory, the study reinforces the applicability of strategic management perspectives in education research.

CONCLUSION

The purpose of this study was to demonstrate that effective digital strategies enhance faculty performance in Omani universities by leveraging digital transformation as a mediating mechanism, while overcoming challenges of readiness, organizational support, and execution.

The results highlight that digital transformation acts as the operational pathway through which strategic intent translates into measurable improvements in teaching, research, and academic engagement. This finding contributes to the literature by demonstrating that digital strategies alone are insufficient; performance gains emerge when they are embedded within institutional structures, supported by faculty competencies, and reinforced through organizational culture.

The novelty of this study lies in shifting the focus from institutional-level digitalization outcomes to the faculty level, offering empirical evidence from the Omani higher education system. Practically, the findings suggest that policymakers and university leaders should prioritize not only the design of digital strategies but also investment in infrastructure, capacity-building, and cultural readiness to ensure their effectiveness.

Future research should adopt longitudinal designs to track the sustainability of transformation efforts over time, investigate moderating factors such as leadership style and governance mechanisms, and expand the scope to include cross-country comparisons within the Gulf region. Such directions will enrich the understanding of how digital transformation influences academic work in diverse higher education contexts.

http://dx.doi.org/10.21511/ppm.23(3).2025.50

AUTHOR CONTRIBUTIONS

Conceptualization: Noha Ahmed.
Data curation: Noha Ahmed.
Formal analysis: Noha Ahmed.
Funding acquisition: Noha Ahmed.
Investigation: Noha Ahmed.
Methodology: Noha Ahmed.
Project administration: Noha Ahmed.
Resources: Noha Ahmed.
Software: Noha Ahmed.
Validation: Noha Ahmed.
Visualization: Noha Ahmed.
Writing – original draft: Noha Ahmed.
Writing – review & editing: Noha Ahmed.

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http://dx.doi.org/10.21511/ppm.23(3).2025.50

APPENDIX A
QUESTIONNAIRE

Title: Digital Transformation Strategy and Faculty Performance in Omani Universities: The Mediating Role of Digital Transformation

Dear Sir/Madam,

Greetings, the attached questionnaire aims to collect data for a scientific research study on: Digital Transformation Strategy and Faculty Performance in Omani Universities: The Mediating Role of Digital Transformation. We kindly request you complete the questionnaire. Your responses will be used solely for academic research purposes. We are grateful for your time and contribution.

Please place a check mark (✓) next to the option that best applies to you.

Table A1. Section One: General information about the individual

No.	Variable	Category	✓
1.	Gender	Male	
		Female	
2.	Name of the university you work at (optional) University Type	Sultan Qaboos University	
		Muscat University	
		Dhofar University	
		Al Buraimi University	
		Other/specify	
3.	Type of university	Government	
		Private	

Table A2. Section Two: Study variables

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Digital Transformation Strategy						
1	Our university's digital transformation strategy can improve performance					
2	Our university's digital transformation strategy can improve competitiveness					
3	Our university's digital transformation strategy can fundamentally change processes					
4	Our university's digital transformation strategy can improve student experience and satisfaction					
5	Our university's digital transformation strategy can improve innovation capabilities					
6	Our university's digital transformation strategy can improve decisions					
7	Our university's digital transformation strategy can improve efficiency					
Digital transformation						
8	In our university, we collaborate on questions regarding digitization					
9	In our university, there is a culture that encourages development					
10	Digital tools contribute to new ways of working that have spread through the university					
11	Digital tools enable me to achieve goals and visions that help develop the university					
12	Digital tools have led us to organize the university differently than before					
13	Your university's digital transformation maturity compared to peers is good					

Table A2 (cont.). Section Two: Study Variables

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	Employee performance					
14	I consistently maintain high quality in my academic and administrative responsibilities with the help of digital tools					
15	The use of digital technologies has improved my ability to complete tasks within deadlines					
16	I can quickly adapt to changes in work processes due to digital transformation					
17	Digital transformation has enhanced my ability to deliver engaging and effective lectures or training sessions					
18	Digital tools and platforms have increased my research output and the quality of my publications					
19	I effectively collaborate with colleagues and students using digital platforms					
20	The integration of digital tools has affected your work-life balance positively					
21	Digital transformation has positively impacted my overall job performance as an academic staff member					

http://dx.doi.org/10.21511/ppm.23(3).2025.50