

Digital transformation as an intermediary mechanism to enhance the quality of leadership performance in educational institutions: A multidisciplinary approach between digital human resource management and organizational culture

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ABSTRACT

This paper focuses on exploring how digital transformation mediates the relationship between digital human resource management, organizational culture, and quality of leadership performance among institutions of learning. It is based on the assumption that the adoption of digital tools does not necessarily improve the performance of leaders without an integrated institutional system that integrates digital HR practices, a change-friendly culture, and the use of data and technology to make managerial decisions. The research fills one of the gaps in the educational and Gulf research, as it offers an explanatory model on the connection between human, cultural, and digital aspects and leadership outcomes. The research design used was a quantitative explanatory cross-sectional design. The research used a structured questionnaire that was given to 268 top and middle leaders in educational institutions in the North Al Batinah Governorate in the Sultanate of Oman. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to analyze the data. The results show that digital HRM and organizational culture explain 58 percent of the variation in digital transformation, whereas digital HRM, organizational culture, and digital transformation jointly explain 67 percent of the difference in the quality of leadership performance. Significant positive impacts of digital HRM and organizational culture on the quality of digital transformation and leadership performance are also manifested by the results. In addition, the relationships between digital HRM and the quality of leadership performance and the relationship between organizational culture and the quality of leadership performance are mediated somewhat by digital transformation. It can be concluded that the performance of leadership in educational institutions cannot

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be enhanced only by the impact of technology, but it is essential to align digital HRM with digital transformation of organizational culture and institutions. The research adds a transdisciplinary explanatory framework with potential to inform educational organizations aiming to enhance the quality of leadership in the digital age.

Keywords: e-HRM practices, change-supportive climate, technology adoption, data-driven decision-making, PLS-SEM.

1. Introduction

Schools and colleges are experiencing swift structural changes where the digital transformation is not a technical possibility to simplify the operations but a strategic direction to redefine the management, leadership, institutional communication, and decision-making process. Digital transformation has therefore evolved to be an intricate organizational process whereby technology cuts across human resources, organizational culture, leadership, and institutional ability in order to adjust to the changing environments. In this regard, schools can no longer worry only about offering digital platforms/electronic systems; instead, they have to create an integrated ecosystem capable of utilizing data, improving operational flexibility, and redefining the roles of senior leadership and middle-level leaders in the context of education (Mahmoud et al., 2025; Ministry of Transport, Communications and Information Technology [MTCIT], 2025).

This shift has extended the definition of the quality of performance related to leadership in learning institutions. Compliance with regulations or control of daily activities is no longer seen as a defining attribute of a good leader, but rather the capacity to form digital competencies, strategize the vision, deal with change, and create the work culture founded on trust, communication, participation, and continuous learning. In this connection, according to Özkan Alakaş (2024), such aspects as digital transformational leadership, organizational agility, digital culture, and digital strategy are the key to the success of digital transformation. This paper concurs with this understanding, considering the digital

transformation as a mediating process whereby digital human resource management and organizational culture are transformed into quality of leadership performance.

This issue is increasing in its importance in the Sultanate of Oman in correspondence with the implications of the country developing a digital form of government and a knowledge-based economy. The Government Digital Transformation Program within the National Digital Economy Program is about creating a government of the future based on governance, new technologies, and a unified digital experience with service users (MTCIT, 2025). This is the same trend in the education sector, which is a significant source of human capital development. The shift towards digitalization of the Omani curriculum in the first to the twelfth grade can be viewed as an extension to the wider shift in Omani education to viewing digitalization as not a facilitating tool but as one of the elements of redefining the educational and administrative environment on more flexible and responsive platforms (Ministry of Education, 2025). Also, Lamin (2026) claims that the most effective reformation of education via AI implementation is one that is human-focused and context-specific, and he therefore recommends people view digital change as an institutional process and not a technical one.

However, technical infrastructure alone cannot be used to succeed with digital transformation. Regardless of the advancement of the technology, it builds no sustainable institutional value unless incorporated within the human, cultural, and organizational systems that utilize it. This demonstrates the applicability of digital human resource management as a strategic

response to improve digital preparedness through the creation of training systems, talent management, performance analysis, employee data analysis, and more effective and efficient managerial communication. As demonstrated by Mahmoud et al. (2025), digital HRM systems, as well as digital transformation, are correlated with the efficiency of human resources, and organizational agility enhances this correlation. This implies that digital HRM cannot be conceived as procedural automation but rather as a facilitating structure that can redefine the ability of the organization to learn, act, and enhance performance.

Organizational culture, in conjunction with the use of digital HRM, is a key factor in discussing the success or failure of digital transformation. The culture and norms of communication and the level of trust and the motivation to learn and embrace change make it or break it and cause the digital initiative to seem like an opportunity to become better or an imposition on the administration that leads to resistance. Organizational culture is an undeniable influence on the success of digital transformation, and those organizations having a culture that facilitates change have higher chances of transforming the technology into a meaningful contribution to the organization (Alshammari et al., 2024). Culture in educational organizations does not, in this way, act as a neutral background factor but is a force that influences the leaders' and employees' perceptions of digital transformation.

Most research on digital transformation in education and management, although there is an increase in research interest, has concentrated on the technical side of the subject, the issue of digital leadership, as well as digital HRM or digital organizational culture in isolation. The causal relationship between digital HRM, organizational culture, and quality of leadership performance amidst digital transformation has been given less focus in Arab and Gulf education. The majority of studies discuss direct impacts on variables but do not specify the chain of influence through which the impact is mediated. It can result in a one-sided image of

the relationships since it might appear that digital HRM and organizational culture have a direct impact on the leadership performance. Conversely, digital transformation can bring about some of their effects by transforming resources and values into digital practices, decisions, and work patterns.

The research question is to confirm an explanatory model of how digital human resource management and organizational culture influence the quality of leadership performance, acting through digital transformation, in senior- and middle-level leaders of educational organizations. The central question guiding the study is: To what extent does digital transformation, as a mediating mechanism, explain the relationship between digital human resource management and organizational culture on the one hand, and leadership performance quality in educational institutions on the other?

Based on this, the research analyzes how digital HRM and organizational culture directly affect quality of leadership performance, the influence of digital HRM and organizational culture on digital transformation, the impact of digital transformation on quality of leadership performance, and the mediating role of digital transformation between the two independent variables and quality of leadership performance. The research is significant as it transitions the discussion of what is available, or what is not, in the digital system to how the digital transformation produces leadership results in the interplay of human, cultural, and institutional elements. It is also a contribution to the Omani and Gulf educational literature, as it confirms an explanatory model in a region where only a few studies have been conducted empirically regarding digital transformation and educational leadership.

1.1 Digital Human Resource Management

Digital human resource management refers to the use of technologies, platforms, and data to develop human resource functions such as training, professional development, performance management, competency analysis, administrative communication, and personnel

decisions. In this research, digital HRM is not merely the conversion of paper-based processes into digital forms, but a change in how educational organizations manage individuals, knowledge, competencies, and performance.

Digital HRM in educational institutions is especially significant because it helps leaders identify performance gaps, pinpoint training needs, track staff development, and make decisions based on more reliable information. When implemented strategically, digital HRM practices can also support evidence-based leadership rather than leadership based on personal perceptions or conventional administrative practices. Mahmoud et al. (2025) showed that digital HRM systems and digital transformation relate to human resource efficiency, and that organizational agility strengthens this relationship. This reinforces the idea that digital HRM is valuable not only because digital systems are available, but because the institution can transform them into useful learning, responsive, and performance-enhancing knowledge.

Digital HRM thus is likely to have a direct impact on the quality of leadership performance. HR functions have shifted toward digital platforms, data analytics, e-learning, electronic performance evaluation, and competency management instead of traditional processes. These practices can support leadership performance by equipping leaders with the right data, flexible evaluations, and professional growth tools, helping them identify performance gaps and improve decision-making. This relationship is especially significant in educational institutions because leaders' performance depends on their ability to guide employees, review training needs, track performance, and make sound decisions using credible information. Accordingly, the first hypothesis is formulated as follows: H1: Digital human resource management has a statistically significant positive effect on leadership performance quality among senior- and middle-level leaders in educational institutions.

Digital transformation is also likely to be impacted by digital HRM. Digital transformation cannot succeed if it is based only on technical infrastructure or electronic platforms. It succeeds only by transforming how work is handled, decisions are made, and employees grow. Digital HRM is a major institutional driver of digital transformation because it can develop and improve skills, provide digital training, monitor performance, analyze employee data, and modernize HR processes. An institution may have a well-developed digital infrastructure, but it is not truly transformed unless it has the human capabilities to adopt technology and improve work processes. Accordingly, the third hypothesis is formulated as follows: H3: Digital human resource management has a statistically significant positive effect on digital transformation within educational institutions.

1.2 Organizational Culture

Organizational culture is a major determinant of the success or failure of digital transformation. It shapes how an institution thinks, responds to change, interacts across administrative levels, and addresses new initiatives. Organizational culture does not operate on professed values or official statements; it is reflected in everyday behavior, leadership style, communication style, trust, and readiness to learn and innovate.

Organizational culture plays a more profound role in educational institutions because learning activities rely on human relationships, idea-sharing, mentoring, and persuasion. Participation, collaboration, openness, and learning are cultural areas that help leaders and employees embrace digital transformation more effectively. On the other hand, a culture of rigidity and low trust or resistance to change can reduce digital transformation to a formal process with minimal performance effects. Alshammari et al. (2024) found that organizational culture shapes the success of digital transformation and can support or impede digital initiatives, depending on the values and behaviors that dominate the organization.

Leadership performance quality is supposed to be influenced by organizational culture. The

exercise of leadership does not occur in a vacuum, but rather in a values-based and performance system of behavior that could enable or limit initiative, innovation and improvement of performance levels. Employing a culture that promotes collaboration, accountability, lifelong learning, and sharing of knowledge gives leaders a more conducive platform to enhance performance. On the other hand, a culture with rigidity, low trust or resistance to change could hinder the accomplishment of high-quality performance by leaders even in the presence of digital systems or personal capabilities. Salisbury (2025) found that organizational culture had a strong positive influence on employee productivity, demonstrating the broader performance value of supportive cultural conditions within technology-intensive organizational environments. Accordingly, the second hypothesis is formulated as follows: H2: Organizational culture has a statistically significant positive effect on leadership performance quality among senior- and middle-level leaders in educational institutions.

Organizational culture is also expected to influence digital transformation. Digital transformation is an institutional change process rather than a technical process, prior to it becoming a technical process. Digital platforms and systems might exist, yet their successful application relies on the willingness of the leaders and the employees to utilize them, the degree of trust in the results, and the availability of values promoting learning, experimentation, collaboration, and participation. The study by Jewapatarakul and Ueasangkomsate (2024) confirmed that digital organizational culture, organizational readiness, and knowledge acquisition determine digital transformation and proposed the argument that culture and readiness are crucial conditions for successful transformation. Jebril et al. (2025) similarly positioned organizational culture as an important mediating mechanism between organizational antecedents and business intelligence, reinforcing the view that cultural conditions shape how digital capabilities are

translated into organizational outcomes. Accordingly, the fourth hypothesis is formulated as follows: H4: Organizational culture has a statistically significant positive effect on digital transformation within educational institutions.

1.3 Digital Transformation as a Mediating Mechanism

The concept of digital transformation is among the most notable in modern management and literature related to education. It is not used just in terms of the use of devices, platforms, or electronic systems in this study. Instead, it is the capacity of the institution to rebuild processes, communication processes, decision-making processes, and services via a combined digital logic. The digital transformation is placed as a mediating variable in that it concerns how the impacts of digital HRM and organizational culture are mediated to the quality of leadership performance.

Digital HRM offers the tools and information, whereas the organizational culture prepares and embraces change. Nevertheless, they influence leadership performance more evidently once they are converted into formal digital practices, including data-based decision-making, digital communication, process integration, flexible response, and systematic performance monitoring. According to Özkan Alakaş (2024), digital transformational leadership and organizational agility were found to affect digital transformation, and the digital culture and digital strategy might mediate some relationships. The rationale here is the logic behind the current research, which does not consider digital transformation as a consequence of one element, but as the outcome of interplay among leadership, culture, strategy, human resources, and organizational readiness.

The quality of leadership performance is also likely to be impacted by digital transformation. It transforms the way of getting information, the way of using data, performance monitoring, management of communications and decision-making. Digital transformation can enhance the capacity of leaders in educational institutions to detect problems and indicators, allocate

resources, enhance coordination, and address issues more promptly. As soon as data integrates into decision-making, platforms also integrate into communications, and systems also integrate into monitoring, leadership becomes more active, open, and receptive. Alghizzawi et al. (2025) further examined the effects of digitalization features on work performance, providing additional empirical context for linking digital transformation with organizational performance outcomes. Accordingly, the fifth hypothesis is formulated as follows: H5: Digital transformation has a statistically significant positive effect on leadership performance quality among senior- and middle-level leaders in educational institutions.

The mediating role of digital transformation is central to the study. Digital HRM can have a direct effect on the quality of leadership performance, but it probably affects it more profoundly when it helps to transform the institution digitally. Digital training, competency data analysis, electronic evaluation and platform-based performance management do not enhance leadership because they are digital-based tools, but they enhance leadership when integrated with larger-scale changes in decision-making, communication, monitoring, and work processes. Accordingly, the sixth hypothesis is formulated as follows: H6: Digital transformation mediates the relationship between digital human resource management and leadership performance quality among senior- and middle-level leaders in educational institutions.

Equally, organizational culture can have a direct impact on the quality of leadership, but indirectly by virtue of equipping the institution to go digital. A change-friendly culture will help support leaders and employees to adopt digital platforms, embrace transparency, share expertise, learn through data, and engage in digital projects. In doing so, cultural preparedness is transformed into digital practices that will facilitate the performance of leadership. Accordingly, the seventh hypothesis is formulated as follows: H7: Digital transformation mediates the relationship between organizational culture and leadership performance quality among senior- and middle-level leaders in educational institutions.

1.4 Conceptual Model and Operational Definitions

The proposed conceptual model assumes that digital human resource management and organizational culture influence leadership performance quality through two pathways: a direct pathway and an indirect pathway mediated by digital transformation. In the model, digital HRM and organizational culture represent the independent variables, digital transformation represents the mediating variable, and leadership performance quality represents the dependent variable. The model allows the study to test whether digital transformation plays a partial or full mediating role in the relationships between the independent variables and leadership performance quality.

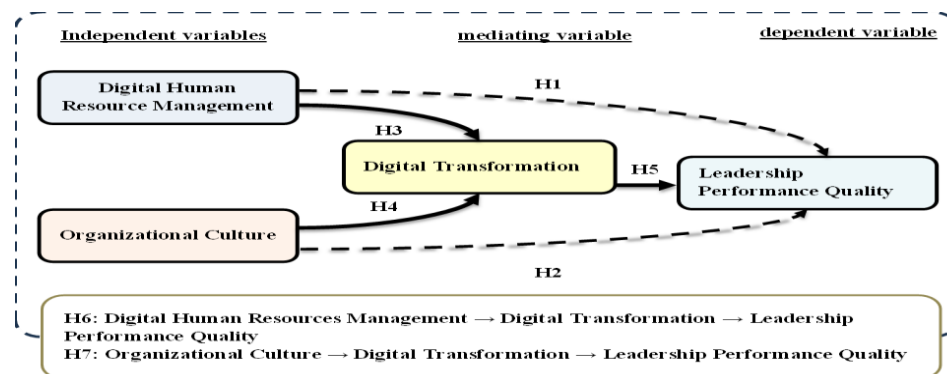


Figure 1. Conceptual model of the study

Note: The conceptual model illustrates the direct effects of digital HRM and organizational culture on leadership performance quality, the effects of digital HRM and organizational culture on digital transformation, the effect of digital transformation on leadership performance quality, and the indirect effects passing through digital transformation.

Operationally, digital human resource management is defined as the degree to which educational institutions use digital tools and platforms in implementing HR practices, including training, professional development, performance evaluation, competency management, employee data analysis and administrative communication. Organizational culture is defined as the system of values, behaviors and orientations that support or hinder change within educational institutions, including trust, collaboration, openness, learning, innovation and receptiveness to digital initiatives. Digital transformation is defined as the extent to which educational institutions use technologies, data, and digital processes to develop administrative, leadership and communication work in a way that improves flexibility, decision-making speed, procedural integration and service quality. Leadership performance quality is defined as the ability of senior and middle-level leaders in educational institutions to achieve effective leadership performance through decision-making, change management, employee guidance, communication improvement, data use, and institutional efficiency.

The theoretical logic of the model is consistent with perspectives that emphasize the interaction of resources, capabilities, culture, and technology. Leadership performance quality in the digital era does not result from technology alone, but from the institution's ability to align digital HRM practices, supportive cultural values, and digital transformation processes into a coherent system of leadership practice.

2. Methodology

2.1 Design

The study adopted a quantitative explanatory cross-sectional approach because it is fitting to test relationships among the variables involved in the research to measure effect sizes and to determine direct and indirect effects in the mediation model proposed. The research does not just explain the level of digital human resource management, organizational culture, digital transformation, or level of leadership performance; it tries to find out how digital HRM and organizational culture would affect the quality of leadership performance, both directly and indirectly through digital transformation.

The research uses an explanatory cross-sectional design. The design is suitable since the study seeks to test a predetermined conceptual model which is guided by theoretical presumptions and previous empirical studies. Digital human resource management and organizational culture are the independent variables in this model, and digital transformation is the mediating variable, whereas leadership performance quality is the dependent variable. This design facilitates testing the direct impact of digital HRM and organizational culture on the quality of leadership performance, the impact of digital HRM and organizational culture on digital transformation, and the mediating impact of digital transformation in the relationship between the independent variables and quality of leadership performance.

Partial Least Squares Structural Equation Modeling (PLS-SEM) was used in the study since it enables the researcher to evaluate the measurement model and structural model using a single analytical tool. It is also suitable for models that have latent variables and many relationships, and mediation spaces (Hair et al., 2021).

2.2 Participants/Sample

The study population comprised senior and middle-level leaders of the educational institutions in the North Al Batinah

Governorate of the Sultanate of Oman. This population consists of school principals, deputy principals, department heads, administrative supervisors, and administrative development or digital transformation process administrators in educational institutions. This choice of population is explained by the kind of study. The connection between the field implementation and higher-level policies lies in senior and middle-level leaders. They are involved in interaction with HR practices, involvement in the enactment of digital policies, organizational culture, and assume leadership functions in communication, change, and performance management.

The research participants included 268 senior- and middle-level leaders from educational institutions. The sample size employed in this research is suitable for a quantitative analysis with PLS-SEM, since there are four key latent variables in the proposed model and a list of direct and indirect connections. The sample size also offers adequate statistical stability to test the reliability, validity, explained variance, as well as mediation effects. The stratified sampling was implemented in order to have the various leadership categories featured in the educational institutions. The approach is suitable since the target population will comprise multiple levels of leadership and different professional groups that will assist in eliminating selection bias and offer a balanced sample of respondents whose roles can be connected to the variables of the study.

2.3 Instruments

The primary data collection tool that was employed was the questionnaire since it fits well in quantitative explanatory research where the perceptions of a relatively large sample on the predefined variables are to be measured. A five-point Likert scale ranging from strongly agree to disagree strongly was used in the questionnaire.

The questionnaire was divided into five parts. The first part consisted of demographic and professional data, including gender, educational attainment, work years, job position, and type of institution, as well as involvement in digital

transformation efforts. The second section gauged the management of digital human resources using questions concerning digital training, performance assessment, competency management, using data to make HR decisions, and administrative communication. The third section assessed organizational culture in terms of trust, collaboration, openness to change, innovation, learning and knowledge sharing. The fourth part quantified digital transformation, on the basis of items that concerned integration of digital systems, use of data, process development, digital communication, speed of response, and quality of electronic service. The fifth section evaluated the quality of leadership performance using items that concerned quality in decision-making, change management, employee guidance, data utilization, communication enhancement, and performance tracking.

2.4 Procedure Before the data collection process, approval was given by the Directorate of Education in North Al Batinah Governorate, Sultanate of Oman, aligned with the procedures that were approved by the Department of Educational Studies and International Cooperation within the Ministry of Education. Qualified candidates were the top- and middle-level leaders in the educational establishments in the governorate. The participants were made aware of the aim of the research, the voluntary nature of their participation, the confidentiality of their answers, and their right to opt out of the research. Participation was informed, and the questionnaire was administered to the selected participants online. In the end, analysis included 268 complete replies. Data were collected, then coded and pre-screened in terms of completeness and accuracy in data entry. The data were entered into SPSS to be pre-analyzed and then moved onto SmartPLS to evaluate the measurement and structural model. All the information gathered was

treated as confidential and was only utilized to serve this study.

2.5 Validity and Reliability

To guarantee both face and content validity, the original draft of the questionnaire was screened by experts in the field of educational administration, human resource management, digital transformation, and measurement and evaluation. The reviewers evaluated the clarity of the items, their relevance to the variables, their relevance to the educational setting, and whether or not it contained ambiguity or overlapping concepts. Depending on their remarks, certain items were changed to enhance the accuracy and clarity of the instrument.

The PLS-SEM measurement model was used to test construct validity and reliability after data collection. Cronbach's alpha and Composite Reliability (CR) were evaluated as measures of internal consistency, and the Average Variance Extracted (AVE) as a measure of convergent validity. Discriminant validity was also studied on the basis of the Heterotrait-Monotrait Ratio (HTMT), which is regarded as a delicate measure of evaluating discriminant validity when it comes to variance-based structural equation modeling (Henseler et al., 2015).

2.6 Data Analysis

Once the data had been collected, the information was coded and entered into SPSS to be preliminarily analyzed, and then transferred to SmartPLS to test the measurement and structural models. The initial analysis involved the verification of missing values, correctness of data input, demographic data, and overall distribution of the responses. The statistical analysis was performed in two steps. The initial step was to evaluate the measurement model by measuring the reliability and validity using

different indicators such as Cronbach's alpha, CR, AVE, and HTMT. The second step was testing the structural model using path coefficients, t-values, p-values and the coefficient of determination (R^2). The significance of both direct and indirect effects was tested, and the role of digital transformation as a mediator was tested using the bootstrapping procedure.

2.7 Ethical Considerations

The research followed the ethical principles of the Declaration of Helsinki in carrying out educational and administrative research. The order to carry out this study was approved by the Directorate of Education, in the North Al Batinah Governorate of the Sultanate of Oman, after undergoing all the relevant procedures endorsed by the Department of Educational Studies and International Cooperation at the Ministry of Education. Since the study involved school principals, their deputies, department heads, administrative supervisors and those who were on administrative development or digital transformation in educational facilities, their prior consent was sought, and their participation was voluntary. The purpose of the study, confidentiality, and the right to withdraw were explained to the participants. All information was coded, stored safely and tabulated. Lastly, the declarations submitted included a formal statement of ethical consent.

3. Results

3.1 Descriptive Statistics

Descriptive statistics were calculated for digital human resource management, organizational culture, digital transformation, and leadership performance quality. The mean scores were 3.91 (SD = 0.61), 3.86 (SD = 0.64), 3.94 (SD = 0.59), and 4.02 (SD = 0.57), respectively.

Table 1. Descriptive statistics for the study variables

Variable	Mean	Standard Deviation	Level
Digital Human Resources Management	3.91	0.61	high
Organizational Culture	3.86	0.64	high
Digital Transformation	3.94	0.59	high
Leadership Performance Quality	4.02	0.57	high

Leadership performance quality had the highest mean ($M = 4.02$, $SD = 0.57$), followed by digital transformation ($M = 3.94$, $SD = 0.59$), digital HRM ($M = 3.91$, $SD = 0.61$), and organizational culture ($M = 3.86$, $SD = 0.64$).

3.2 Measurement Model Assessment

The measurement model was evaluated to see that the constructs were reliable and valid before

interpreting the structural relationships. The internal consistency was tested with the help of Cronbach's alpha and Composite Reliability (CR), and convergent validity was tested with the help of the Average Variance Extracted (AVE). The findings indicate that the constructs all had satisfactorily high levels of reliability and validity.

Table 2. Results of reliability, composite reliability, and convergent validity

Construct	Cronbach's Alpha	CR	AVE
Digital Human Resources Management	0.91	0.93	0.66
Organizational Culture	0.89	0.92	0.63
Digital Transformation	0.92	0.94	0.69
Leadership Performance Quality	0.90	0.93	0.65

Cronbach's alpha values ranged from .89 to .92, composite reliability (CR) values ranged from .92 to .94, and average variance extracted (AVE) values ranged from .63 to .69. HTMT values ranged from .74 to .83 (Henseler et al., 2015).

Table 3. HTMT results

Relationship	HTMT
Digital HRM – Organizational culture	0.74
Digital HRM – Digital transformation	0.79
Digital HRM – Leadership performance quality	0.76
Organizational Culture – Digital transformation	0.81
Organizational Culture – Leadership performance	0.77
Digital Transformation – Leadership performance quality	0.83

3.3 Structural Model and Hypotheses Testing

Digital human resource management had a positive, statistically significant effect on leadership performance quality ($\beta = .24$, $t = 3.91$, $p < .001$), supporting H1. Organizational culture had a positive, statistically significant effect on leadership performance quality ($\beta = .28$, $t = 4.37$, $p < .001$), supporting H2. Digital human resource management had a positive, statistically significant effect on digital transformation ($\beta = .39$, $t = 6.84$, $p < .001$), supporting H3. Organizational culture had a positive, statistically significant effect on digital transformation ($\beta = .43$, $t = 7.12$, $p < .001$), supporting H4. Digital transformation had a positive, statistically significant effect on leadership performance quality ($\beta = .41$, $t = 6.58$, $p < .001$), supporting H5.

Digital human resource management and organizational culture explained 58% of the variance in digital transformation ($R^2 = .58$). Digital human resource management, organizational culture, and digital transformation jointly explained 67% of the variance in leadership performance quality ($R^2 = .67$).

3.4 Mediation Analysis

The indirect effect of digital human resource management on leadership performance quality through digital transformation was statistically significant ($\beta = .16$, $t = 4.88$, $p < .001$), supporting H6 and indicating partial mediation. The indirect effect of organizational culture on leadership performance quality through digital transformation was also statistically significant ($\beta = .18$, $t = 5.14$, $p < .001$), supporting H7 and indicating partial mediation. Because the corresponding direct effects remained

statistically significant, both mediation effects were partial.

Table 4. Hypothesis test results

Hypot hesis	Path	β	t	p	Result
H1	Digital HRM → Leadership performance quality	.24	3.91	< .001	Supported
H2	Organizational culture → Leadership performance quality	.28	4.37	< .001	Supported
H3	Digital HRM → Digital transformation	.39	6.84	< .001	Supported
H4	Organizational culture → Digital transformation	.43	7.12	< .001	Supported
H5	Digital transformation → Leadership performance quality	.41	6.58	< .001	Supported
H6	Digital HRM → Digital transformation → Leadership performance quality	.16	4.88	< .001	Supported; partial mediation
H7	Organizational culture → Digital transformation → Leadership performance quality	.18	5.14	< .001	Supported; partial mediation

All seven hypotheses were supported by the statistical tests reported in Table 4.

4. Discussion

The findings of this study provide a coherent explanation of leadership performance quality in educational institutions. The overall model demonstrates that leadership performance quality is not shaped by a single factor, but by the interaction of digital HRM practices, organizational culture and institutional digital transformation. Digital HRM and organizational culture explained 58% of the variance in digital transformation, while digital HRM, organizational culture and digital transformation together explained 67% of the variance in leadership performance quality. These results indicate that digital transformation does not operate as a technical variable independent of people and culture. Rather, it functions as an institutional mechanism through which digital practices and supportive organizational values are translated into higher-quality leadership performance.

The positive effect of digital HRM on leadership performance quality confirms that the digitalization of HR practices contributes to improving leadership performance in educational institutions. Digital HRM provides leaders with more accurate tools for training, evaluation, competency management, performance monitoring and needs analysis. The tools facilitate leadership by converting data about employees into valuable knowledge that can be used in planning, making decisions, providing guidance and accountability.

Nevertheless, the direct impact of digital HRM on the quality of leadership performance was not the greatest impact within the model despite its significance. This implies that the existence of digital HR systems would not necessarily elevate the quality of leadership. These systems will be more successful when they are part of an institution-wide digital transformation with the help of institutional culture, data application, and lifelong learning. This finding aligns with Mahmoud et al. (2025), who demonstrated that digital HRM systems are linked to HR efficiencies and that the effects are enhanced in circumstances where they are backed by organizational agility and digital transformation.

The findings also revealed that there was a positive impact of organizational culture on the quality of leadership performance. This affirmation verifies that leadership performance is not just a personal factor of leaders, but also a result of the organizational climate in which leadership is exercised. A culture of trust, teamwork, learning, embracing change and sharing knowledge will enable leaders to enjoy a better culture of influence, motivation, communication, and performance enhancement. Relationships, communication and shared values are some of the ways that leadership is exercised in educational institutions. Thus, even the most adept leaders are likely to be constrained when the culture that they are leading is resistant to change, low in trust or lacking in communication skills. On the other hand, the supportive culture may enhance leadership as it

enhances acceptance of decisions among the employees, resulting in participation and minimization of resistance to change. This result builds upon the study by Alshammari et al. (2024) by demonstrating that organizational culture is not only directly related to the success of digital transformation, but also to the quality of leadership performance.

The results also verified that there is a substantial impact of digital HRM on digital transformation. This finding suggests that digital HRM is not just an instrument to enhance HR practices, but also a major source of institutional digital change. Digital transformation in educational facilities does not commence with the purchase of systems or platforms only, but it will also require building people, enhancing skills, training, planning training, performance data management, and empowering leaders and employees to utilize digital tools. Digital HRM offers both human and procedural facilities needed to conduct digital transformation. Institutions can be better enabled to move toward digital transformation of technology use by being more equipped through digital training, competency databases, electronic performance evaluations and data-driven HR decisions.

The strongest direct predictor of digital transformation was revealed to be an organizational culture. This is among the most significant results of the research since it proves that digital transformation is more of an institutional change process, rather than a technical one. Systems and platforms can be in place, but their efficient usage is based on trust, openness, readiness to learn, acceptance of responsibility and willingness to change. The fact that organizational culture was more influential on digital transformation than on digital HRM indicates that the problem in many institutions might not be the lack of technology, but the frailty of the cultural environments that enable the utilization of technology to take place effectively. It is possible to have an institution that has digital systems, yet if the culture is not formed to embrace participation, transparency, experimentation, and learning, digital transformation might be superficial. This finding

is consistent with Alshammari et al. (2024) and Jewapatarakul and Ueasangkomsate (2024), who emphasized the role of organizational culture, readiness and knowledge acquisition in digital transformation.

The findings also showed that digital transformation has a strong positive effect on leadership performance quality. This result indicates that educational institutions with higher levels of digital transformation are more capable of producing higher-quality leadership performance. Digital transformation improves leadership by enhancing data-based decision-making, communication efficiency, performance monitoring, coordination and responsiveness to change. When data become part of decision-making, digital platforms become part of communication, and electronic systems become part of monitoring and evaluation, leadership becomes more proactive, transparent and responsive. This finding is consistent with Özkan Alakaş (2024), who emphasized that digital transformation is strengthened by the interaction of digital leadership, organizational agility, digital culture and digital strategy. A related higher-education study by Alsetri et al. (2026) found that employee engagement positively influenced teaching service quality and that Vision 2030 human-capital development strengthened the effects of engagement and innovation strategy, further illustrating the role of institutional context in translating organizational practices into educational outcomes.

The mediation results provide the most important explanatory contribution of the study. Digital transformation partially mediated the relationship between digital HRM and leadership performance quality, and also partially mediated the relationship between organizational culture and leadership performance quality. This means that digital HRM and organizational culture affect leadership performance both directly and indirectly through digital transformation. Digital HR practices such as training, performance evaluation, competency management and employee data analysis become more influential when they are integrated into broader digital

processes that support communication, decision-making and monitoring. Similarly, trust, collaboration, openness and acceptance of change are also more effective when translated into digital practices like shared platforms, transparent data usage, built-in processes and continuous learning. The biased aspect of the mediation matters. It states that digital transformation does not eliminate the role of digital HRM or organizational culture, but instead, it enhances the impact thereof and transforms it into more systematized leadership practices. This way, the quality of leadership performance at educational institutions must be perceived as a product of human, cultural and digital interaction. The main idea behind the findings is that the quality of leadership performance can be enhanced by digitizing procedures, as well as by having a positive culture. It involves a combined interaction where digital HRM supplies tools and data, organizational culture supplies the readiness and support, and digital transformation transforms the inputs to improved decision-making, communication, monitoring, and management of change.

4.1 Theoretical Implications

The results have a number of theoretical implications. First, the study reformulates digital transformation as a mediating process, and not as an independent variable or as a technical result. Much of the literature considers digital transformation as something that institutions seek to achieve or as something that directly spurs performance. In the current research, it is placed in the role of an explanatory route between the impact of digital HRM and organizational culture and the quality of leadership performance. This adds to the existing literature by demonstrating that digital transformation acts as a mediator between organizational inputs and leadership outcomes.

Second, the paper is an addition to the body of knowledge on digital HRM, demonstrating that it cannot be conceived as a specific administrative operation that involves automation. Instead, it is an organizational

competence that facilitates digital preparedness, enhances leadership choice, reinforces evaluation frameworks and supplies an information base to design and build plans. In this regard, the research will help in repositioning the idea of digital HRM from procedural digitalization to strategic enablement.

Third, the research establishes that the organizational culture is not a peripheral or a background factor, but rather a constructive force, which determines the success of digital transformation and its impact on leadership performance. Because organizational culture was the most significant predictor of digital transformation, the results demonstrate that digital transformation is not dependent solely on systems and platforms but also on values, trust, openness, participation, and the readiness to learn.

Fourth, the research extends the notion of the quality of leadership performance during the digital age. The performance of leadership has ceased to be bound to the conventional administrative abilities like planning, organizing and monitoring. It now has the power to utilize data, handle digital communication, steer employees through technological change, facilitate digital learning, and turn digital tools into better institutional performance.

4.2 Applied Implications

At the applied level, the research states that digital transformation should be viewed by educational leaders as an everyday leadership process, but not a distinct technical initiative. Due to the high positive impact of digital transformation on the quality of leadership performance, senior and middle-level leaders must train their skills in utilizing data, interpreting indicators, digital platform management, enhancing communication and monitoring performance using digital tools. Digital leadership, data-based decision-making, change management and digital communication should therefore be added to the list of leadership development programs.

The results have direct implications for the HR units in learning institutions as well. Digital HRM cannot be confined to digital papers or computerized administration. Rather, it must be created as a strategic process that facilitates the quality of leadership. Digital systems must enable HR units to analyze competencies, recognize training requirements, monitor performance, support professional development and provide leaders with precise information for decision-making. Digital HRM will work better if it is related to broader digital transformation; thus, the HR departments should liaise with the leadership and digital transformation departments so that training, assessment, competency management and performance monitoring can be aligned with the digital objectives of the organization.

It is also revealed in the study that having a digital transformation depends on the organizational culture being a decisive factor. The education settings that are interested in enhancing leadership performance ought to invest in creating a culture that promotes trust, participation, learning, innovation and openness to change. In the absence of such a culture, even with the availability of advanced systems, digital transformation can only be superficial. To minimize resistance to change, institutional leaders can raise the value of digital transformation, engage employees in the implementation process, and connect digital efforts with actual institutional issues.

On the policy level, in the proposed study, the educational decision-makers are encouraged to create comprehensive policies of digital transformation, linking the technology with leadership development, HR digitalization, culture readiness and performance assessment. Digital transformation must not be associated with infrastructure updating or the digitization of services, but it must also be connected with better leadership and institutional performance. This is especially the case in the context of Omani education, where the present trends in digital transformation of the country and digitization of curricula necessitate leaders

capable of translating the digital policies into actual institutionalized practices.

4.3 Practical Recommendations

Based on the results, the study recommends the following. To begin with, schools must create an interoperable digital HRM approach, i.e. training, competency strategy, evaluation, data analysis and direct relationships to the quality of leadership performance. Second, they ought to reinforce an organizational culture that will embrace digital transformation through fostering trust, participation, incentivizing initiatives, minimizing change resistance and maximizing digital learning opportunities. Third, digital leadership must be trained in senior and middle-level leaders not solely as a technical ability, but as a change-management ability, as the ability to utilize data, enhance communication, and lead employees in a digital world.

Fourth, indicators of digital transformation must become part of the leadership performance evaluation process to ensure that leaders are not evaluated solely by the traditional performance indicators of the tasks accomplished but also by the necessity to integrate technology into the decision-making process, monitoring, communication and service quality. Fifth, schools must have periodic mechanisms to determine the effects of digital transformation on performance by having clear indicators like speed of work completion, accuracy of data, monitoring and quality of data, satisfaction of the employees and efficiency of organizational communication. Sixth, middle-level leaders ought to be included in the creation of digital transformation efforts since they constitute an essential connection between the policy and the implementation.

4.4 Limitations and Future Research

Even though this research offers an explanatory framework about the nature of the relationship between digital human resource management, organizational culture, digital transformation and leadership performance quality, its results can only be construed through the prism of various

limitations. First, the study adopted a cross-sectional design, as data were collected at one point in time. This design suits testing the proposed model but does not enable tracking the changes in the quality of digital transformation or leaders' performance over time. Second, the research was based on a questionnaire as the primary tool of data collection. Even though the questionnaire can be applied to a quantitative explanatory study, its characteristics can be viewed as the participants' perceptions of the questionnaire, not the direct, objective results of leadership performance or digital transformation.

Third, the research was concerned with senior and middle leaders in educational institutions in the Sultanate of Oman in North Al Batinah Governorate. This interest is warranted by the fact that this group is directly engaged in leadership activities, HR activities, organizational culture and digital transformation efforts. Nevertheless, the geographical and institutional nature might constrain the applicability of the results to other governorates, educational levels or institutional settings. Fourth, the analysis has considered four key variables, namely digital HRM, organizational culture, digital transformation and quality of leadership performance. Other issues that may play a role in leadership performance within educational institutions include digital leadership competency, technological preparedness, system of governance, organizational responsiveness and policy support. Since all principal constructs were measured through a questionnaire at one point in time, common-method and self-report bias may have influenced the observed relationships. The findings therefore reflect respondents' perceptions rather than independently verified institutional performance.

The longitudinal designs can be used in future studies that can investigate the way in which digital transformation evolves over the years, and how the impact on the quality of leadership performance varies in various phases of implementation. Mixed-method designs can also be applied in future research by incorporating questionnaires with interviews, focus groups or

document analysis to gain a more profound insight into how leaders are experiencing digital transformation and how organizational culture impacts the adoption of technology. Moreover, further studies can increase the sample of teachers, administrative workers, technical employees and users of educational services. The model can also be tested in other Omani governorates or in other educational institutions in the Gulf and Arab settings. Lastly, future research can elaborate the model with a range of other variables like digital leadership, organizational agility, technological readiness, data governance, innovation culture or digital competencies.

5. Conclusion

This paper discussed the mediating role of digital transformation in the relationship between digital human resource management, organizational culture, and the quality of leadership performance in learning institutions. It is based on the idea that digital transformation does not automatically improve leaders' performance simply by the presence of systems or platforms. Instead, its effects depend on how digital HRM practices and organizational culture are integrated into institutional digital practices that support decision-making, communication, performance monitoring, and responsiveness to change.

The findings supported the proposed explanatory model. Digital human resource management and organizational culture explained 58% of the variance in digital transformation. In contrast, digital human resource management, organizational culture, and digital transformation jointly explained 67% of the variance in leadership performance quality. All direct relationships were positive and statistically significant. Digital transformation partially mediated the relationships of digital HRM and organizational culture with leadership performance quality, indicating that human, cultural, and digital factors operate both directly and through institutional digital transformation.

In practice, improving leadership performance requires more than technological investment. Educational institutions should align digital HRM systems, a supportive organizational culture, and digital transformation with data-

based decision-making, communication, employee guidance, and performance development. Future research should test the model longitudinally and in other educational settings

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8. Author Declaration

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