

# Examining the Influence of Digital Transformation Dimensions on Educational Management in Saudi Universities

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## ABSTRACT

In today's tech-driven world, higher education institutions have recognized the necessity of digital transformation as a strategic priority to improve administrative efficiency, academic achievement, and institution sustainability. The adoption of digital transformation projects has gained pace in Saudi Arabia, including in the higher education industry, as part of Vision 2030.

This study highlights the effects of the Digital transformation factors on the effectiveness of Educational Management in the Higher Education Institutions in Saudi Arabia. More specifically, this study examines how technology infrastructure, training and skill development relate to the outcomes of educational management. This study adopted the quantitative research method and utilized a structured questionnaire which was sent to academic and administrative staff of the Saudi Higher Education institutions. Descriptive statistics, reliability analysis, correlation analysis and multiple regression analysis were used to evaluate the relationship between the study variables were analyzed. The findings indicate that technology infrastructure plays an important role in developing the educational management in improving the process of communication, decision making, and the work of educational institutions. Further, training was identified as a positive influence on employee's readiness for digital systems and working with technological tools.

The findings additionally show that skill improvement is a very important element in boosting digital competencies and in supporting good educational management practices. The study emphasises the need for continuous professional learning and digital competency development to support effective digital transformation in higher education institutions, while connecting with technological resources. These results offer significant insights and implications for policymakers, university administrators, and educational practitioners when designing strategies for digital transformation to support Saudi Vision 2030. This work also is part of a growing body of research on the topic of digital transformation and educational management in the context of developing education.

**Keywords:** Digital Transformation; Educational Management; Technological Infrastructure, KSA

## INTRODUCTION

In the modern world where the business landscape is highly dynamic, organizations are finding themselves obliged to keep up with the ever-changing dynamics fueled by globalization, technological changes, and competition in the market. Change in organizations has thus been an essential competency in the guarantee of long-term sustainability and competitiveness. The problem is especially acute in small and medium-sized enterprises (Saudi Universities), which have limited resources at their disposal and are more exposed to environmental uncertainty. Saudi Universities are a crucial factor in national development and economic diversification in Saudi Arabia within the framework of Vision 2030; nonetheless, most of them are not able to

successfully introduce change initiatives because of constraints in their managerial practices and human resources (Luu et al., 2023). The strategic technology infrastructure have received a lot of recognition as determinants of organizational flexibility and performance. Talent acquisition, compensation systems, employee engagement, training and development, and employee motivation are some of these practices, which are fundamental in influencing the preparedness and desire of employees to embrace change. Such practices help improve the skills of employees, their commitment and alignment to the organizational objectives, and, in turn, make the process of transitioning through the periods of change easier when properly applied (Quansah et al., 2022).

To this effect, technology infrastructure are not administrative functions but strategic tools that facilitate organizational transformation. Nevertheless, technology infrastructure do not always have a direct relationship with digital transformation. Educational Management is important in ensuring that these practices are realized into meaningful results. Leaders are change agents, who express a clear vision, build trust and encourage employees to embrace change efforts. Good Educational Management complements the effectiveness of technology infrastructure by promoting engagement, innovativeness, and flexibility. Educational Management as such could be considered as a mediating process that makes the relationship between strategic technology infrastructure and effective change management stronger (Kapoor, 2024). Educational Management is further critical in Saudi Universities whose organizational frameworks are less formal and the leaders have closer contact with employees. In this case, leaders play a major role in determining the attitude and behaviors of employees hence determining the effectiveness of change efforts. Nonetheless, the literature that has been done in this regard has focused on technology infrastructure and Educational Management separately, with little focus on their joint influence on digital transformation especially among Saudi Universities in developing economies like Saudi Arabia. Thus, the purpose of this paper is to create a conceptual framework discussing the relationship between strategic technology infrastructure and digital transformation in the presence of Educational Management as a mediating variable. The synthesis of the current literature allows the current study to contribute to a more integrated perspective on how Saudi Universities can improve their change management capacity using the effective human resource strategies and Educational Management practices.

## Problem Statement

Although the role of digital transformation in business sustainability is increasingly gaining significance, it is still clear that most of the small and medium-sized enterprises (Saudi Universities) are faced with major challenges to implement change initiatives successfully. This is especially clear in the emerging economies like Saudi Arabia where the Saudi Universities are key in the diversification of the economy but do not always have the structural, managerial and human resource infrastructure to effectively cope with change. According to previous research, one of the most important causes of change initiatives failure in Saudi Universities is resistance to change, low employee preparedness, and lack of strategic alignment (Iqbal et al., 2020). Strategic technology infrastructure have been cited as important processes in increasing the flexibility of organizations and facilitating change processes. It is assumed that practices like effective recruitment, fair compensation system, engagement, unceasing training and development, and employee motivation can alter the attitude and behavior of employees towards change. Nonetheless, the available studies have mainly discussed those practices in terms of organizational performance as opposed to addressing specifically how they enable change management.

Consequently, we have a small amount of empirical and theoretical knowledge on how these practices together lead to successful digital transformation (Ha & Diem, 2025). Moreover, strategic technology infrastructure and digital transformation are not invariably straightforward and simple to relate. The role of Educational Management in change has been extensively accepted as a decisive variable in the results of the change process, given that leaders are at the center of determining the organizational culture, vision, and employee direction during times of uncertainty. However, most of the previous studies have put Educational Management as an independent variable as opposed to its mediating role in the relationship between technology infrastructure and change management.

This is a considerable literature gap because Educational Management can be a driving force that produces successful change effects when human resource strategies are converted into them (Khalil et al., 2023). Furthermore, those studies that combine strategic technology infrastructure, Educational Management and change management in a single conceptual framework are few especially when they are applied in Saudi Universities in Saudi Arabia. Due to the peculiarities of Saudi Universities like informal organization, a lack of resources, and a significant impact of leaders, it is critical to comprehend the interaction of these factors to enhance the adaptability and performance of organizations. Consequently, the lack of an elaborate structure that describes the impact of strategic technology infrastructure on the process of digital transformation mediated by Educational Management seems to have a significant research gap. This gap should also be filled to offer both theoretical and practical contributions to the SME managers who must improve the effectiveness of change management initiatives.

### Research Objectives

1. To examine the impact of technological infrastructure on educational management outcomes (managerial effectiveness, organizational culture, and digital citizenship) in Saudi public universities.
2. To assess the impact of training opportunities on educational management outcomes in Saudi public universities.
3. To evaluate the effect of skill enhancement on educational management outcomes in Saudi public universities.
4. To analyse the combined (simultaneous) effects of technological infrastructure, training opportunities, and skill enhancement on educational management outcomes.
5. To investigate differences in perceptions of digital transformation and educational management across stakeholder groups (faculty members, IT staff, and academic leaders).

### LITERATURE REVIEW

Digital Transformation Dimensions have been generally accepted as key contributors to organizational efficiency and responsiveness especially in organizations that are highly dynamic and uncertain. In the modern management literature, SHRPs have been conceptualized as an integrated system of practices such as talent acquisition, compensation systems, employee engagement, training and development, and employee motivation that are combined to boost employee performance and align individual performance with organizational goals. This combination will allow organizations to create a robust workforce that can react efficiently to the changing market needs and digital transformations (Wang et al., 2024; Ferede et al., 2024). In the frame of digital transformation, SHRPs are critical in influencing the willingness, attitude and behavioral reaction of employees. Proper recruitment is a guarantee of hiring competent and flexible individuals who can adjust to change, and equitable and performance-based pay systems support positive work behaviors and commitment to the organization.

On the same note, employee engagement encourages a sense of ownership and involvement which is essential in decreasing resistance to change initiatives. The training and development programs also boost the skills and knowledge of employees who can thus find their way through new processes and technologies, but motivational practices reinforce the willingness of employees to be active contributors to digital transformation (Dwikat et al., 2023; Matloob et al., 2023). All these practices together will help in developing a favorable organizational climate that will enable successful implementation of change. Nevertheless, the connection between SHRPs and digital transformation is not always direct and can be determined by other organizational processes. The role of Educational Management has always been singled out as a key driver of the success of technology infrastructure. Leaders are the important agents of change because they interpret organizational strategies, convey vision and take employees through the trying moments. By so doing, they are crucial in putting HR practices into meaningful organizational results. According to recent research, Educational Management behaviors especially those relating to transformational and supportive Educational Management styles increase the levels of employee trust, commitment, and engagement, which in turn heightens the effects of HR practices on the outcomes of

change management (Woo, 2025; Ho et al., 2024). The Educational Management mediating role especially applies to the effects of SHRPs on organization change. Instead of being independent, the HR practices tend to be effective with good Educational Management in order to be implemented and internalized by the employees.

As an example, training initiatives are unlikely to achieve desired results without the leaders that promote learning and growth, and employee engagement initiatives will not be effective without supportive leaders. Therefore, the role of Educational Management is a bridging process that links HR strategies to employee behaviors and eventually digital transformation outcomes. This view is consistent with modern organizational theories that focus on the significance of Educational Management in organizational culture development and the strategic alignment (Ferede et al., 2024; Ghlichlee & Goodarzi, 2023).

When it comes to the context of Saudi Universities, the interaction of SHRPs and Educational Management with digital transformation gains even more importance. Saudi Universities are normally less formalized and mostly depend on the influence of Educational Management in the decision-making process. The leaders of Saudi Universities usually have close contacts with the employees, which means that their contribution to HR practices implementation and change management is more significant.

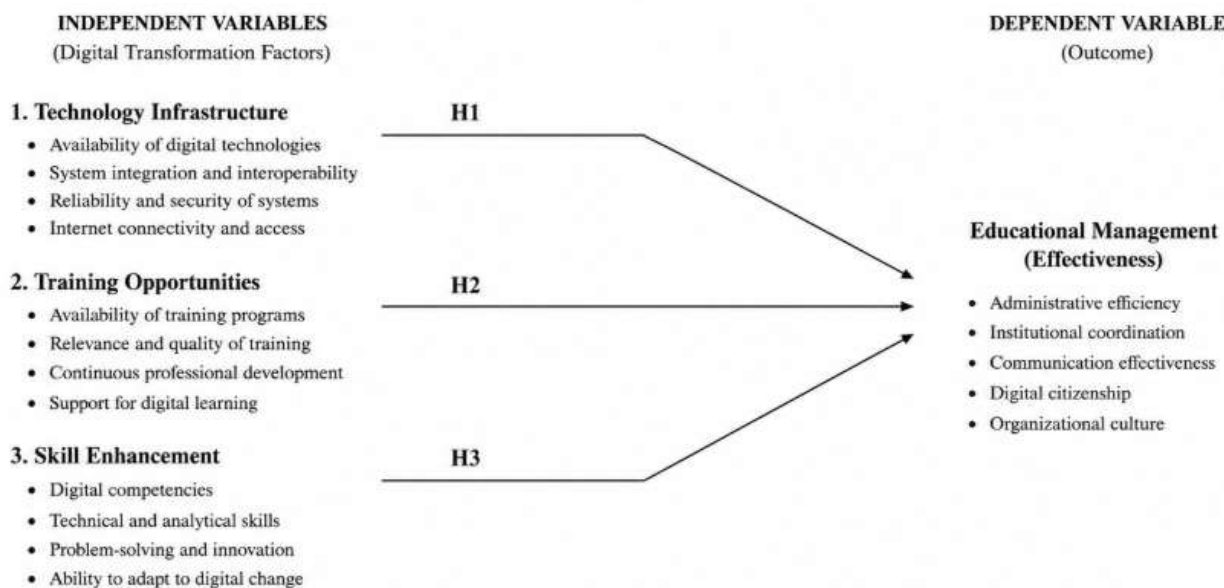
The effectiveness of digital transformation programs within Saudi Universities, in turn, is greatly reliant on the ability of leaders to consider the power of technology infrastructure in promoting the engagement of employees, motivation, and their flexibility (Hossain et al., 2025). Although there is an increasing appreciation of these relationships, the literature has to a large extent analyzed SHRPs, Educational Management and digital transformation separately. It has been found that there are no integrated frameworks that would at once take these variables into account within one model, especially concerning Saudi Universities in emerging economies like Saudi Arabia.

This weakness constrains the knowledge of the processes by which HR practices mediate change outcomes and underscores the need to conceptualize such relationships more broadly. This research thus fills this gap by developing an integrated framework through which strategic technology infrastructure are related to digital transformation via the mediating variable of Educational Management. This paper offers a coherent view of how organizations and in particular Saudi Universities can improve their change management abilities by effectively aligning their HR strategies and Educational Management practices by synthesizing recent literature. (Rasheed et al., 2026).

## Conceptual Framework

The proposed conceptual framework is grounded in Transformational Educational Management Theory and Resource-Based View (RBV), which together provide a robust theoretical foundation for explaining the relationship between strategic technology infrastructure, Educational Management, and digital transformation. From the perspective of the Resource-Based View, human resources are considered valuable, rare, and inimitable assets that contribute to sustained competitive advantage.

Strategic technology infrastructure such as recruiting talent, compensation systems, employee engagement, training and development, and employee motivation enhance the quality of human capital and organizational capabilities, thereby enabling firms to effectively respond to environmental changes (Eaton et al., 2024; Ladkin & Patrick, 2022). In parallel, Transformational Educational Management Theory explains how leaders influence employees' attitudes and behaviors during periods of change by inspiring vision, fostering trust, and encouraging innovation. Educational Management plays a critical role in translating technology infrastructure into meaningful organizational outcomes by shaping employee perceptions and facilitating change readiness (Lubis, 2022; Mailani et al., 2024).



**Figure.1 Figure 2.1 Transformational Educational Management Theory (Burns, 1978; Bass, 1985), Change Management Theory (Kotter, 1996; Schein, 2010),**

### Hypotheses Development

Grounded in the Resource-Based View (RBV) and Transformational Educational Management Theory, this study posits that strategic technology infrastructure enhance digital transformation both directly and indirectly through Educational Management.

1. 1. H1. Technological Infrastructure influence Good Management, Organisational Culture and Digital Citizenship positively.
2. H2. The Training Opportunities has a positive influence on (a) Good Management, (b) Organisational Culture, and (c) Digital Citizenship.
3. H3. The benefits of Skill Enhancement include; (a) Good Management, (b) Organisational Culture and (c) Digital Citizenship.
4. H4. Educational Management (second-order) gets a positive impact on Digital Transformation (second-order).
5. H5. All DT dimensions explain different incremental variances in EM outcomes than are accounted by different DT dimensions.
6. H6. Role-directed DT to EM relationships vary (faculty, IT or academic leaders).

### METHODOLOGY

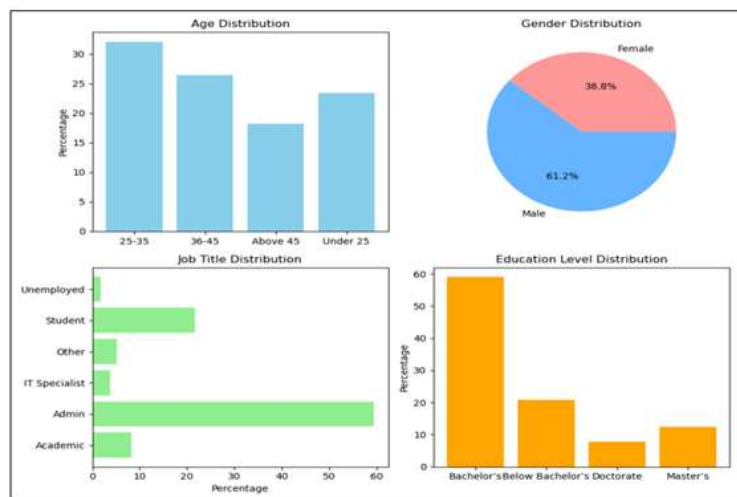
The conceptual research design to be adopted in this study involves systematic review of the literature. The study is based on the use of secondary data sources in the form of peer-reviewed journal articles obtained with the help of Google Scholar and databases like Scopus, publishers like Springer, Elsevier, and Emerald Publishing. Only articles published in 2020-2025 and related to the strategic technology infrastructure , Educational Management and digital transformation were taken into consideration. Key-word search strategy was used and articles that were selected were filtered on the basis of relevancy and quality.

The literature gathered was thematically analyzed in a bid to determine important relationships among variables which culminated into the creation of a holistic conceptual framework. This approach is suitable in theory formulation and offers an organized interpretation of the role of Educational Management in the connection of HR practices to digital transformation in Saudi Universities.

## FINDINGS AND DISCUSSION

The literature review reveals that Digital Transformation Dimensions are major contributors to the improvement of digital transformation in terms of enhancing employee capabilities, engagement, and adaptability. Good practices like good recruitment, good remuneration, constant training, and motivation of the employees are all aimed at creating a work force that is more open to change initiatives. The present findings concur with the Resource-Based View (RBV), which lays focus on the significance of human capital as a competitive advantage source. Moreover, the discussion shows that the connection between SHRPs and organization change is not directly simple but is heavily impacted by Educational Management.

In line with the Transformational Educational Management Theory, Educational Management becomes a very crucial mechanism that influences the perceptions of employees, commitment, and the achievement of change initiatives. Leaders are crucial in transforming HR practices into relevant organizational results through trust, communication, and alignment. Notably, the results imply that Educational Management is a mediating variable, which enhances the impact of SHRPs to bring change in an organization. The mediation effect is especially applicable to the Saudi Universities, where the Educational Management impact is stronger because of the less formalized structures and proximity to the employees. On balance, the combined framework offers an overall picture of how HR practices and Educational Management can help organizations to achieve successful transformation.



**Figure 2. Descriptive Statistics of Demographic Characteristics.**

### Future Research and Recommendations

The overwhelming impact of training possibilities and skill improvement has shown that the role of constant professional development in fruitful digital transformation is essential. Universities ought to invest into organized training that can improve the staff competencies in digital literacy, data management and decision making that are based on technology. These results are consistent with the previous studies that employee capability development is a decisive factor of the digital transformation success (Sousa and Rocha, 2019; Trenerry et al., 2021). Training programs must thus be a part of the institution as opposed to ad hoc. Some practical steps can be a compulsory program of digital skills, workshops of Transformationdevelopment, and ongoing upskilling that can vary according to the position of the academic and administrative personnel. Policy-wise, the findings indicate that policy makers in the higher education sector must cease to embed their digitalization plans on infrastructure but rather have a more comprehensive approach, which incorporates both technological investment and organizational growth. The capacity building, digital leadership, and institutional readiness should be considered as the major performance indicators of the success of the digital transformation. Furthermore, the findings highlight the need to incorporate the concepts of digital citizenship in structures of governance in higher institutions of learning. This involves facilitating ethical use of technology, data safety sensitization and responsible digital conduct among employees and students. The practices are important in providing trust, accountability and sustainability within digitally empowered learning environments (Bond et al.,

2021). The research points out that effective digital transformation necessitates the coordination of three essential elements i.e. technology infrastructure, development of human capability and organizational culture. Organizations that concentrate on purchasing technology only without comparable investment in human beings and processes can hardly realize significant management gains. The findings confirm that the process of digital transformation is more of a long-term institutional change instead of a technological upgrade and should be considered as a short-term solution (Mikalef et al., 2020). This is why universities are advised to implement inclusive digital transformation strategies involving linking infrastructure development with Transformationengagements, training systems, and performance assessment systems.

## Recommendations

This paper has various valuable practical implications to institutions of higher education, policymakers, and institutional leaders who may desire to improve management of education by digital transformation. The results present evidence-based recommendations on the way digital initiatives can be planned and executed to enhance the organizational performance, governance, and sustainability of its institutions. The findings suggest that the use of digital transformation can substantially enhance the education management through a proper infrastructure, training, and skill advancement. This means that digital transformation cannot be viewed as a technical project, but as a strategic management initiative by the leaders of the university. The top management should now ensure that digital initiatives are coordinated to institutional objectives, governance systems and performance measures. In line with the past research, Transformationcommitment is also a significant factor that guarantees the successful implementation of digital technologies in routine administrative and academic processes (Verhoeff et al., 2021; García-Morales et al., 2021). The university leaders must aim at developing transparent digital plans, interdepartmental communication, and culture that encourages innovation and constant improvement. These digital transformation efforts will not be coordinated without such engagement by the leadership.

## CONCLUSION AND CONTRIBUTIONS

This research paper comes up with a conceptual model that will describe the correlation between the strategic human resource practice and digital transformation with focus on the mediating role played by the Educational Management in Saudi Universities. The results indicate that although SHRPs play a crucial role in increasing the readiness and adaptability of the employees, the success of the tool mainly relies on the Educational Management which serves as a vital connection between organizational strategies and employee conduct. Theoretically, the study has added to the literature by the combination of Resource-Based View and Transformational Educational Management Theory in a coherent framework, thus providing a more detailed explanation of digital transformation. It builds on the previous studies by pointing out the aspect of Educational Management, which has been under-researched in earlier studies. Practically, the research offers useful information to SME managers, which focuses on the importance of aligning the technology infrastructure with good Educational Management in order to be able to manage change. Organizations need to invest in not only HR systems but also in Educational Management development in order to maximize the effects of the practices. This study has its flaws being that it is conceptual in nature and uses secondary data despite its contributions. It is recommended that future studies undertake empirical tests of the proposed framework, especially on Saudi Universities in Saudi Arabia in order to support the relationships and increase the generalizability.

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