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Mechanisms of digital transformation practices and their impact on improving the strategic performance of employees at Yarmouk University and the University of Jordan

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ABSTRACT

This study investigates the mechanisms of digital transformation practices in Jordanian universities, their impact on employees' strategic performance and the challenges hindering implementation. A structured questionnaire was distributed to 168 employees across two universities, revealing key findings. Universities that implement digital transformation mechanisms achieve significantly better strategic performance, with improvements in decision-making, productivity, and adaptability. Statistical analysis confirms a notable mean difference in performance outcomes (3.99 and $p < 0.001$) between institutions with and without effective digital transformation mechanisms. Additionally, institutions with sufficient funding demonstrated superior outcomes (mean difference=4.02 and $p < 0.001$), underscoring the critical role of financial resources. However, challenges such as insufficient funding (mean= 3.88), resistance to change (mean= 3.68), and weak infrastructure (mean= 3.34) were identified as significant barriers. The findings highlight the importance of addressing these issues through targeted interventions, including leadership development, enhanced funding, and fostering a culture of innovation. After conducting the research, the authors concluded that digital transformation is not merely a technological shift but rather a strategic necessity for improving the performance of institutions and their competitiveness. These insights provide recommendations that can be put into action by policymakers and university leaders to the groundwork for future research on long-term impacts and broader applications in higher education.

Contribution/Originality: This study improves the literature by examining Jordanian university digital transformation mechanisms, strategic impact, and implementation barriers. A structured questionnaire and 168 diverse respondents reveal performance, adaptability, and decision-making. The study indicates digital transformation needs funds and leadership. Addressing poor infrastructure and change resistance can boost higher education innovation and competitiveness.

1. INTRODUCTION

The current era is widely recognized as the "digital age", characterized by rapid advancements in digital technologies such as 5G, cloud computing, big data, artificial intelligence, the Internet of Things, and blockchain, etc. (Yu & JInajun, 2020). Organizations must adopt digital transformation strategies to remain competitive and sustain their operations. Digital transformation entails fundamental changes in business models and organizational processes, enabling companies to respond swiftly to dynamic market conditions and evolving customer expectations (Heavin & Power, 2018). These changes have significantly influenced customer behavior, product evaluations, and service expectations, compelling organizations to innovate continuously to maintain a sustainable competitive edge

(Mosca, 2020). According to Heilig, Schwarze, and Voß (2017) digital transformation is defined as a major organizational transformation that is achieved, established or maintained through digital technologies, changing the way business activities are conducted. Ultimately, digital initiatives will be used to drive major business management reforms that will have a profound impact on the organization or the industry as a whole. Digital transformation changes the entire organization, especially business tasks and processes (Amit & Zott, 2001). In addition, this transformation can help companies improve their interactions with external customers by using cutting-edge technologies (Singh & Hess, 2020). Digital technologies can help companies leverage their current core competencies or develop new core competencies to gain a competitive advantage. The strategic adjustment of business models is inseparable from digital transformation due to digital technologies (Sebastian et al., 2020). Several obstacles hinder digital transformation in Jordanian universities. Insufficient funds prevent the development of appropriate technology infrastructure and personnel training programs. Digital practices are difficult to embrace without leadership backing and employee reluctance to change (Alawamrah et al., 2023). Academic organizations must innovate and adapt to the digital revolution (Daradkah et al., 2023). Digital technology integration in higher education requires financial commitment, leadership development, and training programs to overcome these problems.

Higher education must integrate the digital revolution. Strategic performance, operations, and digital economy needs are increasing for universities. Research has mostly examined its effects in banking, manufacturing, and public administration, leaving gaps in understanding its use in academia, particularly in Jordanian universities despite the growing global focus on digital transformation. This study investigates how Jordanian institutions' digital transformation approaches improve employee strategic performance to fill these gaps. The research addresses the following three main questions:

A. What are the mechanisms of digital transformation practices followed in Jordanian universities?
B. How does digital transformation affect the strategic performance of employees in Jordanian universities?
C. What are the challenges facing Jordanian universities in implementing digital transformation?

The study's findings are expected to offer theoretical and practical insights into optimizing digital transformation strategies in higher education. This research highlights significant gaps and provides actionable recommendations for enhancing institutional performance by critically analyzing prior literature. Furthermore, it examines the interplay between digital innovation and organizational culture emphasizing the role of leadership and funding in successful transformation initiatives.

1.1. The Contributions of this Study are Multifold

1. It provides a comprehensive framework for understanding digital transformation in Jordanian universities, contributing to the limited body of research in this area.
2. It bridges the gap between theory and practice by offering evidence-based recommendations for decision-makers in academic institutions.
3. It highlights the strategic importance of digital transformation in improving operational efficiency and achieving institutional goals.

The study contributes to the growing discourse on digital transformation by offering a focused analysis of its implications for higher education in Jordan. This research study aims to provide a roadmap for universities to navigate the complexities of the digital era effectively by addressing the challenges and opportunities presented by digital technologies. There are many studies on the effects of digital transformation on organizational and functional performance in various sectors, but few on Jordanian universities and their employees' strategic performance. Previous studies concentrated on specialized sectors like banking, public education, or industry and did not adequately address Jordanian universities' digital transformation mechanisms and issues.

2. LITERATURE REVIEW

2.1. Understanding the Mechanisms of the Digital Transformation System

Digital transformation systems are defined as the ability to transform available products and services into digital variants that have advantages over tangible products which is different from digitalization. Murphy (2018) defines digitalization as the conversion of any form of analogue signal or information into a digital format that can be understood by a computer system or electronic device. Using digital tools within a company is only one aspect of digitalization. Another is to use these cutting-edge business models and long-term corporate plans as a means of implementation.

Digital technologies must intervene to shape a new organizational technological structure. Such changes would not be possible without the direct intervention of digital technologies. Information technology can support business process relationship management in the digital field which is more suitable for enterprises (Leviäkangas, 2016). It becomes an important part of human resource management operations that stimulates innovation. Organizational processes become more efficient and improves the customer experience with the help of digitalization (Pagani & Pardo, 2017). Therefore, digital technologies improve the customer experience of internal services while helping to save costs. In short, digital transformation is prevalent in enterprises, and cutting-edge digital technologies are fundamentally changing the business models of these enterprises. Enterprises must find a balance between existing business models and new business models when digitally transforming. As digital transformation continues, current business models will become obsolete (Teece, 2010). Digitalization, digital transformation, and digital innovation are closely linked in many ways. First, digital technologies provide the foundation for these concepts. Therefore, digital innovation can be achieved through assimilation in the diffusion stage of the entire process (Fichman, Dos Santos, & Zheng, 2014). Researchers believe that digital innovation and digitalization can fundamentally change the way business is done (Osmundsen, Iden, & Bygstad, 2018). Companies must gradually transform their current operations from a partially digital state to a fully digital state. The digital workforce is a group of people whose attitudes, skills and behaviors are affected by new digital technologies. Professionals (such as human resources managers) must make important operational and strategic adjustments because of these changes.

2.2. Digital HRM, Transformation, and Strategy

Based on a study managed by Thite (2022), the authors examined digital HR from three angles which are as follows: its current state (the extent to which internal capabilities and external demands are in sync), its ideal future state (a future-focused HR technology strategy), and its potential future state (an implementation road map). Their work lays out a thorough framework for a future-proof digital HR strategy taking into account internal resources and external demands. It has also included important suggestions for improving the strategy. This article took a comprehensive view of virtual human resource development (VHRD) and made conclusions about what this means for HRD advancements driven by technology.

"The use of computer systems, telecommunication networks and interactive electronic media" to perform HRM tasks is the definition of digital HRM. Ketolainen (2018) and Vardarlier (2020) agree that the process of digital transformation should be understood. The transformation process of digitalization, data-driven and automated HRM is description of the transformation of digital HRM. HRM activities become flexible due to the use of digital technologies.

2.3. System of Digital Transformation in Many Industries

Sebastian et al. (2020) mentioned that companies whose foundation was in the pre-digital economy face existential danger and revolutionary opportunities from new digital technologies. Their study of 25 companies starting their digital transformation journeys was detailed in their article. They found two digital strategies that

point the way for digital transformation, customer engagement and digitalized solutions. They lay out the steps a large, established business can take to successfully implement these aspects of digital transformation.

It is crucial to design management functions (especially digital HRM) and acquire new skills and resources to change and adjust strategies to cope with these cutting-edge characteristics of the digital workforce (Manuti & De Palma, 2018). The digital economy has a significant impact on traditional human resource management areas, including recruitment, training, performance and compensation management. Tripathi and Kushwaha (2017) believe that the human resource management field needs to embrace digital transformation and integrate digital platform best practices into all its human resource management policies.

2.4. Global Studies on Digital Transformation

Verhoef et al. (2021) mentioned that traditional businesses are under tremendous pressure as a result of digital transformation and the resulting innovations in business models which have disrupted many markets and drastically changed customer expectations and behaviour. They constructed a three-stage model of digital transformation based on the existing literature. Those stages were digitization and digital transformation. Strohmeier (2020) defined digital HRM and its related concepts of digitization, digital transformation, and digital disruption. Mosca (2020) determined the success factors and effects of HRM digitalization. A systematic bibliographic research was conducted to find HRM digitalization literature. First, the author searched Google Scholar for articles, and pre-set criteria were used to analyse and filter the articles. According to the study, the literature on HRM digitalization focuses more on its effects than its success factors.

2.5. Leadership and Digital Transformation

According to Singh and Hess (2020) companies undergoing digital transformation were increasingly appointing chief digital officers (CDOs) to senior management positions. They outlined the roles and responsibilities of CDOs in six case studies. They could determine the three primary functions of CDOs, the skills and competencies needed for each function, and the primary drivers of CDO hiring based on these examples. Fregnan, Ivaldi, and Scaratti (2020) suggested that human resource management (HRM) has not been immune to the seismic shifts brought about by the information technology (IT) revolution. Electronic human resource management (e-HRM) refers to the integration of new technology with traditional human resource management practices in response to the unique difficulties posed by digital work, digital employees, and digital management. Problems and connections include the chance to reevaluate HRM as a concept and looking at new ways of thinking about HRM through the lens of critical management studies. This could lead to a more contextualized understanding of HRM, a broader focus on stakeholders, and a more long-term view of how to deal with the effects of digital transformation and HRM. HRM is a social practice embedded in specific situated contexts. Their article examined a particular organisational case study involving a multinational enterprise to show how this understanding is enhanced. A "mere antiperformance stance" can be overcome and forms of reconstructive reflexivity can be achieved regarding the interconnection between the digital age, HRM, and the innovative generation of social value through authentic corporate responsibility through the engagement of multiple rationalities related to internal and external stakeholders.

2.6. Governmental Digital Innovation Governance

According to Berghaus and Back (2017) some businesses have reconsidered their operations, restructured their departments, and even adjusted their HR practices in response to changes in government-led digital innovation governance. National digital innovation governance aims to organize, coordinate, and guide the coherent actions of relevant units within national or regional innovation systems. The goal is to promote scientific and technological progress and improve innovation capabilities. The proliferation of data components and the ever-increasing

capabilities of data processing and analysis tools are leading to the emergence of data-driven governance models across all societal and economic spheres (Yuezhou, 2020).

Jesemann (2020) argued that entrepreneurial businesses in the Ruhr region of Germany and the Rust Belt of the United States could benefit from targeted technologies by analyzing a number of common examples of success and failure in these areas. These plans account for the challenges and effects that the digital revolution has on the financial system. He thinks industrialized areas should anticipate the digital age's innovation model and get ready for it beforehand.

Tou, Watanabe, Moriya, and Neittaanmäki (2019) integrated the successful experience of Finland and developed a novel open innovation framework suitable for the digital economy. Tou et al. (2019) combined the successful experience of Singapore and Finland to provide suggestions for integrating digital innovation resources into domestic production systems.

Government-led digital innovation programs worldwide are crucial for the digital advancement of human resource management. One of the basic principles for the successful implementation of innovation programs is "digital economy talent" (Smirnova, Zaychenko, & Bagaeva, 2019). Human resource management is one of the most important components to ensure that enterprises remain competitive in the digital age. It is necessary to first strengthen the training system to provide the skills required for the digital economy in the context of Industry 4.0 to create "digital economy talent".

It also requires a rapid restructuring of traditional talent needs to ensure the availability of contemporary digital skills and develop incentive programs to enable employees to acquire the knowledge and expertise required to contribute to the growth of the digital economy. Human resource management must adopt digital advancements to meet the government's vision of digital innovation leadership (Singh & Hess, 2020).

3. STUDY METHODOLOGY

This study utilized a quantitative research approach, specifically employing a survey methodology to systematically investigate the mechanisms of digital transformation practices in Jordanian universities. It aimed to assess their impact on the strategic performance of employees and analyze the challenges hindering successful implementation.

The structured methodology ensures robust and generalizable findings applicable to similar institutional settings.

3.1. Study Population

The study population consists of 300 individuals working at the two Jordanian universities, namely the Jordan University of Science and Technology and Yarmouk University. This included administrative and academic staff at various levels.

3.2. Study Sample

The study sample was selected through a simple random sampling technique to select a representative sample of 168 respondents from a total population of 300 employees. The sample size was determined based on statistical power analysis to ensure sufficient representation for meaningful analysis.

Figure 1 shows the study sample's demographics and profession.

The population is split into two groups: 56% and 44%. The sample gender is 60% male and 40% female. Participant age distribution is 51% 30–40, 25% 40+, and 24% under 30. Education: Bachelor's degree holders dominate (78) followed by master's (46), diploma (19), and Ph.D. (25). Among the participants are 98 administrative, 55 technical, and 7 faculties.

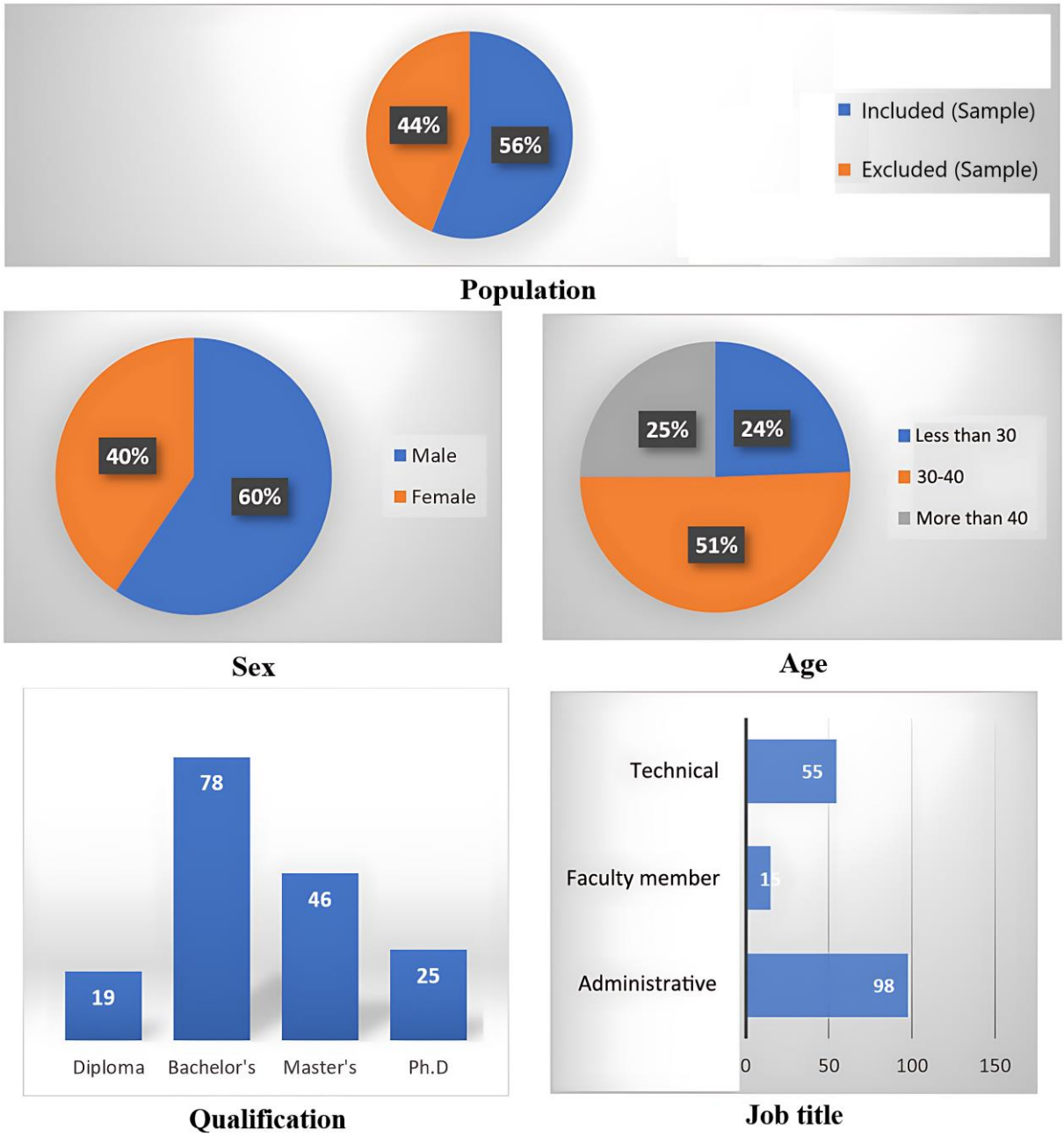

Figure 1. Characteristics of the study sample.

3.2.1. Data Collection Instrument

- A structured questionnaire was developed as the primary data collection tool. It was divided into three main sections.

1. Mechanisms of Digital Transformation Practices: Focused on the tools, technologies, and strategies employed.
2. Strategic Performance: Assessed employee productivity, decision-making, and overall contribution to institutional goals.
3. Challenges: Identified barriers such as funding constraints, resistance to change, and technological limitations.

- Questionnaire Design: The survey used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) to measure perceptions and experiences. It included 25 carefully curated items to capture diverse aspects of the research objectives.

3.2.2. Validity and Reliability

- Content Validity: The questionnaire was reviewed by experts in digital transformation and higher education to ensure clarity, relevance and appropriateness of the items.
- Pilot Testing: A pilot test was conducted with 20 participants to refine the instrument and address any ambiguities.
- Reliability Analysis: The questionnaire demonstrated high internal consistency with a Cronbach's alpha score of 0.85, indicating its reliability for the main study.

Appendix 1 describes the study's questionnaire structure. Sex, age, qualification, and job title are used to categorise respondents. This detailed breakdown allows the study to analyse participant diversity and relevance to research objectives.

3.2.3. Data Collection Procedure

Data collection was carried out over two months using online distribution (through email) and physical forms to maximize response rates. Participation was voluntary, and confidentiality of responses was ensured to encourage honest feedback.

3.3. Statistical Treatments

The Statistical Package for the Social Sciences (SPSS) software was utilized to perform the analysis of the data. The following statistical methods were utilized: Data that summarizes demographic information and response patterns is referred to as descriptive statistics, explored differences between groups based on demographic and institutional characteristics using t-tests and analysis of variance as statistical tools and conducted a regression analysis to determine the nature of the connection that exists between the mechanisms of digital transformation and the strategic performance measures.

4. PRESENTATION AND INTERPRETATION OF RESULTS

4.1. Test Study Hypotheses

First Hypothesis: There is a statistically significant difference at the significance level (0.05) between Jordanian universities that apply digital transformation mechanisms and universities that do not apply them in the strategic performance of employees.

Table 1 illustrates the statistical assessment of the first hypothesis comparing strategic performance in Jordanian universities that use digital transformation mechanisms.

Table 1. Statistical results of the first hypothesis test on digital transformation and strategic performance in Jordanian universities.

Test value = 0					
t	df	Sig. (2-tailed)	Mean difference	95% confidence interval of the difference	
				Lower	Upper
55.659	99	0.000	3.988	3.846	4.130

The results of the t-test indicate a statistically significant difference at the significance level (0.05) between Jordanian universities that apply digital transformation mechanisms and universities that do not apply them in the strategic performance of employees. The t -value reached 55.659 with a degree of freedom (df = 99) and a significance level (sig. = 0.000), which is much less than 0.05 and indicates that the difference between the two groups is statistically significant.

In addition, the mean difference was 3.98822 which indicate that universities that implement digital transformation mechanisms have better strategic employee performance. The 95% confidence limits are located

between 3.8460 and 4.1304, which enhances confidence in the results and confirms that digital transformation has a positive impact on strategic performance in Jordanian universities.

Second Hypothesis: There is a statistically significant difference at the significance level (0.05) between Jordanian universities that face challenges in implementing digital transformation and universities that do not face challenges in the strategic performance of employees.

Table 2 illustrates the statistical assessment of the second hypothesis, comparing strategic performance in Jordanian universities that struggle with digital transformation with those that don't.

Table 2. Statistical results of the second hypothesis test on challenges in implementing digital transformation and strategic performance.

Test value = 0					
t	df	Sig. (2-tailed)	Mean difference	95% confidence interval of the difference	
				Lower	Upper
72.412	99	0.000	4.025	3.914	4.135

The results of the t-test indicate that there is a statistically significant difference at the significance level (0.05) between the Jordanian universities that face challenges in implementing digital transformation and the universities that do not face challenges in the strategic performance of employees. The t- value reached 72.412 with a degree of freedom (df = 99) and a significance level (sig. = 0.000), which is much less than 0.05 and indicates that the difference between the two groups is statistically significant. The mean difference was 4.02500, which indicates that universities that face challenges in implementing digital transformation have significantly lower strategic performance for employees compared to universities that do not face such challenges. The 95% confidence limits are located between 3.9147 and 4.1353, which enhances confidence in the results and confirms that facing challenges in digital transformation negatively affects the strategic performance of employees in Jordanian universities.

Third Hypothesis: There is a statistically significant difference at the significance level (0.05) between Jordanian universities that receive sufficient funding for digital transformation and universities that suffer from a lack of funding in the strategic performance of employees.

Table 3 shows the statistical assessment of the third hypothesis, comparing strategic performance in Jordanian universities with and without digital transformation funding.

Table 3. Statistical results of the third hypothesis test on funding for digital transformation and strategic performance.

Test value = 0					
t	df	Sig. (2-tailed)	Mean difference	95% confidence interval of the difference	
				Lower	Upper
46.080	98	0.000	4.021	3.848	4.194

The data shows that there is a statistically significant difference at the significance level of 0.05 between Jordanian universities that receive sufficient funding for digital transformation and universities that suffer from a lack of funding in the strategic performance of employees. The t value is 46.080 and is below the 0.000 significance level, which indicates that the difference between the means for these two categories is 4.02121. The confidence interval for this difference ranges between 3.8480 and 4.1944, which reinforces the belief that adequately funded universities show significantly better strategic performance compared to those that are underfunded.

4.2. Answer of Study Questions

What are the mechanisms of digital transformation practices followed in Jordanian universities?

Table 4 evaluates Jordanian universities' digital transformation mechanisms using specific phrases.

Table 4. Mechanisms of digital transformation practices in Jordanian universities.

Phrases	Mean	Standard deviation
The university uses advanced digital technologies in its administrative operations.	3.66	1.350
The university adopts a clear strategy for digital transformation.	4.12	1.017
The university implements training programs to develop employees' skills in digital technologies.	4.31	0.928
The university is developing the technological infrastructure necessary for digital transformation.	3.8	1.073
The university encourages employees to take initiative and innovate in digital transformation.	4.24	0.900

Data indicate that Jordanian universities are adopting to varying degrees and digital transformation practices. The arithmetic mean for the use of advanced digital technologies in administrative processes is 3.66 with a standard deviation of 1.35005 which indicates a relative difference in opinions among employees on this point. For digital transformation strategy, the mean was 4.12 with a standard deviation of 1.01782 which reflects the availability of clear strategies at many universities with less variation in opinions. Training programs to develop digital skills for employees obtained the highest mean of 4.31 with a standard deviation of 0.92872, which indicates a strong relative agreement among employees on the importance of these programs. Technological infrastructure development had a mean of 3.8 and a standard deviation of 1.07309 showing good progress with some variation in ratings. Encouraging initiative and innovation in digital transformation obtained a mean of 4.24 and a standard deviation of 0.90028, which indicates that these universities in general encourage employees to innovate and take initiative in this field, with a slight variation in opinions. These results reflect the commitment of Jordanian universities to digital transformation, but with variation in the level of implementation and evaluation among employees.

How does digital transformation affect the strategic performance of employees in Jordanian universities?

Table 5 shows how Jordanian university employees view digital transformation's impact on strategic performance.

Table 5. Impact of digital transformation on strategic performance in Jordanian universities.

Phrases	Mean	Standard deviation
Digital transformation has contributed to improve the quality of services provided to students.	4.68	0.601
Digital transformation has improved employees' ability to make strategic decisions.	4.48	0.834
Digital transformation increases employee productivity and efficiency.	4.101	1.015
Digital transformation has enhanced the university's ability to adapt to environmental changes.	4.01	0.834
Digital transformation has improved the university's ability to achieve its strategic goals.	4.04	1.004

Data indicate a positive impact of digital transformation on strategic performance and services in Jordanian universities. Digital transformation has contributed significantly to improve the quality of services provided to students with a mean of 4.68 and a standard deviation of 0.60101 which reflects high agreement among employees regarding this improvement. Digital transformation also improved employees' ability to make strategic decisions with an average of 4.48 and a standard deviation of 0.83461 which indicates that digital transformation has enhanced employees' decision-making skills. In the context of productivity, digital transformation helped increase employee productivity and efficiency with a mean of 4.101 and a standard deviation of 1.01514, although there was a relative difference in opinions. Digital transformation also enhanced the university's ability to adapt to environmental changes with an average of 4.01 and a standard deviation of 0.83479, indicating a moderate positive

impact in this aspect. Finally, digital transformation improved the university's ability to achieve its strategic goals with a mean of 4.04 and a standard deviation of 1.00423 reflecting a positive effect, although there is variation in the evaluations. Overall, these results show that digital transformation has led to notable improvements in several strategic and operational aspects in Jordanian universities, although there is some variation in employee evaluations.

What are the challenges facing Jordanian universities in implementing digital transformation?

Table 6 lists the main obstacles to digital transformation in Jordanian universities.

Table 6. Challenges facing Jordanian universities in implementing digital transformation.

Phrases	Mean	Standard deviation
Lack of funding necessary to implement digital transformation initiatives.	3.88	1.05677
Employee resistance to change and digital transformation.	3.68	1.21339
Weak technological infrastructure at the university.	3.34	1.3121
Difficulty developing employees' digital skills.	3.62	1.18731
Lack of supportive leadership for digital transformation at the university.	3.69	1.09816

Data indicate that there are multiple challenges facing Jordanian universities in implementing digital transformation initiatives. The lack of funding needed to implement these initiatives appears with an arithmetic mean of 3.88 and a standard deviation of 1.05677, which indicates that funding is a major obstacle with a relative discrepancy in evaluations. Employee resistance to change and digital transformation obtains a mean of 3.68 and a standard deviation of 1.21339, which indicates the presence of moderate to high resistance among employees with a noticeable variation in opinions. Weak technological infrastructure appears with a mean of 3.34 and a standard deviation of 1.3121, which reflects a large variation and indicates that some universities may suffer from a lack of infrastructure necessary for digital transformation. The difficulty of developing employees' digital skills has a mean of 3.62 and a standard deviation of 1.18731, highlighting the challenge in qualifying employees to adapt to new technologies, with notable variation in ratings. Finally, the lack of supportive leadership for digital transformation at the university appears with a mean of 3.69 and a standard deviation of 1.09816, which indicates that the absence of supportive leadership poses a major challenge, with moderate variation in opinions. In general, these results reflect that Jordanian universities face great and diverse challenges in implementing digital transformation which calls for multifaceted interventions to overcome these obstacles.

4.3. Results of Hypotheses

First Hypothesis: The data show that there is a statistically significant difference between Jordanian universities that apply digital transformation mechanisms and those that do not in the strategic performance of employees ($t = 55.659$ and $p < 0.001$).

Second Hypothesis: There is a statistically significant difference between Jordanian universities that face challenges in implementing digital transformation and universities that do not face challenges in the strategic performance of employees ($t = 72.412$ and $p < 0.001$).

Third Hypothesis: The data show that there is a statistically significant difference between universities that receive sufficient funding for digital transformation and those that suffer from a lack of funding in the strategic performance of employees ($t = 46.080$ and $p < 0.001$).

5. DISCUSSION

This study supports Heavin and Power's (2018) claim that digital technologies improve decision-making and operational efficiency by transforming Jordanian university personnel's strategic performance. Higher employee performance was observed in universities with digital transformation methods with a mean difference of 3.99 and a t-value of 55.66 ($p < 0.001$). Funding constraints (mean 3.88 and SD 1.05) and change resistance (mean 3.68 and SD

1.21) impede progress, representing Daradkah et al.'s (2023) conclusions that institutional preparation and financial assistance are crucial. Research indicates that institutions with enough finance had higher performance outcomes with a mean difference of 4.02 and a t-value of 46.08 ($p < 0.001$) (Berghaus & Back, 2017). These findings demonstrate that digital transformation is a strategic imperative that requires integrated leadership, culture, and investment aligned with Mosca (2020) and Teece's (2010) frameworks for sustainable institutional success.

6. CONCLUSION

This study shows how digital transformation improves decision-making, productivity, and adaptability in Jordanian university personnel's strategic performance. Digital technologies improve university outcomes, but financing, change aversion, and infrastructure slow growth. The findings show that successful change requires resources, leadership support, and an innovative culture to overcome these constraints. The analysis confirms global research showing digital transformation is a strategic imperative that demands detailed planning and institutional alignment. Universities can overcome hurdles and maximize digital practices by merging financial investments, leadership development, and personnel training. This report concludes that Jordanian institutions must take a holistic strategy for digital transformation to succeed. This includes matching resources, strategy, and culture to boost institutional performance and global competitiveness. Addressing these characteristics can help colleges adapt to changing educational needs. This study had some drawbacks; it depended on self-reported data, which may include biases such as social desirability. The concentration on two Jordanian universities limits generalizability to other institutions. Additionally, the cross-sectional approach provides a snapshot rather than longitudinal insights, and the absence of qualitative data inhibits a deeper understanding of participant perceptions. These constraints underscore the necessity for broader and mixed-method studies in the future.

7. RECOMMENDATIONS

1. Enhancing digital transformation financing: Jordanian institutions should prioritize acquiring money for technology infrastructure and employee training programs.
2. Changing organizational culture: An organizational culture that encourages change and innovation, including personal initiative and departmental integration must be strengthened.
3. Develop integrated strategies: Digital transformation requires strategic planning, executive leadership, and resource allocation at universities.

7.1. Proposed Studies

1. Research on the effects of digital transformation on higher education in Jordanian universities, including its impact on education quality and process improvement.
2. Studies on technical and technological challenges: Examining university digital transformation challenges and solutions.
3. Studies on measuring the effectiveness of digital strategies: Assessing the impact of university digital transformation strategies to improve strategic performance.

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Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
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Appendix 1. Questionnaire.

Sex	Male
	Female
The age	Less than 30
	30-40
	More than 40
Qualification	Diploma
	Bachelor's
	Master's
	Ph.D
Job title	Administrative

Phrase	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The university uses advanced digital technologies in its administrative operations.					
The university adopts a clear strategy for digital transformation.					
The university implements training programs to develop employees' skills in digital technologies.					
The university is developing the technological infrastructure necessary for digital transformation.					
The university encourages employees to take initiative and innovation in digital transformation.					
Digital transformation has contributed to improving the quality of services provided to students.					
Digital transformation has improved employees' ability to make strategic decisions.					
Digital transformation has helped increase employee productivity and efficiency.					
Digital transformation has enhanced the university's ability to adapt to environmental changes.					
Digital transformation has improved the university's ability to achieve its strategic goals.					
Lack of funding necessary to implement digital transformation initiatives.					
Employee resistance to change and digital transformation.					
Weak technological infrastructure at the university.					
Difficulty developing employees' digital skills.					
Lack of supportive leadership for digital transformation at the university.					