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Information Article

Designing a digital development model in the faculties of physical education and sports sciences in the Kurdistan Region of Iraq

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ABSTRACT

The aim of this study is to propose a conceptual framework for digital development in the faculties of physical education and sports sciences in Kurdistan Region. The research population consisted of experts in the field who had expertise in the study area within the universities of the Kurdistan Region. For the qualitative part of the study, a sample of the population was selected using the snowball sampling technique, focusing on individuals with relevant knowledge and experience. A total of 17 participants were chosen, based on the point at which theoretical saturation was reached. The research method involved semi-structured interviews conducted both face-to-face and online. The validity of the findings was ensured through the validation process of the selected sample, with a reviewer agreement rate exceeding 71% in framing the indicators and confirming their consistency in the study .The results revealed a conceptual map consisting of 67 concepts, 22 sub-themes, and 7 main themes. These 7 main themes, or factors, were identified as follows: the capacity of the innovation ecosystem and educational technology, the challenges of digital transformation and development, the effectiveness of e-governance in physical education faculties, leadership mechanisms supporting digital development, the availability of digital infrastructure in physical education faculties, the involvement of the physical education community, and the digitalization of educational processes in the physical education and sports sciences faculties of the Kurdistan Region.In concludion, the digital development in these faculties is a complex, multi-dimensional, and multi-level process. Its success is influenced by various contextual (e.g., requirements, challenges), systemic (e.g., structure, management), axial (e.g., infrastructure, mechanisms, participation), and consequential (e.g., outcomes) factors. Therefore, it is recommended that the management of physical education faculties in the Kurdistan Region adopt the framework proposed in this study to guide their planning and implementation of digital development in the system.

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1. Introduction:

Some scholars have stressed that leaders in organizations in developing countries must go beyond productivity-focused strategies to achieve true influence (Anwar & Gahraman, 2021). E-learning in organizations can enhance our understanding of how digital development unfolds in contemporary systems, suggesting that future studies should advance both conceptual and empirical research, particularly regarding organizational readiness and leadership for digital transformation (Capogna et al., 2018). This requires changes across key areas such as structure, processes, resources, and knowledge. Research has indicated that successful digital management and development depend on comprehensive support throughout the organization, particularly in fostering change and readiness, which are crucial factors in these processes (Testov, 2019). However, one challenge for managers in developing nations is that they often apply new management models and tools without considering whether these are compatible with their organization's capacity (Hendrix, 2013). For instance, a university that hasn't yet mastered the basics of e-learning cannot effectively use advanced tools. The prevailing view in organizations in developing countries—shaped by political, economic, and social conditions—is that information and communication technology (ICT) can be a panacea for organizational issues and a guarantee of performance. However, in practice, these organizations often adopt new technologies merely for show (Al-Husseini & Elbeltagi, 2016). Experience indicates that in Iraq, digital development has not been effectively implemented in organizations, often with a limited focus on the internet and social networks, which are mistakenly equated with full ICT integration (Girand & Hardavi, 2018). Digital development involves deep transformations driven by emerging digital technologies and is typically defined as a process of enhancing an entity by integrating information, computing, communication, and connectivity technologies (Wail, 2019). It is tied to the Fourth Industrial Revolution, characterized by the Internet of Things (IoT), where devices are interconnected and smart (Dahnarco et al., 2019). Various industries, including education, are undergoing fundamental changes driven by digital development (Gruzina et al., 2019). It refers to the cumulative impact of various digital innovations that create new actors, structures, methods, and values, or change existing rules within organizations and industries (Hinings et al., 2018). Digital development is also about companies adopting digital technology for competitive advantage, aiming to enhance efficiency, value, or innovation. This process involves integrating digital technologies across all areas, leading to

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fundamental shifts in management and value delivery (Ehlers, 2020). For organizations in developing countries, introducing new systems and programs demands effective and transformative leadership. This includes developing leadership skills and enhancing human capital to foster sustained performance and dynamism through motivation, creativity, and empowerment. Many organizations now rely on ICT for leadership, with digital management emerging as a new leadership approach. The increasing use of this term has led to debates over its precise meaning, but digital management generally refers to strengthening managers' abilities to use technology to advance organizational goals. To facilitate digital development, educational leaders need digital management skills, starting with building digital literacy among individuals. This prepares organizations to respond to changes in education driven by digital technologies (Hinings et al., 2018). Although digital development is advancing rapidly in many regions, there remains a lack of frameworks and tools to help managers drive these critical changes (Gumeh & Barfurosh, 2021). Despite the growing body of literature on organizational capacity in non-profit organizations, significant gaps remain in understanding how to build this capacity and a lack of frameworks for improving the digital capacity of organizations (Kutula et al., 2021). While digital innovation research is increasing, many studies still fail to explore digital development within the educational system or analyze it from a systemic perspective (Stegmann et al., 2021). Scholars have called for more structured frameworks and perspectives on digital development that address the specific challenges of management in the digital realm (Laufer et al., 2021).

Overall, digital management has become an essential skill for transformational leaders in today's organizations. Without adopting digital management to adapt to technological changes, organizations risk falling behind in competitiveness and sustainability. One major driver of digital transformation is the educational system, including physical education faculties, which need to embrace the latest educational approaches to stay current. Despite the global trend of digital development in physical education and sports science faculties, such transformations are often delayed in developing countries due to economic and political crises and lack of proper guidance. Thus, leadership in these institutions becomes crucial to addressing system weaknesses. The Faculty of Physical Education in the Kurdistan Region of Iraq, given recent structural and programmatic changes, and the need to align with global technological advancements, must adopt a digital management strategy. However,

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implementing this strategy without first assessing the educational system's capacity for electronic leadership and digital development is unlikely to yield significant outcomes. Therefore, the central research question is: What factors can facilitate digital management for digital development in the physical education faculty system of the Kurdistan Region of Iraq, and what factors and relationships serve as the guiding framework for this process?

Research Objectives

- Exploring the current state of digital development in the faculties of physical education and sports sciences in the Kurdistan Region of Iraq.
- Identifying the key challenges faced by these faculties in adopting and integrating digital technologies.
- Designing a comprehensive digital development model tailored to the specific needs of physical education and sports sciences faculties in the region.
- Assessing the potential impact of digital transformation on the quality of education and training in physical education and sports sciences.

2.Methodological Framework and Fieldwork Procedures

2.1 Research Methodology:

The approach used to identify and organize concepts and categories was primarily qualitative, focusing on extracting concepts, The researcher employed the descriptive methodology as it is the most suitable approach for addressing the research problem.

2.2 Research Population and Sample:

The research population consisted of experts in the field who had expertise in the study area within the universities of the Kurdistan Region. For the qualitative part of the study, a sample of the population was selected using the snowball sampling technique, focusing on individuals with relevant knowledge and experience. A total of 17 participants were chosen, based on the point at which theoretical saturation was reached

2.3 Instruments and Tools Used in the Research:

The sources for gathering findings were divided into two main parts: experts and informational resources. The experts consisted of university professors specializing in educational and technology management, as well as managers from the Ministry of Science and universities in the Kurdistan Region. The sample size was determined by reaching theoretical saturation, with 17 participants. The sampling method employed was purposive (theoretical). The informational resources included documents, books,

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plans, theses, and specialized articles related to education. The selected experts and informational sources were chosen to achieve theoretical saturation of the indicators, with 17 experts and 25 sources. The sampling method was purposive, based on specific criteria such as reliability and relevance. The validity of the findings was assessed and confirmed through the validity control of the selected sample, with reviewer agreement on the framing of indicators and their consistency in the study.

2.4 Material and Methods

The research utilized two main tools: library studies and interviews. Initially, library research was conducted to examine existing documents and records related to the research topic. Techniques such as document review (document mining), research analysis, information generation, and description of the current state were employed. After compiling the initial list of indicators, semi-structured exploratory interviews were conducted to further develop and complete the framework. The validity of the library study transcript and interview tool was first evaluated based on expert opinions, followed by validation through coding methods and reviewer agreement (e.g., kappa coefficient). A multi-stage coding process was used to organize the extracted components. The first stage of coding involved breaking down, comparing, conceptualizing, and categorizing the data. Open coding not only helped identify categories but also clarified their characteristics and dimensions. The second stage of coding involved procedures that followed open coding to establish connections between categories and relate the information in new ways. The third stage focused on systematically selecting the core category, linking it to other categories, validating these relationships, and filling in any gaps by refining and expanding the categories.

2.5 Pilot Study

A pilot study was conducted on January 12, 2025, at 10:00 AM at the University of the Kurdistan Region – Iraq. The aim of this preliminary study was to examine the validity and applicability of the tools and instruments intended to be used in the main research titled "Designing a Digital Development Model in the Faculties of Physical Education and Sports Sciences in the Kurdistan Region of Iraq."

This trial aimed to ensure that the research instruments are clear, effective, and appropriate for the study context. It also sought to identify any potential difficulties that might arise during the data collection process. The results of the pilot study will be used to refine the tools and procedures to enhance the reliability and accuracy of the main research.

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2.6 Main Experiment

The main experiment was conducted during the period from January 18 to 20, 2025, at 10:00 AM. The implementation involved distributing the research tool questionnaire to the sample members, totaling 17 individuals, through social media platforms. Responses were collected, categorized, and the results for each item in the questionnaire were tabulated.

The purpose of this experiment was to apply the research tool in a real setting with the study sample, in order to assess its effectiveness and efficiency in measuring the variables under investigation. This process aimed to generate accurate data that would contribute to the development of the proposed digital model for enhancing the faculties of physical education and sports sciences in the Kurdistan Region of Iraq.

During this phase, special attention was given to the clarity of the questionnaire items, ease of electronic use, and the response rate from participants. All collected data were recorded and analyzed in preparation for discussion in the results chapter.

2.7 Statistical Methods:

The researcher used the SPSS statistical package to extract the results.

3. Presentation, Analysis, and Discussion of Results

3.1 Results

A total of 67 conceptual codes were extracted from the first coding as shown in the table below. The 67 extracted conceptual codes were then framed into 22 sub-themes and 7 main themes. The frequency of repetition of key concepts of each central concept in the content of the interviews is also reported.

Table 1. Concepts extracted from the first stage coding (open coding)

Item Number	Conceptual code	themes -Sub	Main themes
1.	Percentage Post Has The digital workplace and its tools users	of Digitization the administrative and service -system of universities	Digitalization of Faculty of Physical Education processes in Kurdistan
2.	The level of implementation of the electronic system and Automation To become Processes and services in Organization		
3.	such as sponsors and Digital services to external stakeholders suppliers in Faculty of Physical Education institutions		
4.	Defined services for professors and students in the electronic and universitiesdigital platforms of		
5.	scientific processes and activities in the educational and academic environment		
6.	training coursesand Using electronic and virtual tools in classes	Using digital tools in education and science	
7.	Using digital tools in academic communication and interactions		
8.	research activities focused on the digital and Projects environment in Faculty of Physical Education		
9.	Providing digital education and virtual consulting to students and graduates		
10.	of utilizing open innovation in the university The possibility	Educational	The

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	system for digital development	Technology Supply Chain in the Kurdistan Region	capacity of the educational innovation and technology ecosystem in the Kurdistan Region
11.	digital technologies and tools in the field of Faculty of Physical Education universitiesand Growth in the supply of		
12.	services and educational technology businesses in the digital Kurdistan Region market		
13.	Interaction of regional **Faculty of Physical Education** centers their with innovation and digital technology service centers and utilization	Interaction between **Faculty of Physical Education** and the innovation and digital industry	
14.	Cooperation and exchange of achievements between universities ds of the Kurdistan and industry in the digital and technology fiel Region		
15.	Interpersonal communication between university professors and with industry activists in the field of innovation and students technology		
16.	The high cost of using some advanced and specialized digital universitiestools for	Environmental limitations of the academic system	Challenges of digital transformation and development in Faculty of Physical Education
17.	Weak access to services and the supply chain of digital needs in universitiesthe environmental market for		
18.	of technological infrastructure in Iraq for proper Limitations platformaccess to the international digital		
19.	Technical and systemic limitations of **Faculty of Physical Education** the digital platformcenters for utilizing	Systemic barriers to Faculty of Physical Education	
20.	functional adaptability towards Challenges Operational and universitiesdigital development in		
21.	related to ensuring the security and quality of Challenges information and communication systems in the digital environment		
22.	Lack of sufficient financial resources for Faculty of Physical Education centers to provide some digital services		
23.	caused by change Culture Organization in the field Challenges andfor universities of digital development Faculty of Physical Education centers	Behavioral and personal limitations	
24.	Lack of attention from Faculty of Physical Education universitiesadministrators to accelerating digital development in		
25.	Lack of skills required to work with specialized digital tools in the academic community of the Kurdistan Region		
26.	Resistance and lack of cooperation of some professors and staff digitalizationwith job changes related to		
27.	niversity professors, staff, and studentsu	Digital literacy and skills of members of the academic community	Engaging the Faculty of Physical Education community for digital development
28.	The extent of teaching and learning to work with the digital environment in the academic community of the Kurdistan Region		
29.	Level of skill and ability to work with digital environment tools staff, and students ،among faculty		
30.	Staff and professors with expertise in working with digital tools in **Faculty of Physical Education** and universities	Human capital with digital -expertise in universities	
31.	related to the digital Employing and providing expertise environment in the Faculty of Physical Education organizational workforce		
32.	Attracting volunteers and interns from students and graduates to universitiesdigital tools in		
33.	The level of positive attitude and perceived importance towards the use of new technology in the academic community	of a culture academic activity in the digital	
34.	in managers, professors, and and modernitytransformation andemployees of universities Faculty of Physical Education		

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	centers	platform	
35.	Acceptance of change and lack of resistance of university to the digital workplaceorganizational members		
36.	The level of participation of organization members in Faculty of Physical Education digital development activities and measures		
37.	of in the policies Adoption of global digital development education faculties in the Kurdistan Region and Iraq physical	Digital development policymaking in Faculty of Physical Education	The effectiveness of e governance in the faculties of physical education and sports sciences in the Kurdistan Region
38.	for digitalization forStructural and programmatic requirements **Faculty of Physical Education** centers and universities		
39.	The degree of emphasis on digital development in the tasks, laws, programs, and organizational approvals of the Faculty of Physical Education system		
40.	government system in the -e theThe ability to implement university system and physical education faculties of the Kurdistan Region	-Facilitating e government in **Faculty of Physical Education**	
41.	of Institutional requirements for smartization and virtualization universitieseducational processes in		
42.	the transformation and and measures forTracking activities development of the digital platform in the organization (website (.development, etc		
43.	inskills **Faculty of Physical Education** - and university administrators	Digital management capabilities in Faculty of Physical Education centers	
44.	assessment of technology and electronic infrastructure for Needs centers for digital development		
45.	Use of Bed Electronics for evaluation and monitoring andPerformance in universities Faculty of Physical Education centers		
46.	Using digital tools for Management Information and (..communication Organization (e.g. Google Tools and		
47.	Use of Tools Digital Accounting and financial management in the organization	Financing the Digital Development Program in Higher Education	Leading mechanisms to support digital development in Faculty of Physical Education centers
48.	building to receive digital development services and capacity advice		
49.	The amount of budget allocated to meet the organization's digital needs		
50.	Capital and financing in capital Digital Amount Return transformation of the organization (such as improving revenue and reducing costs)		
51.	The extent of use of digital tools for educational marketing communications and	Digital information and communication flow of universities	
52.	social and Using digital platforms to operate in the media space networks		
53.	the digital environment to communicate with partners, Utilizing suppliers, and customers		
54.	scientific and educational processes for digital Optimizing universitiesdevelopment in	the Adapting administrative and educational system to digital development	
55.	administrative capacity of professors and Developing the academic staff in the digital platform		
56.	organizational an advanced administrative system forUtilizing affairs in the faculties of physical education and sports sciences in the Kurdistan Region		
57.	Having a web The right site and its associated tools for all Faculty of Physical Education centers and departments	Providing and developing an electronic and software	Providing electronic and digital infrastruct
58.	Using office automation and electronic service desks (office (.etc ،student systemsfolders,		

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59. specialized educational and organizational software Using (.applications, artificial intelligence, etc)	forplatform Faculty of Physical Education	ure in Faculty of Physical Education centers
60. Capability Diagnosis and Fix Problems with digital systems in Faculty of Physical Education centers and universities		
61. for International digital environment Availability Acceptability universitiesfaculty, staff and students at	- Providing digital content for the academic community	
62. Producing digital educational content for internal and external andaudiences of universities Faculty of Physical Education centers		
63. a platform for sharing content and information forProviding faculty, staff, and students		
64. the use of educational equipment using digital toolsOptimizing	Smartening educational facilities and spaces	
65. Improving Internet and IoT capabilities in the organization and access for its members		
66. Use of Soft Appliances Warehousing and procurement and andsupply in universities Faculty of Physical Education centers		
67. Making scientific and educational places and spaces smart digital systemsthrough		

Table 2. Concepts extracted from the first stage coding (open coding)

Item Number	Mean	Standard Deviation	Standard Error	T-value	Chi-square	Sig.
1.	3.62	0.6	0.15	4.13	24.61	0.045
2.	3.29	0.58	0.14	2.07	19.98	0.005
3.	3.55	0.65	0.16	3.44	14.07	0
4.	3.29	0.5	0.12	2.42	21.1	0.012
5.	3.39	0.71	0.17	2.29	16.42	0.03
6.	3.12	0.52	0.13	0.92	18.75	0.045
7.	3.27	0.59	0.14	1.93	15.56	0.005
8.	3.51	0.55	0.13	3.92	25.95	0.045
9.	3.44	0.6	0.15	2.93	23.66	0.012
10.	3.61	0.58	0.14	4.36	14.04	0.005
11.	3.45	0.66	0.16	2.81	11.95	0.001
12.	3.4	0.56	0.14	2.86	25.22	0
13.	3.65	0.62	0.15	4.33	18.69	0.005
14.	3.52	0.69	0.17	3.06	14.01	0.012
15.	3.71	0.53	0.13	5.46	19.41	0.005
16.	3.54	0.63	0.15	3.6	20.66	0
17.	3.24	0.57	0.14	1.71	26.19	0.001
18.	3.57	0.52	0.13	4.38	19.83	0.03
19.	3.7	0.52	0.13	5.38	15.31	0.005
20.	3.6	0.58	0.14	4.29	19.06	0.012
21.	3.57	0.6	0.15	3.8	27.49	0.012
22.	3.6	0.52	0.13	4.62	25.77	0.005
23.	3.39	0.77	0.19	2.05	22.2	0.005
24.	3.61	0.65	0.16	3.81	24.76	0.001
25.	3.5	0.65	0.16	3.12	20.93	0.012
26.	3.44	0.48	0.12	3.67	13.75	0.03
27.	3.4	0.61	0.15	2.67	18.25	0.03

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28.	3.19	0.44	0.11	1.73	16.3	0.045
29.	3.49	0.68	0.16	3.06	20.1	0.012
30.	3.38	0.51	0.12	3.17	13.35	0.012
31.	3.54	0.6	0.15	3.6	14.61	0.001
32.	3.4	0.59	0.14	2.86	24.88	0.012
33.	3.47	0.61	0.15	3.13	23.84	0.045
34.	3.36	0.62	0.15	2.4	29.7	0.012
35.	3.6	0.52	0.13	4.62	25.84	0.045
36.	3.22	0.44	0.11	2	14.51	0.012
37.	3.68	0.68	0.16	4.25	24.57	0
38.	3.57	0.64	0.16	3.56	21.35	0
39.	3.56	0.63	0.15	3.73	12.46	0.045
40.	3.38	0.64	0.16	2.37	27.59	0.045
41.	3.6	0.57	0.14	4.29	29.88	0.001
42.	3.6	0.59	0.14	4.29	13.2	0.012
43.	3.69	0.62	0.15	4.6	17.76	0.001
44.	3.28	0.53	0.13	2.15	18.77	0.001
45.	3.65	0.58	0.14	4.64	16.23	0.03
46.	3.51	0.63	0.15	3.4	11.25	0.005
47.	3.49	0.62	0.15	3.27	19	0.03
48.	3.72	0.53	0.13	5.54	14.63	0.005
49.	3.81	0.64	0.16	5.06	24.51	0
50.	3.85	0.58	0.14	6.07	23.35	0
51.	3.58	0.58	0.14	4.14	15.28	0.001
52.	3.42	0.64	0.16	2.62	10.31	0
53.	3.2	0.52	0.13	1.54	25.03	0.045
54.	3.36	0.6	0.15	2.4	23.17	0.001
55.	3.57	0.58	0.14	4.07	16.56	0.001
56.	3.36	0.54	0.13	2.77	24.19	0.012
57.	3.37	0.38	0.09	4.11	20.8	0.001
58.	3.44	0.54	0.13	3.38	13.38	0
59.	3.68	0.62	0.15	4.53	21.14	0.001
60.	3.69	0.53	0.13	5.31	13.73	0
61.	3.5	0.55	0.13	3.85	25.14	0.001
62.	3.41	0.55	0.13	3.15	14.51	0.045
63.	3.31	0.51	0.12	2.58	23.62	0.03
64.	3.65	0.47	0.11	5.91	19.36	0.001
65.	3.49	0.71	0.17	2.88	11.63	0
66.	3.43	0.59	0.14	3.07	28.55	0.03
67.	3.32	0.6	0.15	2.13	15.53	0.045

he identified themes are as follows: The theme of innovation and educational technology ecosystem capacity in the Kurdistan Region includes sub-themes such as the educational technology supply chain in the region and the interaction between the Faculty of Physical Education and

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the innovation and digital industry. The theme of challenges in digital transformation and development within the Faculty of Physical Education includes sub-themes such as environmental constraints within the university system, systemic structural barriers in the Faculty of Physical Education, and behavioral and individual constraints faced by academics. The theme of e-governance effectiveness in the physical education and sports sciences faculties in the Kurdistan Region includes sub-themes like digital development policymaking in the Faculty of Physical Education, facilitating e-government in the Faculty of Physical Education, and digital management capabilities within Faculty of Physical Education centers.

The theme of leadership mechanisms supporting digital development in these faculties includes sub-themes such as financing digital development programs in the Faculty of Physical Education, digital communication and information flow in universities, and adapting the administrative and educational systems to digital development. The theme of providing electronic and digital infrastructure in Faculty of Physical Education centers includes sub-themes like developing and providing electronic and software platforms, providing digital content for the academic community, and transforming educational facilities and spaces into smart environments. The theme of community participation in digital development within the Faculty of Physical Education includes sub-themes such as digital literacy and skills of academic community members, building human capital with digital expertise in universities, and cultivating a culture of academic activities on digital platforms. Finally, the theme of digitizing processes in the Faculty of Physical Education in Kurdistan includes sub-themes such as digitizing administrative and service systems in universities and using digital tools in education and research.

These themes were extracted from the interview data (determining factors).

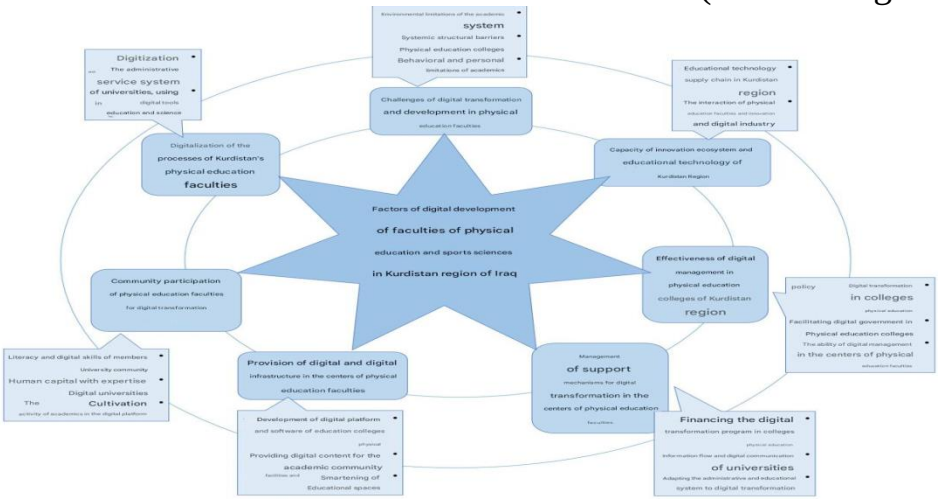

Figure 1: coding concept map of factors of digital development

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3.2 Discussion

In explaining the importance of the factors identified, it can be stated that digital technologies have the potential to add value to educational systems by boosting productivity and enhancing performance. The adoption of digital technology can significantly improve an organization's accessibility, providing opportunities for new stakeholders and expanding its reach (Ferreira, Ratan, & Dana, 2017). Digital platforms, utilizing big data, cloud computing, and social media, play a crucial role in increasing stakeholder engagement and are essential for improving organizational performance. However, some organizations have experienced slow technological progress due to resistance to adopting digital technologies (Dashkov et al., 2021). Continuous improvement in educational organizations is crucial, not only in the technologies used to deliver services but also in the way consumers interact with these services. This results in increased efficiency, better customer service, and simplified service delivery. Therefore, digital development should prioritize the advantages of technological innovation, rather than merely focusing on their functional applications in the market (Rutten & Thompson, 2021).

Digital technology enables managers to personalize services for specific target groups, foster stronger relationships, and improve overall performance. The rapid growth of digital educational technologies has led to a continuous increase in educational data. When properly utilized, this data can provide strategic insights that help organizations enhance their development and competitiveness (Rutten et al., 2021).

In conceptualizing a framework for digital management, it can be said that the identified factors influence an organization's ability to analyze performance and environmental conditions. By identifying challenges and anticipating changes, organizations can take the necessary actions and allocate resources to progress to the next stage. Technology-driven transformation focuses on identifying gaps, optimizing resource use, improving learning from the environment, delivering appropriate services, enhancing quality, reducing errors, saving time, promoting creativity and innovation, and building closer stakeholder relationships. However, for digital development to succeed, organizations must digitalize all sub-processes in a balanced way (Shahodeh et al., 2020). A university, for example, cannot operate like a successful global science institution while acting like a startup in terms of technology. The key is in the relationship between leadership and technology. The absence of strong leadership in digital development makes it difficult for educational managers in the Kurdistan Region of Iraq to guide their systems toward digital innovation

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and growth. Without effective digital management, both inside and outside the organization, digital development may fail to achieve its desired outcomes.

Regarding the importance of e-leadership in digital development, it can be noted that since digital transformation in an organization is complex and requires leadership and organizational readiness, a framework for transformation and technological leadership should be adaptable to various goals and areas of analysis. It should also consider perspectives from various stakeholders within the organization. Digital management must be grounded in a thorough understanding of the dimensions of digital development and the organization's system to achieve its goals. Thus, the outputs of a digital management framework should be assessed using both quantitative and qualitative measures. This framework offers a comprehensive theoretical base grounded in proven concepts and can support continuous organizational learning and improvement. The leadership framework for digital development resulting from this study could help the education system in the Kurdistan Region of Iraq better assess its progress and benchmark itself against competitive regional systems. However, research has shown that despite the widespread use of digital technology, many organizations, particularly in developing countries, fail to use data effectively. This is largely due to a disconnect between data collection and its strategic application.

The modern Faculty of Physical Education now involves various interconnected components that interact with the external environment. Managing and improving such a complex system requires careful consideration. Digital development and its leadership, by integrating the system and aligning it with the environment, help to foster a better understanding of how the system functions and how it should be managed (Ratan, 2019). The importance of digital development in the transformation of physical education faculties in the Kurdistan Region lies in the need for universities to have a comprehensive understanding of their system when implementing strategies. While there are numerous global frameworks for e-leadership and digital development, each region and institution require a specialized, locally tailored framework. This means universities need appropriate tools and methods to assess the available data and properly evaluate the alignment between their approach and the methods they use.

Although scientific research does not provide an executable program for identifying, utilizing, and developing digital technologies, it offers valuable insights and frameworks for planning, implementation, and evaluation. The findings from this research can serve as a useful resource for decision-

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making in the management, teaching, research, and media sectors of physical education faculties in the Kurdistan Region. It will also guide trusted individuals and stakeholders in this field.

As with all research, limitations exist. For this study, they include: 1) the lack of collaboration with some experts and organizations, which affected the resources available for the research; 2) the lack of comprehensive environmental documentation for the subject of the research, which impacted the ability to gather examples and evidence; and 3) the presence of critical and differing opinions from various stakeholders, which led to challenges in addressing all aspects of the subject. For future studies, it is recommended to clearly define and explain the importance and role of digital development and capacity building for policymakers and managers in physical education faculties in the Kurdistan Region and Iraq. This would help prioritize digital development and future e-leadership programs. Furthermore, university regulations, documents, and technological transformation programs should be reviewed, and digital development should be defined as a central part of these frameworks. It is also suggested that media activists, academic researchers, and digital development experts push for digital development to become a key focus within educational institutions and organizations. Encouraging digital literacy and skills among faculty and university staff is crucial. Additionally, the framework presented in this study should be used to assess the current state of digital development and the gap between that and the desired situation in universities. The results from this research can be used by policymakers, activists, and stakeholders involved in physical education faculties' planning, education, and media content development in the Kurdistan Region and Iraq.

4. Conclusion

It can be stated that digital development through capacity building can transform the entire Faculty of Physical Education and the university system in the Kurdistan Region. By recognizing the role of education, this transformation can pave the way for organizational progress and innovation. For digital development to take root in universities and the Faculty of Physical Education system, it must first be understood and embraced at the highest levels of management, and the commitment should extend down to the lower divisions of current universities. Universities in the Kurdistan Region are in need of digital development, and capacity building is a critical strategy to strengthen this process. The framework outlined in this paper aligns with both local research and international studies. Based on the findings, it is clear that digital development in the

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faculties of physical education in the Kurdistan Region and Iraq is multidimensional (structural, human, infrastructural, and functional) and requires continuous recognition and evaluation through valid indicators.

References

- Abdul Hassan Rahima Mashkoor. (2025). The Effect of the Biggs Model on the Learning of Some Simple Offensive Skills in Foil Fencing for Students. *Journal of Sport Science*, *17*(64), 30-40. https://doi.org/10.26400/sp/64/3
- Abdul- Ridha, R., & Jader, AMA (2018). The impact of trust in using social media network in e-leadership: A case study in KAR group in Kurdistan Region-Iraq. International Journal of Academic Research in Economics and Management Sciences, 7(2), 45-58.
- Abuowda, A., Iwidat, H., & Alawnah, M. (2024). Impact of E-leadership on organizational citizenship behavior of faculty members in higher education: information and communication technology as a mediator. Discover Education, 3(1), 48.
- Agustina, R., Kamdi, W., Hadi, S., Muladi, M., Nurhadi, D., & Umniati, S. (2020, September). Leadership Selection at Vocational Education Based on Digital Leadership Model Using AHP Method. In 2020 4th International Conference on Vocational Education and Training (ICOVET) (pp. 36-40). IEEE
- Ahmad, AB, & Cheng, Z. (2018). The role of change content, context, process, and leadership in understanding employees' commitment to change: The case of public organizations in Kurdistan region of Iraq. *Public Personnel Management, 47* (2), 195-216.
- Ahmad, R. (2016). Emotional response and the frequency of psychological and relationship accurately the incidence of some types of assault with a weapon for players fencing foil. *Journal of Sports Science*, *8*(27), 97-107.
- Ahmed, A., Mohammed, A., & Al-Janabi, S. (2013). Constructing and rationing measure of moral reasoning for the students of the Faculty of Physical Education at the University of Mosul. *Journal of Sport Sciences*, *5*(2), 79-124.
- Ahmed, AM, & Allawi, OW (2020). a Review Study on the Adoption of Cloud Computing for Higher Education in Kurdistan Region-Iraq. UHD Journal of Science and Technology, 4(1), 59-70.
- Ahmed, H. B. (2024). Percentages of contributions of the most important physic tability and movement among youth football player. *JOURNAL OF SPORT SCIENCES*, *16*, 61.
- Ahmed, RK, Muhammed, KH, Pappel, I., & Draheim, D. (2020, April). Challenges in the digital transformation of courts: a case study from the Kurdistan region of Iraq. In *2020 Seventh International Conference on eDemocracy & eGovernment (ICEDEG)* (pp. 74-79). IEEE.
- Al- Blaihed, NM (2021). The Degree of the E-Leadership Practice at Princess Nora Bint Abdul Rahman University of the Corona Pandemic. Journal of Educational and Psychological Researches, 18(68).
- Al- Mousawi, MM (2020). Transforming One-Stop E-Services in Iraq: Focusing on perception of Blockchain Technology in Digital Identity System. In 2020 IEEE Global Humanitarian Technology Conference (GHTC) (pp. 1-4). IEEE.

Journal of Sports Sciences
ISSN: 2074 - 6032 ISSN-e: 2710 - 5016
Journal Homepage: https://pessj.uodiyala.edu.iq

- Alborz, A., Slee, R., & Miles, S. (2013). Establishing the foundations for an inclusive education system in Iraq: reflection on findings from a nationwide survey. International Journal of Inclusive Education, 17(9), 965-987.
- Alenezi, M., Wardat, S., & Akour, M. (2023). The need of integrating digital education in higher education: Challenges and opportunities. Sustainability, 15(6), 4782.
- Al-Husseini, S., & Elbeltagi, I. (2016). Transformational leadership and innovation: a comparison study between Iraq's public and private higher education. *Studies in Higher Education, 41* (1), 159-181.
- Ali, BJ, & Anwar, G. (2021). Strategic leadership effectiveness and its influence on organizational effectiveness. *International Journal of Electrical, Electronics and Computers, 6* (2).
- Aljanazrah, A., Yerousis, G., Hamed, G., & Khlaif, ZN (2022, October). Digital transformation in times of crisis: Challenges, attitudes, opportunities and lessons learned from students' and faculty members' perspectives. In Frontiers in Education (Vol. 7, p. 1047035). Frontiers Media SA.
- Ameen, N., Willis, R., Abdullah, MN, & Shah, M. (2019). Towards the successful integration of e - learning systems in higher education in Iraq: A student perspective. British Journal of Educational Technology, 50(3), 1434-1446.
- Arnold, D., & Morer, AS (2018, October). Developing a Framework of e-Leadership Literacies for Technology-Enhanced Learning in Higher Education: A Delphi Study. In EDEN Conference Proceedings (No. 2, pp. 163-171).
- Avolio, BJ, Sosik, JJ, Kahai, SS, & Baker, B. (2014). E-leadership: Re-examining transformations in leadership source and transmission. The Leadership Quarterly, 25(1), 105-131.
- Beaudoin, MF (2015). Distance education leadership in the context of digital change. Quarterly Review of Distance Education, 16(2), 33.
- Boronenko, TA, & Fedotova, VS (2020). Prerequisites for the digital transformation of the Russian education system. Vestnik of Samara University. History, pedagogics, philology, 26(2), 70-78.
- Capogna, S., Capogna, S., & Mustica, AS (2018). The Challenges for Digital Society: Education and E-Leadership. International Journal of Innovation and Economic Development, 4(3), 12-19.
- Dahnarco, G., Ramalho, FR, Barros, AC and Soares, AL (2019) 'Providing industry 4.0 technologies: The case of a production technology cluster', *The Journal of High Technology Management Research,* 30(2): 1-9.
- Ehlers, UD (2020). Digital Leadership in Higher Education. Journal of Higher Education Policy and Leadership Studies, 1(3), 6-14.
- Farias-Gaytan, S., Aguaded, I., & Ramirez-Montoya, MS (2023). Digital transformation and digital literacy in the context of complexity within higher education institutions: a systematic literature review. Humanities and Social Sciences Communications, 10(1), 1-11.
- Fernández, A., Gómez, B., Binjaku, K., & Meçe, EK (2023). Digital transformation initiatives in higher education institutions: A multivocal literature review. Education and information technologies, 28(10), 12351-12382.

Journal of Sports Sciences
ISSN: 2074 - 6032 ISSN-e: 2710 - 5016
Journal Homepage: https://pessj.uodiyala.edu.iq

- García, I. (2015). Emergent leadership: Is e-leadership important in the quality of virtual education? RIED: Revista Iberoamericana de educación a Distancia.
- Gkrimpizi, T., Peristeras, V., & Magnisalis, I. (2023). Classification of barriers to digital transformation in higher education institutions: Systematic literature review. Education Sciences, 13(7), 746.
- Gruzina, YM, Mel'nichuk, MV, & Belogash, MA (2019). Leadership ideas shaped by digital insights in higher education. Управленческие Science, 9(4), 75-84.
- Habib, M. (2023). Digital transformation strategy for developing higher education in conflict-affected societies. Social Sciences & Humanities Open, 8(1), 100627.
- Hameed, ARAG, & Sumari, PB (2024). Adoption and continued usage of mobile learning of virtual platforms in Iraqi higher education an unstable environment. International Journal of Information Management Data Insights, 4(2), 100242.
- Hendrix, SE (2013). Institutional capacity building and legal reform in Iraq: Toward innovation and public administration modernization. The Law and Development Review, 6(1), 225-253.
- Hinings, B., Gegenhuber, T. and Greenwood, R. (2018) 'Digital innovation and transformation: An institutional perspective', *Information and Organization,* 28: 52-61.
- Ivashevsky, SL, Strokov, A. A., Savchenko, IA, Kurmelev, AY, & Dimitricheva, OI (2020). National identity in the context of digital transformation of education. In European Proceedings of Social and Behavioral Sciences EpSBS (pp. 398-403).
- Jawad, SN, & Al-Assaf, SI (2014). The higher education system in Iraq and its future. International Journal of Contemporary Iraqi Studies, 8(1), 55-72.
- Kahai, S. (2018). E-leadership: An essential section of doctoral leadership education. In Advancing Doctoral Leadership Education Through Technology. Edward Elgar Publishing.
- Kotula, N., Kaczmarek -Ciesielska, D., & Mazurek, G. (2021). Social Media e-Leadership Practices During the COVID-19 Pandemic in Higher Education. Proceedings of Computer Science, 192, 4741-4750.
- Langseth, I., Jacobsen, DY, & Haugsbakken, H. (2023). The role of support units in digital transformation: How institutional entrepreneurs build capacity for online learning in higher education. Technology, Knowledge and Learning, 28(4), 1745-1782.
- Laufer, M., Leiser, A., Deacon, B., Perrin de Brichambaut, P., Fecher, B., Kobsda, C., & Hesse, F. (2021). Digital higher education: a divider or bridge builder? Leadership perspectives on edtech in a COVID-19 reality. International Journal of Educational Technology in Higher Education, 18(1), 1-17.
- Maheshwari, G., Clarke, S., Nguyen, QAN, McClelland, R., & Kunte, M. (2024). Effect of E-leadership on employees' outcomes in the higher education sector during COVID-19 and beyond: A case study from Vietnam. Educational Management Administration & Leadership, 17411432231222715.
- McCarthy, AM, Maor, D., McConney, A., & Cavanaugh, C. (2023). Digital transformation in education: Critical components for leaders of system change. Social sciences & humanities open, 8(1), 100479.

Journal of Sports Sciences
ISSN: 2074 - 6032 ISSN-e: 2710 - 5016
Journal Homepage: https://pessj.uodiyala.edu.iq

- Milenkova, V., & Manov, B. (2022). Digital Transformation in Education in Knowledge Society. In Smart Trends in Computing and Communications (pp. 31-39). Springer, Singapore.
- Mohammed, HO, Aziz, AI, Sadq, ZM, & Othman, BA (2020). The Impact of Transformational Leadership on Employee's Effectiveness (The Case of Ministry of Higher Education and Scientific Research, Kurdistan Regional Government, Iraq). International Journal of Multicultural and Multireligious Understanding, 7(11), 201-217.
- Quy, VK, Thanh, BT, Chehri, A., Linh, DM, & Tuan, DA (2023). AI and digital transformation in higher education: Vision and approach of a specific university in Vietnam. Sustainability, 15(14), 11093.
- Shahoodh, G., Al-Salman, O., & Mustafina, J. (2020, December). Towards a Context-Aware Digital Government in Iraq: A Public Sector Employees' Perspective. In 2020 13th International Conference on Developments in eSystems Engineering (DeSE) (pp. 283-286). IEEE.
- Shenkoya, T., & Kim, E. (2023). Sustainability in higher education: digital transformation of the fourth industrial revolution and its impact on open knowledge. Sustainability, 15(3), 2473.
- Testov, VA (2019). On some methodological problems of digital transformation of education. Informatics and education, (10), 31-36.
- Trevisan, LV, Eustachio, JHPP, Dias, BG, Filho, WL, & Pedrozo, E. Á. (2024). Digital transformation towards sustainability in higher education: state-of-the-art and future research insights. Environment, Development and Sustainability, 26(2), 2789-2810.
- Yaseen, M., Salih, HS, Aljanabi, M., Ali, AH, & Abed, SA (2023). Improving Process Efficiency in Iraqi universities: a proposed management information system. Iraqi Journal for Computer Science and Mathematics, 4(1), 211-219.