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Amjad M. Daradkah

Department of Educational Administration, Faculty of Educational Sciences, Ajloun National University, Ajloun, Jordan, amdaradkah@yahoo.com

Turki K. Alotaib

Department of Educational Administration, Faculty of Education, Umm Al-Qura University, Makkah, Saudi Arabia, amdaradkah@yahoo.com

Hazem A. Badarneh

Department of Educational Administration, Faculty of Educational Sciences, Jadara University, Irbid, Jordan, amdaradkah@yahoo.com

Khaled S. A. Momani

Department of Educational Administration, Faculty of Educational Sciences, Ajloun National University, Ajloun, Jordan, amdaradkah@yahoo.com

Khaled M. Hamadin

Department of Educational Administration, Faculty of Educational Sciences, Jerash university, Jerash, Jordan, amdaradkah@yahoo.com

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Authors

Amjad M. Daradkah, Turki K. Alotaib, Hazem A. Badarneh, Khaled S. A. Momani, Khaled M. Hamadin, Rabha A. Alqudah, Maha I. AL-Momani, Adnan B. Al-Ibrahim, Mohammed A. Ashour, Nofah Sameh Almwadeh, Areen A Al-nemrat, and Ashraf M. A. Mahmoud

A Proposed Vision of the Transformation of the Arab Universities into Smart Digital Universities

Amjad M. Daradkah^{1,*}, Turki K. Alotaib², Hazem A. Badarneh³, Khaled S. A. Momani¹, Khaled M. Hamadin⁴, Rabha A. Alqudah⁵, Maha I. AL-Momani⁶, Adnan B. Al-Ibrahim⁷, Mohammed A. Ashour⁷, Nofah Sameh Alkawadeh⁸, Areen. A. Al-nemrat⁴ and Ashraf M. A. Mahmoud⁹

¹Department of Educational Administration, Faculty of Educational Sciences, Ajloun National University, Ajloun, Jordan

²Department of Educational Administration, Faculty of Education, Umm Al-Qura University, Makkah, Saudi Arabia

³Department of Educational Administration, Faculty of Educational Sciences, Jadara University, Irbid, Jordan

⁴Department of Educational Administration, Faculty of Educational Sciences, Jerash university, Jerash, Jordan

⁵Department of Educational and Family Counseling, Faculty of Educational Sciences, Ajloun National University, Ajloun, Jordan

⁶Department of Basic requirements, College of Literature, Ajloun National University, Ajloun, Jordan

⁷Department of Educational Administration and Foundation, College of Education, Yarmouk university, Irbid, Jordan

⁸Department of Curriculum and Administration, Faculty of Educational Sciences, Jerash university, Jerash, Jordan

⁹Department of Comparative Education & Educational Administration, Hurghada Faculty of Education, South Valley University, Qena, Egypt

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Abstract: This research develops a proposed vision to transform Arab universities into smart digital universities. The descriptive research approach is used to achieve the research objectives. The research sample consists of 450 faculty members and 75 educational experts randomly selected by stratified random method. The questionnaire is adopted as a research instrument. The findings indicate that a proposed vision can be developed to transform Arab universities into smart digital universities by addressing several themes; the philosophical premises of the proposed vision, the features of the proposed vision “smart university administration, smart people, smart university environment, and knowledge network”, determining the requirements necessary to implement the proposed vision, setting the appropriate foundations for the proposed implementation and success in Arab universities, and demonstrating the potential challenges and threats that may stand in the way of implementing the proposed vision and methods to overcome them.

Keywords: A Proposed Vision, Arab Universities, Smart Digital Universities.

1 Introduction

The rapid changes witnessed by humanity at the end of the 20th century and the beginning of the 21st century are confirmation of the occurrence of a huge revolution in the field of modern information and communication technology (ICT). Today, the 21st century can be described as the digital age, whose elements are rapidly being formed in every region of the world through speedy developments and changes in information and communication technologies. This development makes users live in a world with fast and ever-changing characteristics, which leads to the emergence of a different world in terms of data and tools. Texts, sound, and images, for example, are transmitted and handled through the Internet world, which creates a new world for designing advanced educational environments and creating virtual worlds more creative than they are in the current reality.

What distinguishes the current era is the amazing developments in this domain, contributing to the establishment of new landmarks, where modern information systems in light of the digital age are analytical and diagnostic systems that give wide capabilities for analysis, planning, and flexible and effective response to changes surrounding the work environment. Now that educational institutions do not live alone in our contemporary world from these global changes, especially institutions of higher education, where the future of universities today is linked to those rapid developments in the knowledge and technology domain and the unlimited flow of visions, directions, goals, ideas, and ideologies, it is found that the reality and nature of the challenges facing universities have compulsorily imposed many significant transformations in university education systems. It is also evident that any development in this field depends on the university's ability to realize the significance of change and monitor its long and short-term effects.

The transformation of humankind towards the digital age has brought about radical changes in life systems in general, as entire professions and industries have disappeared, and new ones and industries have replaced them. Thus, the

*Corresponding author e-mail: amdaradkah@yahoo.com

education sector was affected by the gradual shift from traditional education to digital education to suit the features of the era and its smart requirements (Othman, 2008). Higher education has a pioneering role in the development and progress of society, as it promotes human thinking, values, and skills, and provides society with a creative and thinking human resource capable of serving its society and advancing in all its aspects. The university as an educational institution is the pioneer in leading the process of change and development in human societies, especially in light of the information and communication revolution and the accompanying acceleration of knowledge, information, and digital (Boais & Falata, 2020).

Smart digital universities are an outcome of the natural and logical development of e-learning and the accompanying broad launch in the field of open-source cloud computing and educational platforms, which today are considered one of the most important pillars of modern education in international and Arab universities, going hand in hand with traditional education. This rapid development in e-learning techniques is reflected in the teaching side, changing the faculty member from a mere conveyer of information to a more advanced member through the role of a guide, trainer, and corrector. Digital technologies have also affected the change of the role of the student from a mere recipient of science to a researcher and discoverer in the academic specialization. One of the most important reasons for relying on smart-university systems is the problem of accepting and accommodating students wishing to enroll in higher education institutions in Arab countries, which generated great pressure on public universities, not to mention the obvious weakness in the infrastructure of the scientific research sector in the educational institutions of Arab countries, which is almost modest.

The philosophy of education in the digital age is based on the principle of lifelong education and university education for all by providing educational opportunities for all individuals within the community from their place of residence through the global network of the Internet by creating an integrated electronic learning environment based on the latest technical developments. It also provides the necessary support for learners through a virtual meeting that includes experts and university faculty members, where academic communication takes place between them via the electronic network (Al-Rubaie, 2008). The philosophy of the digital age is based on an innovative model of education patterns where the learner is active in obtaining knowledge by searching the abundant flow of information and multiple sources of knowledge. This new approach to education in research and exploration focuses on developing the learner's motivation and abilities to control educational activities to obtain scientific knowledge through interactive education and practice (Napti & Buttmajt, 2012).

The philosophy of education in the digital age is based on spreading electronic culture in university education institutions, providing many means to facilitate access to knowledge through various communication technologies, where universities should invest in modern technologies to advance education and prepare qualified graduates capable of understanding modern technologies and distinguishably work with them (Al-Rubaie, 2008). The philosophy of education in the digital age is also based on developing critical thinking among learners, in light of the increasing reliance on digital technology to obtain information and knowledge, in addition to the huge number of multiple sources of knowledge. It is necessary to develop the critical thinking of the learners to be more aware of the choices among this huge amount of knowledge, in addition to emphasizing the principle of education and self-education. Thus, it is possible to prepare a generation capable of dealing with the data of the digital age and making decisions regarding the various intellectual currents (Al-Dahshan & Al-Fouhimy, 2015).

The philosophy of education in the digital age focuses on reducing the teacher's direct involvement in education and increasing the learner's interaction within the educational environment. This interaction depends on basic skills for the learner to be able to interact with modern educational media. As the role of the learner is not only that direct role in teaching information and giving it to the learners at a specific time and place but also depends on other basic competencies related to how to manage the learning process in a new, untraditional way and prepare educational courses in a manner consistent with the new style of education. The learners shall use educational media and ensure that they are progressing toward achieving the set goals (Al-Kasji, 2012).

Education in the digital age offers innovative solutions to many problems suffered by the traditional education system to become more efficient and effective in developing the educational system and achieving its goals. Therefore, the philosophy of education in the digital age is based on a set of pillars to meet the needs of society, such as interaction, represented by the learner making a kind of response during the learning process. Technological innovations also provide a communication environment that allows the learner a kind of freedom to control the rate of presentation of the content of the educational material to choose the suitable content. Another pillar is diversity as it provides a diverse learning environment in which each learner finds what is suitable by providing a range of educational options and alternatives for the learner. Globalism, as it provides opportunities for openness to multiple sources of information all over the world, and the learner connects to the global network of the Internet to obtain the required information. Integration is when the components of each innovation constitute an integrated system. In multimedia programs developed by the computer, the means are not presented one after the other, but they are integrated into one framework

to achieve the desired goal (Abdel-Atti & Abu Khatwa, 2014). With this detailed introduction, the next section presents the related literature review.

2. Literature Review

The research documented that the digital university is a center for technological transformations to develop the components of the educational process, including students, faculty members, study programs, management, financing, and student assessment. They also include student learning goals and work streams within the university, human resource development and shape the nature of the institutional culture, alongside the continuous development of curricula to keep pace with global changes (Johnston, MacNeill, & Smyth, 2019).

The challenge facing the educational systems now is how to take advantage of new communication technologies to create learning experiences relevant to the reality experienced by learners and prepare students to learn throughout their lives continuously. Helping students learn beyond the scope of the classroom requires changing the content students learn and how they learn to match the knowledge that people should know. Therefore, twenty-first-century technologies must be used in education to make it meaningful in their lives and to stimulate their motivation towards learning better. Schools must determine whether they prepare children for the world in which they live, and if schools fail to adapt to the new digital reality, students will reduce the actual value of schools and their place in their hearts (Abdel-Razzak; 2022 Mahgoub, 2006).

Also, Badran (2019) believes that higher education institutions are considered incubators for science and technology that can be transformed into creative inventions that bring the nation out of its social and economic crisis. Therefore, these institutions must carry out comprehensive educational and strategic transformations in all their policies, develop their goals, and manage them, modify their curricula and programs, and use new teaching methods, assessment systems, and examinations. Since the main feature of the knowledge society is the intensive employment of information and communication technologies, it is essential for our universities today to get out of their isolation from the societal environment, shift from consuming knowledge to producing it, and contribute effectively to building the knowledge society.

From another angle, Sandkuhl and Lehmann (2017) indicate that the goal of the digital transformation process in higher education is to redefine educational services and redevelop operational processes. It is also added that this can be achieved using three possible models: service conversion which focuses on changing and redefining services before making major improvements and changes to operations. The second model is a shift, as the higher education institution identifies and modifies new digital processes, activities, and procedures. The third model combines service and operations, as this approach includes integrated transformation through the systematic interrelation of both previous approaches.

In the same context, Jackson (2019) explains that the concept of digital transformation exceeds in its objectives the adoption of advanced digital technology only. In the case of higher education institutions, changing current teaching and learning paradigms is essential to survive and maintain a competitive position in the long term. Within this scope, four main and consistent goals of digital transformation include improving the learning environment for students, increasing its operational efficiency, increasing computing potential, and stimulating innovation in education .

In addition, Al-Ramaidi and Talhi (2018) conclude that they evaluate the availability of smart university requirements at Sadat City University in Egypt and work on developing a proposed plan for improvement in the future. The descriptive approach is used by applying a questionnaire to the 151 faculty members at the university. The findings also show a reasonable degree of requirements for smart universities at Sadat City University, such as smart people, smart management, and smart learning environments, but there are no smart buildings. However, Sadat City University needs further development and improvement in the field of smart buildings.

Besides, Nasser and Flack (2019) identify the role that the smart university experience contributes to achieving leading ranks in the Times Higher Education journal, with a focus on the Oxford University experience, occupying the leading ranks from 2017 to now. The descriptive approach is used by applying a questionnaire to a sample at Oxford University. The results demonstrate an impact of the experience and seniority of the University of Oxford in organizing and ranking it globally according to the Times Higher Education journal, as the University of Oxford constantly strives to create a global smart and digital environment through creating innovative digital communities that focus on important innovations, modern ideas and the application of best practices.

Appropriating the descriptive approach, Al-Dahshan and Al-Sayed (2020) offer a proposed vision for transforming Egyptian universities into smart universities in light of the digital transformation initiative for universities. The study instrument represented by the questionnaire is applied to a sample of 372 faculty members in the Egyptian public universities "Monofia, Cairo, and Sohag". The findings conclude that the requirements for the transformation of

Egyptian public universities into smart universities are digital vision, smart infrastructure, smart human elements, smart learning and learning environment, and smart management.

What is more, Ahmed (2020) develops a proposed strategy to transform Minia University into a smart university in light of the digital transformation trends and the UAE model of Hamdan Bin Mohammed Smart University. The descriptive approach is used using the case study method and the SWAT analysis method. Open personal interviews and questionnaires are also used as instruments, relying on official documents and reports, the university's official portal website, reality notes, and personal experiences of a sample of university employees in their different categories. The findings conclude by presenting a proposed strategy complete with elements and pillars through an executive plan for the transformation of Minia University into a smart university that suits the cultural and social environment during the next five years.

Also, Abed Moneim (2020) evaluates the degree of possessing the twenty-first-century skills of the faculty members at Al-Aqsa University and proposes a vision to transform Al-Aqsa University into a smart university in the light of the twenty-first-century skills. The descriptive approach is used to achieve the study objectives. The study population consists of 446 faculty members at Al-Aqsa University in the academic year (2018/2019). A questionnaire used as a study instrument is designed to assess the degree of faculty members' possession of twenty-first-century skills. The results show that (79.3%) of the faculty members possess a high degree of twenty-first-century skills, regardless of specialization and academic degree, as these skills are among the most important elements of the transformation to smart universities.

Additionally, Amin (2018) identifies the digital transformation in Egyptian universities and its role in achieving the requirements of the knowledge society. The descriptive approach is used to achieve the study objectives. The questionnaire as a tool is applied to a sample of 67 faculty members from some of the faculties of Egyptian universities "Damanhour, Alexandria, Tanta, and Mansoura". With high indications, the results confirm the response of faculty members to the requirements related to setting a strategy for digital transformation, designing digital educational programs, managing and financing digital transformation, and human, technical, security, and legislative requirements. However, the results show that the responses of the faculty members regarding the requirement to spread digital culture are of a medium level. A proposal is also adopted to determine the requirements for digital transformation in universities to achieve the study population.

Mohammad's study (2020) identifies educational requirements for transforming the University of Jordan into a smart university in light of the information and communication revolution. The descriptive analytical approach is used to achieve the study objectives. The questionnaire adopted as a study instrument is used as a sample of 309 faculty members. The findings show that the general average of the requirements for the transfer to the University of Jordan is medium, with a mean of 3.42. The results also indicate statistically significant differences in the total score of the scale and the fields of university buildings and smart management in favor of natural sciences.

Another study by Mohammad and Al-Ghubairi (2020) analyzes the reality of digital transformation in the Kingdom of Saudi Arabia towards adopting its use in bringing about development, modernization, and continuous improvement for the renaissance and progress of the Kingdom and determining the extent of its progress in dealing with "digitals" and understanding its contents. The descriptive analytical approach is used to achieve the study objectives. The findings show that the digital transformation in the Kingdom proceeds at an annual rate of increase of 5% from 2011 to 2017, which is the period that represents the time series of the study variables. The results also indicate that the Kingdom is among the third technology-supporting countries in the region on the Global Communications Index for the year 2017, seeking to support the information and communication technology infrastructure and provide the process of transformation towards digitization with all innovative technical requirements.

Moreover, Madi and Abu Hujer (2020) examine the readiness of Palestinian private universities toward digital transformation. The descriptive analytical approach is used to achieve the study objectives. The questionnaire used as an instrument for collecting information is applied to a sample of 110 in the stratified random method. The findings show a high approval rate of 81.52% to support senior management for digital transformation. The findings indicate statistically significant differences between the mean of the scores of the study sample due to age and job and no statistically significant differences due to the variables of gender, academic qualification, and university experience.

Besides, Al-Balushi, Al-Harasia, and Al-Awfi (2020) identify the reality of digital transformation in the Sultanate of Oman by recognizing the roles played by the various institutions in the Sultanate in the field of digital transformation and e-government and assessing their levels of transformation and the most prominent projects implemented in this aspect in line with global trends in the field. The mixed method is used to achieve the study objectives. The study is applied to four government institutions: the Ministry of Technology and Communications, the Ministry of Education, the Ministry of Health, and the Royal Oman Police, and one institution from the private sector, Bank Muscat. The findings indicate that institutions make clear efforts and roles for digital transformation, such as awareness, education,

training, integration, readiness, and others, with varying levels of transformation in the institutions of the study sample. However, all institution's efforts helped the Sultanate's progress in the level of digital transformation, according to the latest United Nations report for 2018, and its high level in other areas of evaluation, such as electronic participation.

At the same level, Al-Matrif's study (2020) identifies the possibility of digital transformation in public and private universities in the Kingdom of Saudi Arabia and monitors the reality of digital transformation between them in light of global crises and disasters. The descriptive analytical approach is used to achieve the study objectives. The questionnaire used as an instrument for collecting information is applied to the study sample of 200 faculty members. The findings show statistically significant differences between public universities and private universities in the availability of material elements necessary for digital transformation in favor of public universities.

From the perspective of a challenge, Alamat et al. (2020) explore digital transformation maturity and challenges in higher education institutions in the UAE. The new framework based on Petkovic's 2014 major and large process mapping and the Maturity Assessment Framework are used to achieve the study objectives. The questionnaire used as an instrument for collecting information is applied to the study sample of 52 members. The results show a great discrepancy between the respondents' perception of digital transformation maturity levels and the basic requirements for digital transformation maturity. The findings also show a lack of a comprehensive vision and efficiency of digital transformation and data structure and processing as the main challenges of digital transformation.

Also, Al-Hassan's Study (2021) identifies the smart university requirements and the degree of their availability in Jordanian universities from the student's point of view. The descriptive analytical approach is used to achieve the study objectives. The questionnaire used as an instrument for collecting information is applied to the study sample of 350 randomly selected male and female students. The results show that the means for the domains of the degree of availability of smart university requirements in Jordanian universities are of a medium degree. The findings also show no statistically significant differences due to the impact of the academic path and the academic level.

On the other hand, Rodriguez & Bribiesca (2021) investigate the use of the integrated digital transformation model proposed by the study to assess the level of maturity that higher educational institutions possess in their digital transformation processes and compare them with other industries in Mexico. The study is implemented in three different stages; adoption of the conceptual work, designing and validating the study instrument to measure the resulting elements of the integrated model, and applying it to some higher education institutions. The findings show that there is a vision based strongly on the provision of infrastructure but lacks the intention to apply information and communication technology to enable new educational models and teaching methods. In addition, universities lag behind other sectors due to a lack of effective leadership, changes in culture, and opposition to change. This is complemented negatively by the insufficient degree of innovation and financial support.

A related study by Teixeira et al. (2021) determines the impact that higher education institutions play in the digital development of Portugal, and specifically, the impact of public polytechnics in the development of the capital, Porto. The quantitative and qualitative approaches are used, where data was collected through semi-structured interviews as a qualitative research method so that the results are more productive. A questionnaire used as a study instrument is applied to graduates of public polytechnics in the metropolitan area of Porto to find out their experiences and future views on the labor market, and how high they are. The study concludes that the positive impact of higher education institutions on the digital development of the Porto metropolitan area and that the main drivers for companies to adopt digital transformation are competitiveness, customer expectations, business growth, and business model innovation.

Further, Hervás-Gómez et al. (2021) determine the perceptions of university students in Spain towards teaching and learning processes during the COVID-19 pandemic and explore hardware and software resources, professional collaboration, digital pedagogy, and student empowerment about digital education, and recent changes in university teaching due to the pandemic. The descriptive approach is used based on opinion polls and surveys, and non-probability samples consisting of 486 students are selected from Osuna University School affiliated with the University of Seville. The results show a positive correlation between digital pedagogy, student motivation, and digital environments. The study recommends encouraging the scientific community to continue delving into experiences and self-learning, promoting initiatives that stimulate the development of competencies in future teachers, and continue searching for integrated designs and continuous evaluation because they are essential for digital transformation in universities.

Also, Al-Sadiq (2021) develops a future vision for developing the roles of faculty members at Menoufia University in light of the requirements of digital transformation. The descriptive analytical approach is used to achieve the study objectives. The questionnaire used as an instrument for collecting information is applied to the study sample of 70 faculty members at the Faculty of Home Economics. The findings show a lack of training on the controls of electronic communication with students, the absence of availability of an internal internet network in the faculty, the shortage of training of faculty members on how to manage time in a digital environment, and the weak use of digital lectures and digital books.

Besides, Al-Khawlani (2021) activates smart digitization in Egyptian universities in light of the Fourth Industrial Revolution. The descriptive analytical approach is used to achieve the study objectives. The findings show that it is necessary to prepare universities to accommodate the requirements of smart digitization and find a unified vision for designing a smart university campus, in addition to the necessity of activating the hybrid education system within the classrooms.

On top, a related study by Abdel-Salam and Ghanem (2022) develops a proposed vision for a digital university in Egypt in the light of the practices of some foreign and Arab digital universities by identifying the theoretical foundations of digital university learning in the contemporary world, examining the reality of the digital university of Hamdan Bin Mohammed Smart University and Tsing-Huna University, and pinpointing the similarities and differences between foreign and Arab countries and interpret them in the light of some concepts of different social sciences. The descriptive analytical approach is used to achieve the study objectives. The results show that the lack of availability of modern technologies in Egyptian universities, and the weakness of the Internet in many of them, in addition to the low benefit of faculty members from technological and informational developments, leads to a low level of digital transformation in Egyptian universities. The study also proposes a vision for a digital university in Egypt in the light of the theoretical study literature and foreign and Arab digital universities by the conditions of the Egyptian society, where the vision is based on premises, objectives, a description of the vision, and implementation requirements. Against this, the current study has taken advantage of the previous studies in developing the instrument and theoretical literature to build a proposed vision for transforming Arab universities into smart digital.

3. Research Problem

Digitization is the prevailing power in the global economy today, imposing a set of challenges on higher education, as traditional solutions are no longer able to put an end to these challenges or reduce them. To advance the university education sector, Arab countries must deviate from the traditional concept built on rigid templates, think of new patterns, innovative formulas, and modern methods consistent with the needs of the development process, and address the problems, issues, and challenges which necessitate the transformation to smart digital universities. However, the transformation from the traditional education system to the smart digital university system cannot take place in light of the current material capabilities but rather requires the establishment of new infrastructure and capabilities commensurate with the requirements of the transition towards that new university formula.

The most significant role of higher education lies in being a tool for developing critical and creative thinking skills and providing the learner with knowledge-generation methods. The fulfillment of society's needs depends on the success of higher education institutions by achieving the individual's creative needs, making developed countries prioritize their programs and policies to develop and advance higher education, being a civilized and practical center with a global message linked to society and its culture (Barakat, 2009).

The development of universities in the era of technology has taken a different direction, as the talk revolves around smart digital societies, which include buildings, cities, and smart devices. Also, these developments have brought about fundamental changes in all areas of life until they reach the way of thinking of individuals, and thus the so-called digital and smart era is now popular as a term used in all societies (Nasiri & Flak, 2019). Accordingly, universities are concerned with gradually transforming into smart digital universities to keep pace with the rapid technological progress, become a command center for bringing about the desired planned change in society, and consolidate digital knowledge compatible with modern technological progress, which makes them work to improve the quality of educational services provided with high quality to obtain the targeted educational outcomes (Al-Tabib 2009).

Despite the efforts made to develop Arab university education, it still faces challenges related to financing, management and organization, curricula and study programs, infrastructure and digital equipment, academics and employees, and the university's tasks and goals, which result in a huge technological gap that threatens its survival in the competitive market between universities at the regional and global level and the weaknesses in applying modern technological methods in university administration, and the universities' adherence to their traditional administrative methods (Abdul-Razeq, 2019). Other challenges are the faculty members' fear of educational technology and their negative attitudes towards it, the lack of the necessary skills to use them, especially the new technical skills, and the weak financial and moral support provided to the faculty members participating in transferring their courses electronically (Al-Dahshan & Al-Sayed, 2020; Harb, 2020).

For facing technological and digital challenges, universities are increasingly required to work on correcting the path of university education in them to keep pace with development through their transformation into universities that suit the needs of the times with a more interactive and livelier template, looking forward to becoming one of the smart universities (Al-Dahshan & Al-Sayed, 2020). Al-Dahshan and Al-Sayed (2020) confirm that transforming traditional universities into smart universities is now a necessity to keep pace with the information and communication revolution

that allows for the provision of a huge amount of information transmitted easily and smoothly through a complex network of cables.

Therefore, for Arab universities to face these challenges, higher education institutions must keep pace with global changes and requirements and interact with these changes with flexibility and dynamism, not only to survive but also to improve the quality of their educational and administrative services. More importantly, they are required to keep pace with the evolving and endless aspirations of students to respond to emerging digital job opportunities (Tayeh, 2020).

The benefits of smart digital universities are reflected in retaining outstanding and creative students and faculty members, increasing the scope of education without expanding the institution, enabling the highest degree of efficiency and productivity, enriching learning, teaching, and research environment, and allowing collaborative learning, teaching, and research in the absence of borders. Other key advantages are improving communications between students, faculty members, and administration, providing ease and clarity in governing and managing the university campus, providing appropriate solutions to obstacles resulting from traditional learning through technological empowerment, and reducing capital and operational expenditures and spending costs by securing new sources of income (Azarmi, et al., 2010). The research problem, accordingly, is reflected in identifying the proposed vision for transforming Arab universities into smart digital universities.

4. Research Questions

Given the research problem, the research questions are:

1. What is the degree of fulfillment of the requirements for transforming Arab universities into smart digital universities?
2. What are the features of the proposed vision to transform Arab universities into smart digital universities?

5. Research Objectives

The following objectives are articulated to answer the research questions.

1. Identify the degree of fulfillment of the requirements for transforming Arab universities into smart digital universities.
2. Determine the features of the proposed vision to transform Arab universities into smart digital universities.

6. Significance of the Research

The significance of the research is reflected in contributing to understanding the knowledge explosion and the increasing demand for university education, keeping pace with global trends towards building digital universities to match the tremendous development in the field of information and communication technology, providing an appropriate digital educational environment aimed at involving all senses to bring about the learning process among students with some creativity and innovation to achieve the desired goals of universities efficiently and effectively in the era of the industrial revolution and finding out the degree of availability of the requirements of the smart digital university in Arab universities to stand on the level of the degree of availability and to identify deficiencies in the requirements.

The research significance also lies in the subject of the study, which is one of the important issues relating to universities to ensure their survival and keeping pace with the increasing changes and developments. It is hoped that this research can enrich Arab libraries with scientific material about the smart digital university and its requirements. The results of the study can importantly contribute to assisting decision-makers in Arab universities to work on developing university education, in line with the requirements of technological progress by providing the requirements of a smart digital university. The findings can provide officials and faculty members in Arab universities with recommendations that may help them develop their technological skills with the current educational technical development.

The results of the current study can be a prelude to conducting more in-depth and specific studies in the future. The current study may address many problems that higher education, scientific research, and community service suffer from by adopting the idea of a smart digital university as an effective means of activating and integrating the functions of the university. The significance of the study rests in the importance of the availability of the features of the smart digital university as a developmental gateway to traditional university education and a modern necessity that is internationally and regionally approved to face the problems of traditional university education on the one hand. On the other hand, it helps to achieve the requirements of economic development in light of the knowledge economy and modernizing the university's mission in social and economic service.

Importantly, the study presents a proposal to transform Arab universities into smart digital universities used in drawing up plans, policies, strategies, and programs that may contribute to solving university education problems. The lack of Jordanian and Arab studies addressing the requirements of the smart digital university contributes to urging researchers to conduct similar studies from different perspectives or in different environments and variables.

7. Research Terms and Definitions

In this study, the term “digital university” is mentioned, and its procedural definition is as follows:

The digital university is defined as the integration of technological tools and digital resources from different perspectives in the academic method, research activities, and the integration of digital tools and resources in the learning process (Moreira, 2018, p. 28). Procedurally, it is the university concerned with integrating modern technologies into the academic methods and scientific research to provide an interactive learning environment that enables students to learn at any time and from anywhere.

8. Research Limitation

The findings of this study can be generalized in light of the following limitations:

1. Human Limitations: This study is limited to a sample of faculty members and educational experts.
2. Spatial Limitations: This study was conducted in several Arab universities.
3. Temporal Limitations: This study is conducted in the second semester of the academic year 2022/2023.
4. Objective Limitations: This study is conducted to develop a proposed vision to transform Arab universities into smart digital universities.

9. Method

The descriptive approach is adopted to describe the degree of achieving the requirements for transforming Arab universities into smart digital universities. The prospective analysis approach, alongside the Delphi method, is used in its three rounds in preparing the initial and final form of the proposal.

Research Sample

The research sample consists of 450 faculty members randomly selected from Arab universities. The research sample also consists of 75 educational experts from the faculty members in Arab universities randomly selected by the stratified random method to develop the required vision.

Research Instrument

Given the theoretical literature and previous studies, along with the opinions and comments of validators and educational specialists, a 69-item questionnaire to transform Arab universities into smart digital universities is developed as a research instrument. A five-point Likert scale is adopted with five levels: (5) always, (4) often, (3) sometimes, (2) rarely, (1) never, as the degree (5) represents “always”, and the degree (1) represents “never”. The sections are regular and consistent and all the items in the survey fall within the five-point Likert scale for the answer.

Research Instrument Validity

Face Validity

Face validity is used to check the research instrument validity by reviewing the questionnaire in its initial forms from (10) experienced and specialized faculty members in Arab universities. The comments, modifications, and recommendations proposed by the validators are taken into account, as the items have obtained an approval rating of (80%) or more. The necessary action is taken with the items suggested to be deleted, modified, or reformulated, and thus the questionnaire in its final form consists of (69). This method is suitable for checking the face validity of the questionnaire, that is, its items can measure what they are set to measure.

Internal Consistency Validity

By applying the questionnaire to a survey sample of (20) faculty members, the correlation coefficient is calculated between the degree of each item with the total degree of the related domain.

Table 1: Correlation Coefficients between the Degree of the Item and the Total Score of the Related Domain

Knowledge Network		Smart University Environment		Smart People		Smart University Administration	
Correlation	No.	Correlation	No.	Correlation	No.	Correlation	No.
0.67	50	0.64	33	0.65	20	0.63	1
0.63	51	0.71	34	0.66	21	0.68	2
0.68	52	0.65	35	0.68	22	0.64	3
0.68	53	0.68	36	0.71	23	0.71	4
0.71	54	0.64	37	0.64	24	0.65	5
0.64	55	0.71	38	0.67	25	0.68	6
0.67	56	0.65	39	0.63	26	0.7	7
0.63	57	0.68	40	0.68	27	0.68	8
0.67	58	0.68	41	0.68	28	0.69	9
0.63	59	0.68	42	0.71	29	0.71	10
0.68	60	0.71	43	0.64	30	0.66	11
0.68	61	0.64	44	0.67	31	0.68	12
0.71	62	0.67	45	0.63	32	0.67	13
0.66	63	0.68	46			0.68	14
0.68	64	0.69	47			0.71	15
0.67	65	0.68	48			0.64	16
0.66	66	0.73	49			0.67	17
0.68	67					0.63	18
0.68	68					0.68	19
0.61	69						

The values of the correlation coefficients have ranged from (0.61) to (0.73), where they are all positive and statistically significant at the level (0.05), indicating the internal consistency between the degree of each item with the total degree of the related domain.

Internal Consistency Validity

The research instrument reliability is checked by calculating the reliability coefficient by applying Cronbach’s Alpha formula on all domains. The Cronbach’s Alpha formula measures the extent of consistency in the respondents' answers to all the items in the questionnaire as shown in Table (2).

Table 2: The Reliability Coefficients of the Transforming Arab Universities into Smart Digital Universities Questionnaire Using the Internal Consistency Reliability Method

Domain	Internal Consistency Reliability Method
Smart University Administration	0.85
Smart People	0.87
Smart University Environment	0.80
Knowledge Network	0.82
The Entire Requirements	

As shown in Table (2), the reliability coefficients of the transforming Arab universities into smart digital universities questionnaire have ranged between (0.80) and (0.87), where the highest reliability coefficient is the smart people and the lowest is the knowledge network, demonstrating the presence of appropriate reliability coefficients for the research instrument.

Statistical Processing

The following statistical methods are used to answer the research questions and process the data statistically.

1. Means, standard deviations, ranks, and degrees are used to answer the first and second research questions.
2. Cronbach’s Alpha coefficient is used to find the internal consistency coefficient of the research instrument.

The degree of availability of the requirements is also determined by applying the following equation:

$$\text{Length of One Category} = (\text{the Highest Value of the Alternative} - \text{the Minimum Value of the Alternative}) \div \text{Number of Levels} = (5-1) \div 3 = 1.33$$

And by adding (1.33) to the Minimum Value of the alternative (the minimum); the criterion for expressing those levels

is: the Mean ranging between (1-2.33) indicates a Low Degree, the Mean ranging between (2.34-3.67) indicates a Medium Degree, and the Mean ranging between (3.68-5) indicates a High Degree.

10. Results & Discussion

First: Results related to the First Research Question

What is the degree of fulfillment of the requirements for transforming Arab universities into smart digital universities?

To answer this question, the means and standard deviations of responses of faculty members to the questionnaire of the degree of achieving the requirements for transforming Arab universities into smart digital universities are calculated. Table (3) illustrates those results.

Table 3: Means, Standard Deviations, degrees, and Rank of Availability of Requirements for Transforming Arab Universities into Smart Digital Universities from the Perspective of Faculty Members

Domain	Mean	Standard Deviation	Degree	Rank
Smart University Administration	3.87	0.98	Medium	4
Smart People	4.01	0.87	Medium	1
Smart University Environment	3.90	0.81	Medium	3
Knowledge Network	3.97	0.93	Medium	2
All Instrument Items	3.94	0.92	Medium	

As shown in Table (3), the means of the agreement of faculty members on the degree of availability of the requirements for the transformation of Arab universities into smart digital universities have ranged between (4.01) and (3.87), with a medium degree of availability for all domains. The order of domains in terms of the mean is as follows: smart people, knowledge network, smart university environment, and finally smart-university administration, where the value of the total mean for the degree of availability of transformation requirements is (3.94), with a medium degree. This result elucidates that the term of smart digital universities is new for Arab universities, or it may be unknown under this name. Rather, it is used in the form of e-learning and distance education technologies.

Second: Results related to the Second Research Question

What are the features of the proposed vision to transform Arab universities into smart digital universities?

To answer this question, the means and standard deviations of responses of faculty members to the questionnaire of the degree of achieving the requirements for transforming Arab universities into smart digital universities are calculated. The Delphi method consisting of 3 rounds is used, where the first round is answered by 75 educational experts. Table (4) illustrates those findings.

Table 4: The Results of the First Round of the Response of Education Experts to the Questionnaire of the Requirements for Transforming Arab Universities into Smart Digital Universities

Text of Item	Mean	Standard Deviation	Degree	Rank
Smart University Administration Domain				
Having a clear future vision for the university.	4.50	0.87	1	High
Building strategic plans that ensure the significant use of technology in the educational process.	4.48	0.90	2	High
Providing clear legislation and policies for digital transformation.	4.34	0.96	3	High
Exchanging information and sharing the university with stakeholders with sufficient flexibility.	4.28	0.89	5	High
Harnessing modern information systems to improve the university's administrative performance.	4.24	0.85	5	High
Promoting digital leadership in the management of university work.	4.24	0.86	7	High
Employing technology in managing administrative tasks at the university.	4.22	0.79	7	High
Presenting plans to improve the efficiency of financial spending.	4.22	0.78	9	High
Being transparent in making important decisions.	4.20	0.75	9	High
Offering plans compatible with emergency events that may	4.20	0.88	10	High

face the university.				
Designing flexible organizational and network structures for the university.	4.19	0.84	11	High
Directing knowledge to workers in an easy method and investing it as required.	4.18	0.75	12	High
Directing increased financial spending on the development and management of digital knowledge.	4.18	0.88	12	High
Providing an efficient financial budget to meet the requirements of smart transformation.	4.12	0.84	14	High
Providing organizational guides that organize work mechanisms and explain tasks.	4.13	0.88	15	High
Making partnerships with the relevant authorities.	4.11	0.75	16	High
Preparing the university to transform into a smart university.	4.05	0.88	17	High
Eliminating resistance to change that may prevent the digital transformation process.	4.03	0.84	18	High
Providing a variety of services that guarantee the well-being of the university beneficiaries.	3.94	0.82	19	High
The entire smart university administration domain.	4.20	0.84		
Smart People Domain				
Dealing with the rapid scientific changes with sufficient flexibility.	4.32	0.85	1	High
The university has a strategy to develop the digital capabilities of its employees	4.28	0.88	2	High
Setting plans for the continuous development of its employees.	4.24	0.84	3	High
Owning programs that enable its human resources to transform from consumer groups to groups capable of generating knowledge.	4.16	0.75	4	High
Enabling its employees to possess many administrative and technical digital skills that are suitable for the assignments entrusted to them.	4.16	0.88	5	High
Appointing groups that have knowledge diversity according to the requirements of their jobs and the latest developments.	4.16	0.84	5	High
Attracting distinguished faculty and administrators.	4.14	0.88	7	High
Having a clear strategy that encourages self-learning employees in the digital and smart domains.	4.14	0.75	7	High
Owning a system of creativity and innovation that enjoys high efficiency, distinguished competitions, and creative projects.	4.11	0.88	9	High
Building digital programs that suit the needs of beneficiaries.	4.09	0.84	9	High
Developing plans that enable employees to participate in the university's community plans outside the university.	4.06	0.82	11	High
Motivating the university staff by rewarding the creative ones.	4.04	0.88	12	High
Adopting foreign languages as part of the educational process at the university.	3.82	0.84	13	High
The entire smart people domain	4.13	0.75		High
Smart University Environment Domain				
Employing knowledge to meet the requirements of the labor market.	4.40	0.88	1	High
Providing a library of digital media via the Internet.	4.39	0.75	2	High
Providing an effective learning environment.	4.38	0.88	3	High
Owning a digital security center to develop technological awareness among its employees.	4.36	0.84	4	High
Providing the technical infrastructure necessary for the success of the smart transformation plan.	4.35	0.82	5	High
Supporting modern scientific research.	4.32	0.88	6	High
Creating a healthy and clean environment.	4.31	0.88	7	High
Providing innovative educational systems using the virtual environment.	4.30	0.75	8	High

Providing centers for scientific research and patents.	4.24	0.88	9	High
Providing protection systems for the university's digital networks and systems.	4.23	0.84	10	High
Promoting community activities and the university's social networking sites.	4.22	0.82	11	High
Building curricula that seek to develop creative abilities in all disciplines.	4.21	0.88	12	High
Aligning the activities related to the university curricula with the information flow.	4.20	0.75	13	High
Having a wide, clean green environment.	4.18	0.88	14	High
Motivating university employees on innovation and competitiveness.	4.14	0.88	15	High
Adapting the information and communication revolution to local needs in line with the knowledge economy.	4.12	0.75	16	High
Conducting technical monitoring of university buildings and units.	4.04	0.88	17	High
The entire smart university environment.	4.26	0.84		High
Knowledge Network Domain				
Providing a high level of technology to attain knowledge from data warehouses on the network and update it continuously.	4.48	0.88	1	High
Offering various international research sites and periodicals.	4.44	0.84	2	High
Having a center for entrepreneurship and support for innovative ideas.	4.38	0.88	3	High
Building a technical system to manage university courses electronically.	4.36	0.75	4	High
Storing university transactions and files in a computer cloud or "I cloud".	4.30	0.88	5	High
Offering appropriate employment of knowledge to address problems and take appropriate decisions regarding them.	4.29	0.84	6	High
Providing solar cells to generate electricity in an environmentally friendly manner.	4.28	0.82	7	High
Opening smart scientific programs that keep pace with knowledge needs and meet the needs of individuals.	4.27	0.88	8	High
Designing buildings that provide comfort for beneficiaries by providing assistance to individuals inside the building and facilitating transportation, especially for the physically handicapped.	4.24	0.84	9	High
Providing a high-speed and wide wireless communications network within the university buildings.	4.23	0.75	10	High
Finding a variety of sources to obtain knowledge.	4.22	0.88	11	High
Providing services to beneficiaries to support innovation and collaborative work.	4.21	0.84	12	High
Providing smart applications to facilitate the interactions of beneficiaries at the university.	4.20	0.88	13	High
Providing smart university buildings.	4.19	0.75	14	High
Owning classrooms equipped with the latest modern technical devices and the necessary technological capabilities.	4.18	0.88	15	High
Providing navigation programs and screens through the virtual environment in university buildings.	4.17	0.84	16	High
Providing university buildings with early warning systems for protection.	4.16	0.82	17	High
Developing systems and mechanisms that make university centers smart units for knowledge production.	4.15	0.88	18	High
Providing sensors and remote monitoring inside university buildings.	4.14	0.84	19	High
Saving the energy used "solar energy, thermal insulation of walls and ceilings" inside university buildings	4.13	0.75	20	High

The entire knowledge network domain.	4.25	0.84		High
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As shown in Table (4), there is a consensus on the items, where all of them are with a high degree. Regarding the second round, the item that scored less than (4.20) has been excluded. Thus, the questionnaire items become 39 instead of 69 items, as 55 educational experts answered the questionnaire. Table (5) illustrates those results.

Table 5: The Results of the Second Round of the Responses of Education Experts to the Questionnaire of the Requirements for Transforming Arab Universities into Smart Digital Universities

Text of Item	Mean	Standard Deviation	Degree	Rank
Smart University Administration Domain				
Offering clear legislation and policies for digital transformation.	4.94	0.99	1	High
Having a clear future vision for the university.	4.87	0.89	2	High
Building strategic plans that ensure the significant use of technology in the educational process.	4.85	0.94	3	High
Harnessing modern information systems to improve the university's administrative performance.	4.80	0.87	4	High
Exchanging information and sharing the university with stakeholders with sufficient flexibility.	4.79	0.86	5	High
Providing plans compatible with emergency events that may face the university.	4.77	0.87	6	High
Promoting digital leadership in the management of university work.	4.75	0.96	7	High
Employing technology in managing administrative tasks at the university.	4.74	0.79	8	High
Offering plans to improve the efficiency of financial spending.	4.72	0.79	9	High
Having transparency in making important decisions.	4.70	0.78	10	High
The entire smart university administration domain.	4.79	0.88		High
Smart People Domain				
Having a strategy to develop the digital capabilities of its employees.	4.96	0.88	1	High
Dealing with the rapid scientific changes with sufficient flexibility.	4.92	0.85	2	High
Setting plans for the continuous development of its employees.	4.90	0.84	3	High
The entire smart people domain	4.93	0.85		High
Smart University Environment Domain				
Providing a library of digital media via the Internet.	4.95	0.85	1	High
Owning a digital security center to develop technological awareness among its employees.	4.93	0.88	2	High
Providing the technical infrastructure necessary for the success of the smart transformation plan.	4.92	0.92	3	High
Providing centers for scientific research and patents.	4.91	0.87	4	High
Promoting community activities and the university's social networking websites.	4.90	0.92	5	High
Supporting modern scientific research.	4.85	0.89	6	High
Providing innovative educational systems using the virtual environment.	4.83	0.85	7	High
Employing knowledge to meet the requirements of the labor market.	4.70	0.82	8	High
Providing an effective learning environment.	4.64	0.86	9	High
Creating a healthy and clean environment.	4.61	0.89	10	High
Providing protection systems for the university's digital networks and systems.	4.53	0.84	11	High
Building curricula that seek to develop creative abilities in all disciplines.	4.51	0.88	12	High
Aligning the activities related to the university curricula with	4.50	0.85	13	High

the information flow.				
The entire smart university environment.	4.75	0.95		High
Knowledge Network Domain				
Providing various international research websites and periodicals.	4.95	0.94	1	High
Having a center for entrepreneurship and support for innovative ideas.	4.92	0.98	2	High
Building a technical system to manage university courses electronically.	4.91	0.85	3	High
Provide a high level of technology to attain knowledge from data warehouses on the network and update it continuously.	4.90	0.84	4	High
Making appropriate employment of knowledge to address problems and take appropriate decisions regarding them.	4.87	0.83	5	High
Opening smart scientific programs that keep pace with knowledge needs and meet the needs of individuals.	4.85	0.84	6	High
Providing solar cells to generate electricity in an environmentally friendly manner.	4.84	0.72	7	High
Storing university transactions and files in a computer cloud "I cloud".	4.70	0.78	8	High
Providing a high-speed and wide wireless communications network within the university buildings.	4.65	0.85	9	High
Finding a variety of sources to obtain knowledge.	4.62	0.87	10	High
Providing services to beneficiaries to support innovation and collaborative work.	4.61	0.82	11	High
Designing buildings that provide comfort for beneficiaries by providing assistance to individuals inside the building and facilitating transportation, especially for the physically handicapped.	4.57	0.82	12	High
Providing smart applications to facilitate the interactions of beneficiaries at the university.	4.55	0.86	13	High
The entire knowledge network domain.	4.76	0.89		High

As shown in Table (5), there is a difference in the responses, where all the items are with a high score. Concerning the third round, items obtaining a mean of (4.80) have been excluded, and thus the items become 21. The third round is answered by 55 educational experts. Table (6) illustrates those results.

Table 6: The Results of the Third Round of the Responses of Education Experts to the Questionnaire of the Requirements for Transforming Arab Universities into Smart Digital Universities

Text of Item	Mean	Standard Deviation	Degree	Rank
Smart University Administration Domain				
Offering clear legislation and policies for digital transformation.	4.94	0.97	1	High
Having a clear future vision for the university.	4.88	0.79	2	High
Building strategic plans that ensure the significant use of technology in the educational process.	4.86	0.95	3	High
Harnessing modern information systems to improve the university's administrative performance.	4.85	0.84	4	High
The entire smart university administration domain.	4.88	0.89		High
Smart People Domain				
Having a strategy to develop the digital capabilities of its employees.	4.95	0.89	1	High
Dealing with the rapid scientific changes with sufficient flexibility.	4.94	0.85	2	High
Setting plans for the continuous development of its employees.	4.92	0.88	3	High
The entire smart people domain	4.94	0.857		High
Smart University Environment Domain				
Providing a library of digital media via the Internet.	4.94	0.87	1	High
Owning a digital security center to develop technological	4.93	0.89	2	High

awareness among its employees.				
Providing the technical infrastructure necessary for the success of the smart transformation plan.	4.92	0.99	3	High
Providing centers for scientific research and patents.	4.90	0.86	4	High
Promoting community activities and the university's social networking websites.	4.89	0.93	5	High
Supporting modern scientific research.	4.87	0.89	6	High
Providing innovative educational systems using the virtual environment.	4.86	0.87	7	High
The entire smart university environment.	4.90	0.85		High
Knowledge Network Domain				
Providing various international research websites and periodicals.	4.95	0.97	1	High
Having a center for entrepreneurship and support for innovative ideas.	4.93	0.99	2	High
Building a technical system to manage university courses electronically.	4.92	0.87	3	High
Provide a high level of technology to attain knowledge from data warehouses on the network and update it continuously.	4.91	0.88	4	High
Making appropriate employment of knowledge to address problems and take appropriate decisions regarding them.	4.89	0.89	5	High
Opening smart scientific programs that keep pace with knowledge needs and meet the needs of individuals.	4.88	0.86	6	High
Providing solar cells to generate electricity in an environmentally friendly manner.	4.87	0.78	7	High
The entire knowledge network domain.	4.89	0.95		High

As shown in Table (6), there is a consensus on the requirements for transforming Arab universities into smart digital universities, since the mean of all items is (4.85) or higher, and all items are of a high degree. The requirements for the smart people domain are ranked first with a mean of (4.94), while the smart university environment domain is ranked second with a mean of (4.90). The knowledge network domain is ranked third with a mean of (4.89), while the smart university administration domain is ranked last with a mean of 4.88.

11. Suggested Vision

The following section gives an insight into the suggested vision in detail.

11.1 Letter

It is to digitize academic work, encourage scientific research, and activate partnerships with the local community.

11.2 Vision

It is a smart digital Arab university compatible with the requirements of the labor market. Concerning the implementation of the requirement of smart people, experts have suggested having a clear strategy for developing the digital capabilities of its employees, having the necessary ability to deal with the rapid scientific changes with sufficient flexibility, and setting plans for the continuous development of its employees.

Regarding the implementation of the requirements of the smart university environment, experts have suggested providing a library of digital media via the Internet, owning a digital security center to develop technological awareness among its employees, providing the technical infrastructure necessary for the success of the smart transformation plan, providing centers for scientific research and patents, promoting community activities and the university's social networking websites, supporting modern scientific research, and providing innovative educational systems using the virtual environment.

On the subject of the requirements for the availability of the knowledge network, experts have suggested offering various international research websites and periodicals, owning a center for entrepreneurship and support for innovative ideas, building a technical system to manage university courses electronically, providing a high level of technology to extract knowledge from data warehouses on the network and constantly update it, making appropriate employment of knowledge to address problems and take appropriate decisions regarding them, opening smart scientific programs that keep pace with knowledge needs and meet the needs of individuals, and providing solar cells to generate electricity in

an environmentally friendly manner.

Concerning providing the requirements of smart university administration, experts have suggested offering clear legislation and policies for digital transformation, having a clear future vision for the university, building strategic plans that ensure the significant employment of technology in the educational process, and harnessing modern information systems to improve the university's administrative performance.

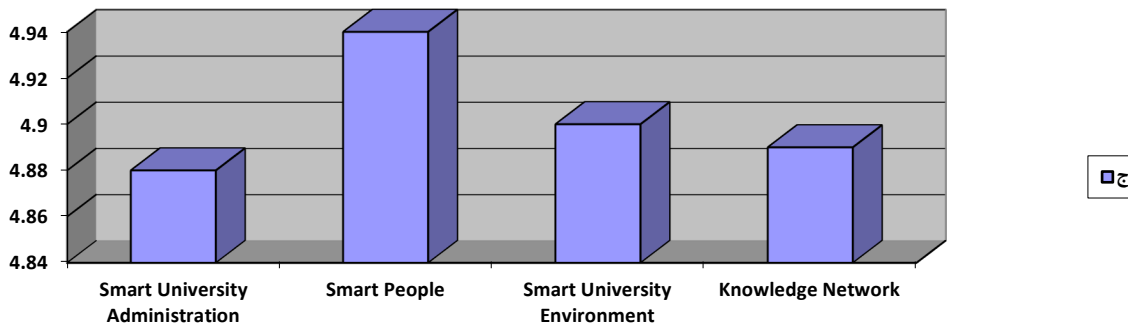


Fig. 1: Requirements for transformation into a smart digital university

11.3 Requirements for implementing the proposed vision of the smart digital university

From the previous figure, it is noted that the requirement for smart people he obtained the highest requirement, then smart4 university environment, knowledge network requirement, and finally smart university administration.

For ensuring the implementation of the current proposed vision, it is necessary for Arab universities to take leaps and bounds to keep pace with this progress and the successive knowledge and technological development, in addition to the need to meet some necessary and urgent requirements such as considering the pioneering smart digital university an Arab project adopted by the Arab countries through the official bodies concerned with this under the umbrella of the League of Arab States or organizations concerned with higher education in it to achieve comprehensive development through integration between universities and governments, spreading the culture and idea of the digital university among Arab universities and social networks to gain political and societal support and overcome the lack of trust between universities and industry, and developing sufficient legislation to provide real independence and self-rule for universities, colleges and scientific departments, giving them all powers to conclude contracts and agreements and marketing intellectual property internally and externally, and supporting levels of decentralization in decision-making and responsibility in the work of strategies, operations, work plans and the integration of strategies.

Other necessary and urgent requirements include the availability of university leaders with experience in digitization, who possess the necessary strategic commitments to disseminate strategic programs, procedures, and projects, and who have the commitment to implement the vision and the commitment to strive to achieve digitization, at all levels of the university, and strive to put the university at a level that qualifies it to respond quickly to the various actor., transforming the role of the university from focusing on employment to focusing on the principle of creating new and innovative job opportunities, adopting digitization in the university's vision, mission, goals and strategic plans, and having international strategic plans for education, scientific research, economic and community development, and launch best practices to address national, regional and international issues.

Of the key requirements are activating international agreements with university and research federations, international higher education institutions, and others to benefit from them in reforming higher education systems., establishing effective partnerships between universities, and inviting experts from them to benefit from their pioneering experiences in the success of the smart digital university project, strengthening the partnership between Arab universities and digital institutions and centers, while strengthening external partnership with similar institutions, establishing separate technology-based educational companies affiliated with universities that contribute to the development of business digitization and the application of scientific research and providing alternative sources of funding for universities, while providing logistical support for obtaining capital, advice, office production facilities, and others.

Of these important requirements are training faculty members, students and stakeholders on digitizing business and marketing ideas, inventions and other related topics to achieve the goals of the digital university, having clear strategic plans to achieve financial sustainability through the flow and diversity of revenues and financial investments, the establishment of new companies, and the application of knowledge, paying attention to the diversity of funding sources necessary to transform Arab universities into smart digital universities, with the need to adopt distinct financing policies

based on measurable outputs and results, providing a distinct physical, physical and technological infrastructure, represented in the university's acquisition of the latest technical and material systems necessary for the establishment and organization, as well as striving to activate the role of the public and private sectors, ministries and companies by completing all administrative equipment such as buildings, laboratories and laboratories equipped with the latest technical equipment and trained human and administrative cadres, and stimulating policies for rewards, prizes and rewarding incentives to support the digital activities of students, researchers and faculty members.

11.4 Pillars of implementation and success of the proposed vision of the pioneering university

There are a set of pillars for the success of the currently proposed vision such as the tendency and plan that Arab universities are currently witnessing to develop education after the recent political, social, and economic changes in light of the low level of traditional education and the multiplicity of its problems compared to international universities, the digital library project adopted by Arab universities that provides a huge scientific and research database for students, researchers, faculty members, and their assistants, and the participation of Arab universities in many international agreements and contracts with many Arab and foreign universities, whether at the level of the European Union, Asia or Africa, and their partnership in regional and international federations such as the European Union of Universities and the Association of Arab Universities, and several networks such as quality assurance and accreditation networks and the learning network electronic

Other related pillars include the interest of university leaders in consolidating and deepening the principle of reliance on the knowledge economy, as they established the Technology Development Fund, electronic centers of excellence for research and development, research centers, and technological incubation programs, the availability of businessmen's associations in the Arab countries, as well as various types of industrial and commercial chambers, and the global trends towards the idea of digital universities to link industry, government, and university to achieve social and economic development.

11.5 Challenges and threats that may hinder the implementation of the proposed scenario

To predict the success of the proposed solution if put into practice, the current study shows some challenges and threats that stand in the way of the implementation of the smart digital university project, namely: getting used to the traditional, formal systems in university education among some decision-makers and their fear of resisting change and entering into new experiences, which may be a reason for delaying the implementation of the proposal, the absence of the vision and mission of the smart digital university and its importance, objectives, requirements and urgent necessity at the level of Arab universities, which hinders universities from developing a future strategy to turn the idea into a tangible reality, and the lack of funding needed to transform Arab universities into smart digital universities, in light of the conditions they are facing at present, and the universities' dependence on government funding.

Other key challenges and threats include the lack of clarity of the philosophy of the smart digital university as a contemporary formula and a necessity required by the urgent need to confront crises and achieve economic and social development, the lack of trained human cadres of faculty members to transform universities into smart digital universities, the prominent gap between labor market requirements, innovation systems and strategic plans in the field of higher education as a result of weak partnership between universities, government and industry, the lack of the necessary infrastructure for the establishment of the smart digital university and the necessary equipment, technical media, specialized material and human cadres, university affiliated companies, institutions and support programs, and the successive scientific changes in the field of the knowledge-based economy, high technology and the marketing of patents, which requires continuous planning to keep pace with these changes.

11.6 Methods to overcome the challenges and threats that impede the implementation of the vision

Overcoming the previous challenges requires developing a set of proactive solutions to overcome these threats, such as adopting a national project in cooperation with the media and holding scientific conferences and seminars on the subject, in order to reveal the importance of the smart digital university as an urgent modern necessity in light of the knowledge-based economy, global economic crises, scientific and technological trends, and global competitiveness, which represent, in their entirety, challenges facing the current regular universities, and addressing the experiences of the leading countries in this field, and the dissemination of the vision, mission and goals of the Smart Digital University through these media and highlighting the problems of Arab universities to academics, society and industry men related to the weak partnership between government, industry and the university, and the obstacles facing Arab universities in achieving their third mission and ways to overcome them.

Other key methods to overcome the challenges and threats include diversifying the sources of financing the smart digital university as a national project adopted by the Arab countries, and the benefit to society and the economy in its impact from the implementation of this project through donations, and the adoption of the endowment system in universities, and the establishment of a fund for financing pioneering smart digital universities, in addition to allocating

a budget from the Ministry of Education and related ministries, carrying out related training courses in cooperation with entrepreneurs and businessmen through the capacity development centers of faculty members and the entities proposed in the current study, conducting related training courses in cooperation with entrepreneurs and businessmen, adopting the smart digital university project and considering it an Arab project around which Arab universities gather, and creating a system for national innovation, identifying the needs and requirements of society and the labor market in all fields and the need to fulfill these requirements, establishing communication networks with industry, the industrial contact center and the technology transfer office, and accelerating the establishment of the smart digital university center.

12. Recommendations

Given the results and discussion regarding the vision of transforming Arab universities into smart digital universities, it is found that the subject of the smart digital university is now an urgent necessity in which there is no choice in light of the low level of traditional university education, the low level of small and medium enterprises, and global trends to link between government, university, and industry to activating the university's third mission in economic and social development. With that being said, this research recommends adopting the proposed scenario from this study to transform traditional Arab universities into smart digital universities, strengthening Arab digital universities with appropriate mechanisms and infrastructure to expand and develop their knowledge networks and benefit from them in raising the educational level of educational programs offered by those universities, developing the proposed vision according to a sustainable strategy that takes into account international quality models and raises the classification of the proposed model for the Arab Digital Smart University in international rankings, developing integrated training plans to find and prepare digital leaders who can manage this important digital project, and providing the necessary financing for the success of this proposed formula and proposing appropriate formulas for that to ensure its success and sustainability.

Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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