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Transformation of Arab Universities into Research-Intensive Universities: A Proposed Model

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Abstract

This current research study aims to develop a proposed model for transforming Arab universities into research-intensive universities. The descriptive research approach is utilized to achieve the research objectives. The research sample consists of (550) university faculty members in Arab universities. A 63-item questionnaire used as a research instrument is distributed to the research sample. The results indicate a high degree of availability of the requirements for academic freedom and university vision, and a medium degree of availability of the remaining requirements. Statistically significant differences are also found among the means of the research sample's responses regarding the degree of availability of Arab universities' requirements for research universities due to country variables, academic rank, and number of years of experience in all aspects except research agreements and partnerships. Given said the results, the research study concludes with developing a proposed model to transform Arab universities into research universities together with the university's vision, mission, objectives, admission policy, university leadership, infrastructure, funding sources, faculty members, students, and evaluation methods.

Keywords: *Arab Universities, Faculty Members, Model, Research Universities.*

1. Introduction

Rapid developments in the global system force public and private universities to focus their university education on scientific research in order to prepare to face these unexpected changes at the local and global levels. As the advanced societies have confirmed that progress can only be achieved by paying attention to scientific research and possessing thinking and creative minds, especially in light of a highly competitive world in which the strong own those who possess science and knowledge, the 21st century is the century of knowledge, and the economy of countries will not develop except by relying on knowledge. Human experience confirms the

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central role of science and technology in the prosperity, growth and well-being of humanity, as the strength and competitiveness of the economy throughout the ages has been based on science, technology and innovation, until the modern economy has become characterized by the knowledge economy (Radi, 2012).Universities are considered as educational and scientific institutions that contribute to the development process of in its different fields(Daradkah, Alassaf, & Hamadin, 2018)

Countries around the world, especially developed countries, are interested in scientific research and spend generously on it because of their conviction that science is the path to excellence and leadership. Since the function of scientific research is one of the important functions of the university to achieve comprehensive development in societies, it has become necessary for universities to transform into research universities. A research university is one that produces three outcomes, basic knowledge, knowledge that is transformed into patents, along with quality learning and teaching (Jensen & Thrsby, 2004). They are world-class universities that use knowledge to make a difference in academia and society on a large scale, and are characterized by flexibility, speed and creativity in facing various challenges (Altarawneh & Al-Ghammaz, 2023).

The history of research universities dates back to the beginning of the eleventh and twelfth centuries, during which they attracted students due to the presence of prominent scholars who teach there. At the beginning of the nineteenth century, and as a result of the desire of German universities to engage in the production as well as the dissemination of knowledge, the German model began, which was founded by Wilhelm von Humboldt, one of the founders of the University of Berlin. Before that, the primary functions of universities are limited to teaching and preparing professionals in fields such as law, medicine, and theology (Al-Siddiqi, 2014). Humboldt was interested in scientific research, as this model moved from Germany to other universities to the extent that only the educational university is considered the exception among universities in the world that embrace scientific research (Haji and Shehab, 2011). That is, the beginnings of the research university were in Germany and then moved to other countries.

Research universities reflect the true concept of the university related to the cognitive aspect, which means that the university actually means the intellectual existence of society, as research universities are known as "a community of scholars". Accordingly, the university is seen as representing the cognitive resources of society, and as much as society needs natural resources to build its economic entity, it also needs resources and sources to build its cognitive and intellectual entity (Al-Thubaiti, 2000). That is, the university, from its inception, focused on the cognitive role, as its most important goal was to attain and develop knowledge. This is consistent with the cognitive philosophy of university education, which is based on the systematic formation of the mind rather than teaching a craft in a direct way. This is consistent with the cognitive philosophy of university education, which is based on the systematic formation of the mind rather than teaching a profession in a direct way.

Of note, the intellectual approach is first, and the profession second, as university education works to train the mind, refines the mind and the soul, raise the general cultural atmosphere of society, refine the minds of the public, and develop public taste (Pelikan, 2010). The university is expected to generate knowledge and inventions by pursuing research and scientific depth and contribute to the advancement of human knowledge to put it at the service of society by diagnosing its problems and finding appropriate scientific solutions to them. A research university is not a purely educational institution, but rather its goal and spirit is scientific research, and therefore it seeks to attract the best talents and the most mature minds capable of creativity and innovation (Altbach & Salmi, 2011). Accordingly, the idea of a research

university is a real development for the university's function in serving scientific research, as it is the path to modernization in all fields, and the main tool for finding, developing and applying knowledge in society.

The progress is witnessed by the world is the result of pioneering research carried out by research centers and universities, as universities are the natural environment for developing their graduates into researchers and the source that feeds research centers with their scientific bases through graduates. The importance of the scientific research function at the university is demonstrated by the fact that it is the scientific institution that has individuals who possess high capabilities of organized thinking, innovation, employing and using knowledge, applying it, and benefiting from it in reality. Therefore, research universities focus on developing scientific research to be the ideal means of cognitive and scientific creativity through which the university can build its reputation and status in academic circles. Research universities are an urgent necessity imposed by global reality and international and local changes, as they contribute to enhancing countries' ability to compete globally, develop national strategies for education and research, and contribute to providing a continuous flow of skilled graduates, innovations and high technology, and nurturing innovation.

A research university is defined as a research institution that seeks to generate knowledge and innovation, and prepare skilled researchers in higher educational attainment, science and technology by improving inputs, processes and outputs to reach the building of a supportive academic base for knowledge production and achieving well-being and economic competitiveness (Michael & William, 2015). According to Britt (2012), the mission of research universities is to create new knowledge and provide that knowledge to society through teaching, research and community services, across a broad front of partnership with industry and society. Numerous countries have recognized the positive impact that research universities can have by relying on advanced education and research and investing heavily in raising the quality of their institutions to international levels.

One of those countries is the United States of America, the leading country in research. A related study indicated that the progress and prosperity achieved by the United States of America is due to research universities, the advanced knowledge they produce, and providing graduates with high skills. American research universities represent 35 to 40 out of 50 of these institutions in the world, and approximately 60% of Nobel Prizes have been awarded to scientists from these universities, enabling the United States to lead the world. According to the American Association for the Advancement of Science (AAAS), the United States federal government paid nearly $160 billion in 2010 for research and development, as the American research universities dominate global university rankings (National Academy of Science, 2012).

Research universities contribute to enhancing global competitiveness, developing national strategies for education and research. They also help to providing a continuous flow of skilled, innovative and high-tech graduates, and nurturing innovation because innovation is the powerful engine of economic growth, new industries, and creating a high standard of living. Robert and Luke (2011) point out that winning the global race for innovation requires increasing the number of research universities and increasing the support provided to them. Also, Michael (2016) emphasizes that research universities are the main source of science and technology innovation that enhances economic and social growth in the world through the knowledge economy. Maes (2011) also confirmed that these universities have great implications for Europe and their ability to compete on the global stage, face social challenges, and strive towards the future by exploiting research talent.

Moreover, Philips (2012) linked economic performance and research performance in research universities, as it is Europe's path to occupying a leadership position in the world. Also, Brad (2012) confirms that research universities have repeatedly contributed to the economic development and prosperity of the United States, as they play a pivotal role in addressing current and future national and global challenges. According to the percentage of spending on scientific research in countries of the world according to the 2014 statistics, it is clear that most countries of the world are interested in increasing spending on scientific research because of its ability to achieve growth, development and competition. South Korea spends 4.29% of its GDP, Japan spends 3.58%, Finland 3.17%, and Egypt 0.68%. In 2015, the United States spends more than $168 billion, or 32% of the total amount the world spends. Japan also spends $130 billion, equivalent to 24% of the world's spending (World Economic Forum, 2014).

Aginst this, the great disparity is found between countries in the world in their spending on scientific research, which means the degree of interest of those countries in scientific research and their desire to establish their feet in the development, growth, production and dissemination of technology, as scientific research has become the backbone of development and the best path to progress. The remainder of the paper is structured as follows: Section two provides an overview of the literature review. Section three presents the research problem, while section four shows the conceptual framework. Section five presents the research significance, while section six shows research terms and definitions. Section seven offers research limitations, and a review of the methodology adopted is given in section eight. Section nine provides results and discussion. Subsequently, section ten makes concluding remarks, while section eleven provides recommendations.

2. Literature Review

Research has documented the role of the research universities in several countirs in the world. The European Commission (2010) evaluates research universities in Europe. The study results indicate some lessons for achieving the effectiveness of research universities, including the necessity of consultation between researchers and universities to achieve excellence, collecting data from digital repositories, and the importance of peer review to ensure a broader understanding of research and its contribution to knowledge. Also, Robert and Luke (2011) identify funding research universities in the United States and point out that research universities are funded from multiple sources, as some come from the government, while others from donations from businessmen. However, it witnesses a decline in funding in some years. The study considers its results to be a wake-up call for policymakers in the United States to increase support for research universities and acknowledge the existence of funding problems if they wish to lead global innovation.

Moreover, Maes (2011) recognizes the role of the Association of European Research Universities and the obstacles it faces. The results point out that research universities face a number of challenges, including competitive pressures and funding, indicating the important role of the Association in enhancing the resilience of research at the European Union level. Also, the National Academy of Sciences in the United States of America explores the research universities and the future of America (National Academy of Sciences, 2012). The results confirm that despite the great benefit of research universities, they require a balanced set of commitments on the part of research universities, the government, businessmen, and various institutions, whether financial, intellectual, or organizational commitments. Besides, Brad (2012) assesses the current status of research universities in the United States. The findings

show that research universities seek to develop an understanding of institutional needs. The results also indicate that weak funds spent on research universities would lead to the failure of those universities to enhance their global competitiveness, being unable to support faculty research that could be competitive.

Additionally, Dan (2012) highlights the importance of research universities and describes the challenges posed by recent trends in the growth of the number of students and the costs of these universities. The results conclude that research universities need government support and activating the role of the private sector and community participation to provide appropriate infrastructure. It is also found that research universities need a class of competent and creative scientists and researchers who can keep pace with the challenges of the twenty-first century. In order to evaluate research in research universities, Philips (2012) highlights the importance of evaluating research in research universities, promotes higher-level research in universities, raises it to the international level, and stresses the need for evaluation to include elements of inputs, processes and outputs. The results point out that the evaluation process is the basis of the process of achieving quality, and an important basis for university classification.

Furthmore, Damia, Morais & Smith (2014) identify the goals and importance of entering into collaborative research partnerships in research universities and the consequences of that partnership. The findings show that the partnership enables universities to increase competitiveness, improve the degree of professionalism of human resources, sustain partnerships between universities and businessmen, ensure the availability of continuous funding, and enhance the university's strategy and the effectiveness of the flow of knowledge from the university to companies, regions, and society as a whole. Also, Al-Mutairi (2012) aims to develop a proposed vision for the shift towards research universities in Saudi university education in light of the challenges of the knowledge society. The results indicate that the sample's responses are high, demonstrating that Saudi universities are ready to transform into research universities.

Moreover, a study by the American Academy of Arts & Sciences (2015) identifies changes in funding for public research universities. The results stresse the need to search for sources of funding, such as increasing tuition fees, collecting donations, and establishing partnerships with private companies and business sector institutions. Jo Johnson's study (2015) identifies the vital role of research universities in achieving the development and progress of societies, and their role in nurturing creativity, innovation and achieving entrepreneurship. The results sjow the necessity of popular support for research universities, relying on highly skilled human resources, and striving to achieve partnerships with community institutions to support the activities of universities and enable them to achieve their goals. The findings also indicate the need to research various sources to support the financial resources of universities, including setting a tax on some facilities to be allocated to university spending and expanding joint financing with private institutions.

Al-Sarhi's study (2019) identifies the role of the research university in producing knowledge in light of modern global trends. It is found that the role of the research university in producing knowledge is reflected in three elements centered on its infrastructure for knowledge production, the reality of its production of new knowledge, dissemination and application, and the partnership relationship between it and other external institutions in the field of knowledge production. Also, Esawy's study (2019) identifies the reality of research universities and develops procedural proposals for developing research universities in Egypt. The results indicate that research university has achieved the necessary funding and diversified its sources,

focusing on preparing advanced and creative curricula and granting research universities more independence, flexibility and innovation to perform their tasks, expanding the partnership between universities, the research center, companies and civil society institutions to provide an educational environment that supports research, innovation and creativity to reach global competitiveness and elite universities.

Additionally, the study by Al-Najjar, Othman, and Al-Sayed (2021) uses the research university model as an approach to improving the scientific productivity of faculty members at Al-Azhar University. The results indicate a complementary relationship between research universities and scientific productivity, and that scientific productivity in research universities is one of the most important sources of community strength. Peiser et al. (2022) also investigate student teachers' opinions about the university's research contribution to developing their professional knowledge. It is concluded that student teachers' opinions about the value of the university's research contribution to professional education are strongly influenced by personal epistemologies, and that there is a relationship between personal epistemology and the information technology path that students follow.

Likewise, Mohammed et al. (2023) propose a strategic vision for developing research performance in Palestinian universities in light of the requirements of the transition towards a research university. It is concluded that the research sample members' responses of the reality of research performance are medium, as a strategic analysis matrix is formulated and a strategic vision is proposed. Also, Qu et al. (2023) indicate that participation in academic activities has a positive impact on students at research universities, and that student participation has a role in enhancing cultural mobility.

3. Research Problem

The reality of scientific research in Arab countries indicates that scientific research still suffers from a major crisis in all aspects (Al-Bahloul, 2021; Arab League Educational, Cultural and Scientific Organization, 2021; Bin Zayed, 2022). The features of this crisis are determined by the general state of poverty in most Arab societies, which reduces the opportunities for preparing and applying scientific research, the Arab universities' lack of a clear scientific and technological policy, devices to market research and its results, and the weak infrastructure for theoretical and applied research, including laboratories and others. The features of this crisis are also seen in the weakness in Arab countries' spending on scientific research, the drain of Arab minds and talents, the dependence of funding for scientific research in the Arab world on the government sector, the lack of clear strategies in the field of scientific research with clear goals and means, weak financial spending, the absence of cooperation between research centers and productive sectors, and the negative view of Arab society towards scientific research, which makes it unaware of the seriousness of the deterioration of scientific research.

Notably, the UNESCO report, entitled "The State of Science and Technology in the Arab World until 2030," confirms the lack of sufficient focus on research priorities and strategies, insufficient funding to achieve research goals, lack of awareness of the importance of good scientific research, and huge brain drain (Mahmoud, 2022). What confirms the above is that the Global Innovation Index for 2022 indicates a lag in the ranking of Arab countries, as the Kingdom of Saudi Arabia ranked 51st, Jordan ranked 78th, and Egypt ranked 89th (WIPO, 2022). Although progress has been made in the classification of Arab countries in 2023, they are still lagging behind. Saudi Arabia ranked 48th, Jordan ranked 71st, and Egypt ranked 86th (WIPO, 2023).

Moreover, the ratio of researchers per million people in the Arab countries in 2020 is as follows: Egypt (838), Saudi Arabia (453.2), Iraq (141.4), Jordan (595.9), The percentage of spending on scientific research and development out of GDP in 2020 was as follows: Egypt (0.96), Jordan (0.70), Saudi Arabia (0.52), UAE (1.45) (Arab League Educational, Scientific and Cultural Organization, 2022), and Tunisia (1659.9), as the Arab average is (614.1), while the global average is (1341.8). The percentage of spending on scientific research and development out of GDP in 2020 is as follows: Egypt (0.96), Jordan (0.70), Saudi Arabia (0.52), and UAE (1.45) (Arab League Educational, Scientific and Cultural Organization, 2022).

Research-Intensive universities seek to be world-class in research without losing sight of the main mission of providing a strong foundation in university education through a student-centric approach, bringing talent from both students and faculty at the local and international levels, using a system that invests intellectual and social capital, and continuing to benefit from global sources of ideas and talent. The significance of research universities lies in the advancement of scientific research, the freedom to conduct research, research in unexplored scientific fields, encouraging innovation, contribution to the production and advancement of knowledge, building a knowledge-based economy, and achievement of the human development (Ahmed & Mahmoud, 2017; Al-Najjar, Othman, & Al-Sayed, 2021). There are many justifications for moving towards research universities, including:

a. Working to remove the obstacles that limit the interaction of community institutions with the idea of community partnership to strengthen the relationship between science and society, coordinate concerted efforts between all governmental and private state institutions concerned with scientific research, and develop a unified strategy for community partnership.
b. Adopting the integrative approach in supporting scientific and research projects (Al-Salem, 2011).
c. Improving educational success improves democracy, culture, society, and social mobility, achieves individual and national economic success, enhances opportunities for expansion of science and technology, and increasingly meets society's technology needs.
d. Enhancing society's resilience in the face of natural and human disasters, enhancing the culture of creativity and innovation, and maintaining competitiveness in the era of rapid globalization (National Academy of Sciences, 2012).
e. Playing a pivotal role in addressing current and future national and global challenges, working to discover, disseminating and applying new knowledge, expanding the knowledge base and provides highly educated individuals with skills that enable them to achieve economic vitality and competitiveness and working to improve the teaching and learning process, leading to social and individual gains (Brad, 2012).
f. Strengthening and developing scientific research in universities and transforming into a culture of scientific research, disseminating it among students and researchers in universities, and developing research partnerships among all concerned.
g. Achieving leadership in technology and investing in research and development to build an economy based on creativity and innovation (Jeffrey, 2013).

Research universities are also among the most important sources of scientific knowledge advancement, technological progress, increasing innovations, providing factors for achieving competitive advantage, and stimulating large-scale production of high-technology reflected in raising the level of society's progress. Higher education institutions, regardless of their orientations, face great challenges that require radical development to carry out their mission in light of building a knowledge society and the transition to a knowledge-based economy. Achieving this mission requires higher education institutions to achieve a great deal of balance

between education, research and development activities to be compatible with what it is known as research universities that fulfill their mission in education, community service, and enriching and disseminating knowledge by focusing on research activities (Research and Consulting Institute, 2010).

Arab universities suffer from the complete absence of competition among themselves and the weakness of providing additional financial incentives to the universities that produce the most international research. Scientific production is also characterized by being weak or almost non-existent compared to scientific production in developed countries. With reference to patents, it is noted that 194,400 patents were registered in 2012 at the international level, where the United States was at the top of the list with about 51,207 patents, Japan 43,660, Germany 18,855, China 18,627, and South Korea 11,848, while 92 patents were registered in Egypt (WIPO, 2015). Studies indicate that scientific research in Arab universities faces a number of obstacles and does not bear fruit as it should because of the weak relationship between universities and production institutions, the absence of a scientific plan for scientific research at the university that takes applied problems into account, the separation between the teaching function and the research function of the university professor, and the exhaustion of the process of the teaching capacity of the professor's research capabilities, weak spending on scientific research, weak level of scientific research and its applications entrusted with developing society and solving its problems, the absence of the university's complementary relationship with the public and private productive sectors, and the lack of the private sector's contribution to financing scientific research.

Other key reasons are reflected the absence of a culture of scientific research that prevents the application of research results or benefiting from them as they should be, viewing industrial experience less than academic experience, lack of cooperation with distinguished industrialists in giving lectures and courses at the university and supervising research and projects, even in partnership, lack of interest in research projects and development studies related to development projects, the low level of creativity in scientific research, and the weakness of academic freedom in Egyptian universities. The analysis of the literature review confirms large gap between scientific research in Arab countries and foreign countries, which means weak interest in scientific research and scientific production, lack of availability of a suitable environment for it, which calls for the need to focus on paying attention to research universities for their ability to provide the appropriate research environment and draw clear plans, activating the partnership between the university and research institutions, and between them and society, and link research results to development.

With this in mind, the current research study develops a vision for transforming Arab universities into research-intensive universities to get rid of the defects of traditional universities, strive towards achieving competitiveness, keep pace with advanced universities, and achieve community progress and development. Against this, the research problem is reflected in answering the following three questions:

- What is the degree of availability of requirements for transforming Arab universities into research-intensive universities?
- Are there statistically significant differences between the response of faculty members to the degree of availability of the requirements of Arab universities to research-intensive universities due to the variables of country, academic rank, and years of experience?
- What is the proposed model for transforming Arab universities into research-intensive universities?

4. Research Significance

The significance of the research study is reflected in developing a proposed vision for an Arab research-intensive university, which can be a guide and direction for the shift towards research universities in Arab countries. Research universities have become an inevitable necessity to keep pace with global trends towards accelerating scientific and technological progress. The interest in scientific research emphasizes that countries possess the knowledge to adapt to and control the environment, and develop solutions to its problems, thus building a strong, developed state that enjoys science and knowledge. Accordingly, the interest in research universities is to link research with development plans to achieve prosperity and well-being. The research results may also benefit educational planners, decision-makers, and higher education officials in Arab countries when making their decisions about moving towards research universities.

Since research universities contribute to the vitality of the economy, prepare highly trained individuals, and achieve a continuous stream of scientific and technical innovations that they produce, which leads to knowledge density, it is necessary to turn to exploring these universities to benefit from them in setting the scientific and technological building blocks to achieve an economic renaissance to support the Arab economy, improve the standard of living of society and keep pace with global changes. This research paper may be useful in introducing research universities and their ability to achieve research excellence, maximizing the impact of research, increasing the number of postgraduate students, providing the infrastructure to support distinguished research, which attracts attention towards this type of university so that society's problems can be solved, challenges can be faced, and global developments can be kept up with in the quality of performance and the outputs.

5. Research Terms and Definitions

In this research, the following terms are mentioned, and their procedural definitions are as follows:

Research University: It defined as a national research institution that seeks to think deeply, create knowledge, bring innovation to the market, and change the lives of society by addressing its problems and qualifying it to keep pace with the changes of the twenty-first century (Pedro, 2015). Also, Dean (2016) defines them as institutions covering a range of academic and professional disciplines, including physical, social, and behavioral that enables them to provide broad programs of research and education required by the global economy based on knowledge and innovation. It is an institution known for its commitment to providing competitive research at the global level, coupled with research capable of competing at the global level and with high educational quality, as its goal is to place universities at the forefront of the world's universities in research and education (Al-Kamim & Aoun, 2022). A research university can be defined as a scientific institution that seeks to produce and disseminate knowledge, apply it, and develop and support creativity and innovation, through skilled, creative researchers and research and community partnerships to achieve the university's competitiveness, excellence and leadership, increase its ability to address the current and future problems of society, and strive to contribute effectively to achieving economic and social development at the local, regional and global levels.

6. Research Limitations

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

1. **Human Limitations:** This research is limited to a sample of faculty members in Arab universities in Jordan, Egypt, and the Kingdom of Saudi Arabia.
2. **Spatial Limitations:** This research is conducted in in Arab universities in Jordan, Egypt, and the Kingdom of Saudi Arabia.
3. **Temporal Limitations:** This research is conducted in the first semester of the academic year 2023/2024.
4. **Objective Limitations:** The research is limited to address the research university, including vision, mission, objectives, faculty members, administration and financing.

7. Method

Research Approach

The descriptive research approach is utilized to describe the degree of availability of requirements for transforming Arab universities into research-intensive universities and attain a proposed model for transforming Arab universities into research-intensive universities.

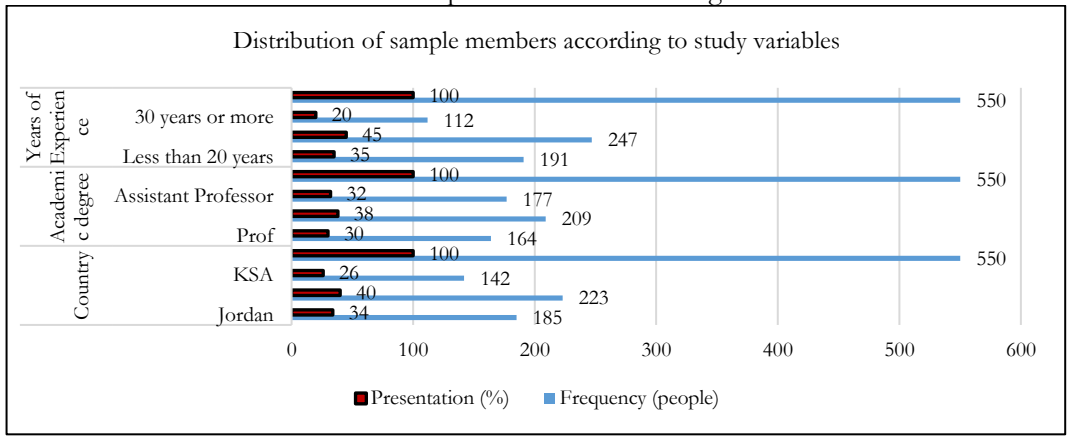
Research Population

The research population consists of faculty members in Arab universities in Jordan, Egypt, and the Kingdom of Saudi Arabia.

Research Sample

The research sample consists of (550) members through an electronic questionnaire. Figure (1) illustrates the distribution of sample members according to the research variables.

Table 1: Distribution of Research Sample Members According to the Research Variables.



As shown in Figure (1), the sample member's number from Egypt increases in relation to the country due to the increase in the number of teaching staff as a result of the increase in the number of universities. Figure (1) also indicates that the number of the sample members "ranks of professor and associate professor" has increased in terms of number of years of experience, and this is a positive point that serves the research because this sample has great experience

and the ability to evaluate the current situation in universities. It is also shown that the sample members "from 20 to less than 30 years" are high in terms of number of years of experience, as they are experienced people who have a high level of knowledge that is useful to the current research. This number also demonstrates a relatively high average age, which reflects the availability of the experience factor, which serves the research objectives in the ability to form realistic and more accurate opinions towards research universities.

Survey Rserach Instrument

The questionnaire is utilized as a survey rserach instrument, as it is widely used by those involved in education-based research to obtain facts about existing conditions and methods. An analytical survey is conducted for a large number of related scientific research papers, studies and books, along with interviewing several university faculty members in order to attain the requirements for transforming Arab universities into research universities. The questionnaire is validated by a group of professors at the Faculty of Educational Sceinces and those specialized in administration, as the necessary amendments are made based on their suggestions. The questionnaire is re-piloted on a sample of faculty members to test the clarity of langauge and ease of understanding. The research sample's comments, including deletions and additions are taken into account, and the questionnaire in its final form consists of (7) dimensions: The first dimension (8) items, the second dimension (9) items, the third dimension (11) items, the fourth dimension (9) items, and the fifth dimension (9) items, the sixth dimension (9) items, and the seventh dimension (8) items. Face validity it utlized to check the research instrument validity by presenting the instrument to specialists to validate it in terms of its suitability to the research objectives, the clarity of the iems, and its belonging to the different dimensions and dimensions, and suggest any enriching modifications, as their comments and suggestions are taken into account. The second method used is to calculate the self-validity of the research instrument by computing the Pearson correlation coefficient. Table (2) illustrates the results of the dimensions and Pearson correlation coefficients for the questionnaire items.

Table 2: Results of the Dimensions and Pearson Correlation Coefficients for the Questionnaire Items.

Dimension	Item	Correlation Coefficient	Item	Correlation Coefficient	Item	Correlation Coefficient	Item	Correlation Coefficient
Academic Freedom	1	0,675**	2	0,801**	3	0,736**	4	0,681**
	5	0,592**	6	0,732**	7	0,663**	8	0,662**
University Vision	1	0,684**	2	0,783**	3	0,779**	4	0,774**
	5	0,785**	6	0,685**	7	0,677**	8	0,805**
	9	0,685**						
Organizational Culture and Prevailing Climate	1	0,691**	2	0,619**	3	0,796**	4	0,757**
	5	0,793**	6	0,807**	7	0,815**	8	0,690**
	9	0,752**	10	0,762**	11	0,797**		
Research Focus and Planning	1	0,647**	2	0,656**	3	0,775**	4	0,807**
	5	0,765**	6	0,710**	7	0,686**	8	0,734**
	9	0,705**						
Intellectual Property Rights and Research Commercialization	1	0,609**	2	0,745**	3	0,803**	4	0,812**
	5	0,681**	6	0,708**	7	0,693**	8	0,705**
	9	0,712**						
Research Agreements and Partnerships	1	0,742**	2	0,653**	3	0,693**	4	0,771**
	5	0,734**	6	0,731**	7	0,672**	8	0,713**
	9	0,814**						
Financial Resources for Scientific Research	1	0,731**	2	0,820**	3	0,664**	4	0,694**
	5	0,816**	6	0,684**	7	0,706**	8	0,751**

As illustrated in Table (2), the correlation coefficients for the questionnaire items have ranged between (0.820) and (0.592), and are significant at the significance level of (0.01). All of these coefficients are high; confirming that the instrument accurately measures what it is designed to measure. The research instrument reliability is also calculated using Cronbach's Alpha coefficient formula, and the alpha coefficient for the dimensions is as shown Table (3).

Table 3: Reliability Coefficients of the Researach Instrument Using Cronbach's Alpha Coefficient.

	Dimension	Reliability Coefficient
1	Academic Freedom	0,79
2	University Vision	0,75
3	Organizational Culture and Prevailing Climate	0,61
4	Research Focus and Planning	0,70
5	Intellectual Property Rights and Research Commercialization	0,69
6	Research Agreements and Partnerships	0,80
7	Financial Resources for Scientific Research	0,79
	Overall Degree	

As indicated in Table (3), the degree of reliability of the questionnaire's dimensions have ranged between (0.80) and (0.61), as all dimensions have high reliability coefficients that meet the research study purposes, which confirms the applicability of the research instrument.

Statistical Processing

The Statistical Package for Social Sciences (SPSS) program is used to process the research data, where the following statistical processing methods are utilized.

1. Mean: It is used to determine the responses of the research sample members to the various research dimensions and calculate the rank's mean for each of the dimension's item.
2. Standard Deviation: It is used to measure the extent of dispersion in the sample's responses regarding each questionnaire item.
3. Alpha Cronbach coefficient: It is used to check the research instrument reliability.
4. One-Way Analysis of Variance (ANOVA): It is used to find out the significance of the differences between the responses of sample members on the various research study dimensions according to their variables.
5. Scheffé's test method for multiple comparisons: It is used to determine the valid direction of statistically significant differences between different variables.

The response scale for the questionnaire items consists of five degrees according to a 5-point Likert scale, as follows: strongly agree, agree, neutral, disagree, and strongly disagree with the degrees corresponding to (5, 4, 3, 2, 1), respectively. To construe the results, the following percentages of the responses are adopted: Very low (from 1 to less than 1.80), low (from 1.80 to less than 2.60), medium (from 2.60 to less than 3, 40), high (from 3.40 to less than 4.20), and very high (from 4.20 to 5).

8. Results and Discussion

This section provides the results and discussion on the main variables and relationship between them justified with more logical assumptions relating to the problem statement.

Results and Dicussion Related to the First Research Question

What is the degree of availability of requirements for transforming Arab universities into research-intensive universities?

To answer this question, the responses of the research sample are analyzed according to the different dimensions and items.

a. Academic Freedom

Table (4) illustrates the responses of the research sample members related to the "academic freedom" dimension.

Table 4: Responses of Research Sample Members Related to the Academic Freedom Dimension.

No.	Text of Item	AM	SD	Degree of Availability	Rank
1	The university's regulations provide a degree of academic freedom.	3.7018	1.18821	High	5
2	The senior administration is committed to the principles of academic freedom for faculty members and students.	3.6164	1.49319	High	6
3	The university is convinced of the importance of academic freedom within a framework that does not conflict with religious and national values.	3.7764	1.41775	High	3
4	The university encourages academic freedom with regard to research in academic subjects accepted by the university.	3.4436	1.06249	High	7
5	The university encourages freedom of discussion and exchange of opinions between faculty members and students.	4.0545	1.35257	High	2
6	Academic freedom includes the freedom to research and teach within the framework of university regulations, religious and national values.	3.7291	1.33513	High	4
7	The university encourages creativity and scientific innovation among faculty members while addressing the various constraints that limit the advancement of this achievement.	3.2600	1.30560	Medium	8
8	The university encourages faculty members to freely publish scientific publications in internationally ranked scientific journals.	4.0782	1.15126	High	1
	Total Degree	3,70	1,28	Medium	

As indicated in Table (4), the research sample members have agreed on the availability of the academic freedom requirement to a high degree due to the faculty members' awareness of the importance of academic freedom as a basic requirement in university education, which is one

of the basic rules upon which modern universities are based. It also contributes to providing opportunities for students to practice thinking, criticism, dialogue and discussion, and provides the opportunity for the faculty member to develop his or her teaching style and gives them the opportunity for creativity and innovation. This result is consistent with the results of Al-Mutairi's study (2012), showing a general trend toward approval of the academic freedom variable to a high degree. It is also in line with the results of Mahmoud's study (2022), indicating the significance of having independence and academic freedom.

Regarding the dimension items, it is noted that most of the items receive a high score, which confirms that universities encourage the freedom of scientific publishing in internationally classified journals to raise the university's ranking in the global ranking of universities such as the Global University Ranking, the Webometrics classification, and the QS World University Ranking, HEEACT or Regional and National Rankings. Universities are also concerned with the relations between students and faculty members in dialogue, discussion and participation, and the exercise of academic freedom in accordance with religious values. Concerning item (7), it has attained a medium degree, indicating that there is some deficiency in encouraging creativity and innovation, and this may be due to the prevailing traditional climate or weak financial budgets in universities.

b. University Vision

Table (5) illustrates the responses of the research sample members related to the "university vision" dimension.

Table 5: Responses of Research Sample Members Related to the University Vision Dimension.

No.	Text of Item	AM	SD	Degree of Availability	Rank
1	The university focuses on expanding student admission.	3.1727	1.23886	Medium	7
2	The university focuses on diversity in programs and majors.	3.4345	1.47915	High	5
3	The university is distinguished by its focus on science and technology.	3.6236	1.41234	High	2
4	The university is distinguished by its focus on innovative research.	3.3473	1.17864	Medium	6
5	The university meets global standards for research universities to achieve the identity of a research university.	3.1600	1.16875	Medium	8
6	There is a great tendency among faculty members to transform the university into a research university.	3.1509	1.40807	Medium	9
7	There is a real trend for the university towards becoming a knowledge society.	3.5164	1.26560	High	4
8	There is clarity in the concept of the research university among academic leaders and faculty members.	3.5709	1.26515	High	3
9	The senior administration supports scientific research at the university.	4.4855	.96135	High	1
	Overall Degree	3,49	1,25	High	

As shown by Table (6), the research sample members have agreed on the fulfillment of the university vision requirement with a mean of (3.49), which is a high degree that confirms the universities' focus on having a vision, demonstrating the universities' interest in quality and accreditation because vision is an important step in strategic planning and helps universities achieve their goals. This result may be due to Arab universities' efforts to follow in the footsteps of international universities and obtain high rankings. This result is consistent with the results of Mahmoud's study (2022), which concludes that the university's research vision is available to a high degree. Regarding the dimension items, item (9) stipulating "The senior administration supports scientific research at the university" is ranked first with a very high degree. This result may be due to the universities' efforts to encourage faculty members to publish scientifically, especially with the universities' interest in funded research projects and various research initiatives that contribute to raising the professional level of faculty members. However, the lowest items emphasize the lack of faculty members' inclination to transfer to research universities, as this result is due to the faculty members' conviction in the university's three functions of education, scientific research, and community service.

c. Organizational Culture and Prevailing Climate

Table (6) illustrates the responses of the research sample members related to the "organizational culture and prevailing climate" dimension.

Table 6: Responses of Research Sample Members Related to the Organizational Culture and Prevailing Climate Dimension.

No.	Text of Item	AM	SD	Degree of Availability	Rank
1	The university seeks to create an organizational culture that supports creativity in scientific research.	3.5309	1.32715	High	3
2	The university provides a vibrant research climate suitable for publishing research and scientific articles.	3.1873	1.44587	Medium	8
3	The university encourages research collaboration among researchers.	3.3055	1.70004	Medium	5
4	The Ministry of Education supports the establishment of centers of research excellence at the university according to the priorities of community needs.	3.1918	.99160	Medium	7
5	The university's organizational culture is strong and positive.	3.1564	1.23146	Medium	10
6	Among the prevailing values are the values of belonging to and loyalty to the university.	3.6545	1.21344	High	2
7	The university's distinguished academic competencies are keen to continue their association with the university.	3.1927	1.16379	Medium	6
8	The university provides financial and moral incentives for excellence, creativity and innovation in scientific research.	3.4109	1.05334	High	4
9	There is a good media role at the university to raise awareness of the importance of scientific research and its productivity.	3.1018	1.17060	Medium	11
10	The organizational culture and prevailing climate support the orientation towards a research university identity.	3.1782	1.59607	Medium	9
11	The university's prevailing organizational culture encourages integrity and ethics in scientific research.	4.4564	1.00132	Very High	1
	Overall Degree	3,39	1,26	Medium	

As demonstrated in Table (6), the research sample members have agreed on the availability of the requirements of organizational culture and the prevailing climate at the university to a medium degree, with a mean of (3.39), confirming that there are some efforts made to provide an organizational culture that contributes to achieving effective performance and the process of interaction between the university and its external environment. Universities also need a distinct organizational culture that allows them to carry out their research duties professionally

and meet the needs of society. Item (11) is ranked the highest one to emphasize the encouragement of the prevailing organizational culture at the university to demonstrate integrity and ethics in scientific research, especially with the existence of scientific research ethics committees in universities to ensure the necessary foundations and controls for dealing with persons, protecting the rights of the partcipants who are the subject of research, ensuring their safety and preserving their dignity.

Universities also strive to a high degree to develop the values of belonging and loyalty to them and create an organizational culture that supports creativity in scientific research. The university also provides financial and moral incentives for excellence, creativity and innovation in scientific research through some universities allocating a set of awards to researchers such as the Excellence Award, Appreciation Awards, Scientific and Research Excellence Awards, and the Invention Award. The rest of the items in this dimension are of a medium degree, as item (5) stipulating "The University's organizational culture is strong and positive" is ranked the lowest one, confirming that there are some organizational values and behaviors that need support. However, item (9) also confirms that the university's media role in raising awareness of the importance of scientific research and its productivity is not at the required level.

d. Research Focus and Planning

Table (7) illustrates the responses of the research sample members related to the "research focus and planning" dimension.

Table 7: Responses of Research Sample Members Related to the Research Focus and Planning Dimension.

No	Tex of Item	AM	SD	Degree of Availability	Rank
1	There is a strategic research plan at the university.	3.5345	1.26090	High	2
2	The university is committed to balancing and integrating the capabilities necessary for the research plan.	3.1364	1.64121	Medium	6
3	The university is interested in implementing the programs and projects of the strategic plan in the area of research.	3.2164	1.46312	Medium	5
4	There is a balance between basic and applied scientific research.	3.1073	1.44774	Medium	7
5	Graduate students and faculty members participate in innovative research performance.	3.0709	1.53647	Medium	8
6	The university's research production achieves a distinguished position in international rankings.	3.2509	1.63821	Medium	4
7	The university develops a plan for research partnership with corresponding universities.	3.0509	1.57425	Medium	9
8	The university develops a plan for cooperation with international organizations concerned with developing scientific and technical capabilities.	3.6491	1.36524	High	1
9	The university develops a plan to import and localize advanced technology.	3.3145	1.69247	Medium	3
	Total Degree	3,25	1,52	Medium	

As shown in Table (7), the research sample participants have agreed on meeting the requirement of the research focus and planning to a medium degree, with a mean of (3.25). This result is attributed to the sample's awareness that there are efforts being made in the domain of scientific research planning, given the importance of this planning in solving the problems it faces, linking research and studies with the needs of the economy and society, and contributing to the university assuming a distinguished position in research and development. This result is consistent with the results of Al-Mutairi's study (2012), which shows a general trend towards approval of the academic freedom variable to a medium degree.

Moreover, the highest items indicate that the university develops a plan for cooperation with international organizations concerned with developing scientific and technical capabilities, as this result is attributed to the desire of universities to benefit from the human and material capabilities of international organizations, contribute to the localization of scientific, technical and information bases in universities, and strengthen the infrastructure of research laboratories. This result is partly consistent with the results of the study (Cui et al., 2022), which indicate that the joint establishment of scientific research rules plays an important role in promoting long-term and stable cooperation between industry, universities, and research. The research sample participants also confirm the presence of a strategic research plan at the university, as this result is due to the fact that this is one of the requirements for university accreditation, which most Arab universities seek.

e. Intellectual Property Rights and Research Commercialization

Table (8) illustrates the responses of the research sample members related to the "Intellectual property rights and research commercialization" dimension.

Table 8: Responses of Research Sample Members Related to the Intellectual Property Rights and Research Commercialization Dimension.

No.	Text of Item	AM	SD	Degree of Availability	Rank
1	The university sets regulatory rules and protects intellectual property rights between the university's rights and the rights of researchers.	3.2909	1.39571	Medium	6
2	The University facilitates procedures for preserving the intellectual property rights of its members.	3.6782	1.55649	High	3
3	Property rights documents are attained in a timely and easy manner	2.9418	1.09987	Medium	9
4	The university is keen to preserve the rights of shareholders in financing scientific research.	3.2309	1.32626	Medium	7
5	The university recognizes the importance of commercializing its production of innovations.	3.7909	1.45794	High	2
6	The university builds trust-based relationships with various institutions to market the university's production.	3.4982	1.31372	High	5
7	The university manages the commercialization of its innovations and intellectual property rights according to the business management of projects.	3.0345	1.45881	Medium	8
8	There is a specialized unit for marketing innovations and selling intellectual property rights.	2.6218	1.21417	Medium	4
9	The university recognizes that registering intellectual property rights for its innovations is an important aspect of obtaining financial returns.	3.9091	1.40870	High	1
	Overall Degree	3,32	1,35	Medium	

As illustrated in Table (8), the research sample participants have agreed on the availability of the requirement for intellectual property rights and research commercialization to a medium degree, with a mean of (3.32), which means that there are efforts by universities to protect the moral rights of any work or invention. It is also concerned with research commercialization by creating communication relationships between the university and productive and service institutions in society, which means transforming scientific research into commercial products. However, obtaining a medium score for this dimension means that the research sample is convinced that the efforts made are not at the required level. This result is partly consistent with the results of the study (Nugent & Chan, 2023), indicating that commercialization of research contributes to technology transfer and increased patent applications. It is also partly along with the results of the study of (Ahmed & Mahmoud) (2017), which indicate the

importance of enhancing the protection, transfer and marketing of intellectual property and developing links with economic institutions.

The highest items indicate that the university recognizes that registering intellectual property rights for its innovations is an important aspect of obtaining financial returns. The university also realizes the importance of marketing its production of innovations and facilitates procedures for preserving the intellectual property rights of its members, as all items have a high degree with a mean of (3.90, 3.79, & 3.67), respectively. These results may be due to universities' awareness of the importance of protecting intellectual property and commercializing research in bridging the gap between production and consumption, as well as solving societal problems on one hand. On the other hand, there are efforts to enhancing the university's reputation and openness to community issues and providing the opportunity for faculty members to employ their knowledge and skills to confront community challenges and issues. The lowest items also indicate that obtaining property rights documents may not be done in a timely manner or easily due to bureaucracy and routine in many Arab societies.

f. Research Agreements and Partnerships

Table (9) illustrates the responses of the research sample members related to the "research agreements and partnerships" dimension.

Table 9: Responses of Research Sample Members Related to the Research Agreements and Partnerships Dimension.

No.	Text of Item	AM	SD	Degree of Availability	Rank
1	The university is keen to conclude research agreements in science and technology with corresponding universities.	3.6055	1.41896	High	3
2	The university is interested in confirming its research identity through research agreements with expert researchers, universities, and scientific research centers.	3.3709	1.40927	Medium	4
3	There is a specialized department or unit to follow up on the activation of research agreements.	3.6764	1.51399	High	1
4	The university builds strong research relationships with community institutions	2.9673	.87404	Medium	9
5	The university recognizes the research needs of community institutions.	3.2764	1.03314	Medium	6
6	The university benefits from international practices in developing relationships with community institutions.	3.2436	1.65430	Medium	7
7	The university is interested in concluding research agreements with community organizations.	3.1727	.90595	Medium	8
8	The university is keen to publicize its research capabilities so that its research relations spread throughout the country.	3.3364	1.26090	Medium	5
9	There is mutual trust between the university and the state's research bodies about the university's research capabilities.	3.6473	1.47695	High	2
	Total Degree	3,36	1,27	Medium	

As shown in Table (9), the research sample members have agreed on the availability of the requirement for research agreements and partnerships in universities to a medium degree, as the mean for the dimension is (3.36), indicating the lack of clarity of this dimension among the sample members despite the importance of research agreements and partnerships in enhancing the university's strengths, building bridges of cooperation in scientific research, sharing benefits, contributing to the development of society and solving its problems, and moving from theoretical studies to practical application. However, as this dimension receives a medium score, this means that there are obstacles that stand in the way of activating research agreements and partnerships, including the lack of government encouragement to establish a real

partnership, the lack of interest in research projects and the lack of plans for research partnerships, or weak coordination to exploit university resources.

This result is partly consistent with the results of the study (Zhou et al., 2023), indicating that participatory awareness among research institutions in universities is not strong. It is also partly in line with the results of the study of Ahmed and Mahmoud (2017), demonstrating the importance of expanding local, regional and international partnerships in research, particularly industrial institutions, government and academic institutions. Regarding the items of this dimension, the items have a high degree, confirming the presence of a specialized department or unit to follow up on the activation of research agreements. There is also mutual trust between the university and the state's research bodies regarding the university's research capabilities, and the university's keenness to conclude research agreements in science and technology with corresponding universities.

As for the item (4) stipulating "The university builds strong research relationships with community institutions" is ranked the lowest with a medium degree, which indicates the presence of some obstacles in this matter that may be due to the weak connection of the university's specializations with the needs of society, the weakness of the relationship between the university and community institutions, or the weak confidence of community institutions in University research outputs.

g. Financial Resources for Scientific Research

Table (10) illustrates the responses of the research sample members related to the "financial resources for scientific research" dimension.

Table 10: Responses of Research Sample Members Related to the Financial Resources for Scientific Research Dimension.

No.	Text of Item	AM	SD	Degree of Availability	Rank
1	The university seeks to diversify sources of income to spend on scientific research.	3.6618	1.20192	High	2
2	Selling intellectual property rights for innovations generates good income to fund scientific research.	2.5964	1.56254	Low	8
3	The university receives financial support for scientific research from some international donor organizations.	3.4418	1.22671	High	3
4	The university achieves success in obtaining funding through scientific research chairs.	3.2945	.98012	Medium	4
5	The university manages its resources allocated to scientific research efficiently.	2.8564	1.63614	Medium	7
6	The university provides various financial needs for scientific research	3.1836	1.55673	Medium	6
7	The university provides performance indicators to measure the suitability of research at the university.	4.0345	1.32809	High	1
8	There are policies to reduce waste of research resources.	3.2618	1.24895	Medium	5
	Overall Degree	3,28	1,33	Medium	

As shown in Table (10), the research sample members have agreed on the availability of the financial resources requirement for scientific research to a modium degree, with a mean of (3.28), which indicates is a discrepancy in the research sample's perception of the degree of availability of financial resources for scientific research. This may be due to the availability of financial resources for some universities and their lack of availability in other universities, or their availability for some faculty members within the university and their lack of availability for others, and this may be explained by the weakness of financial resources for scientific research.

Regarding the items of this dimension, the highest items have indicated that the university provides performance indicators to measure the suitability of research at the university, that the university seeks to diversify sources of income to spend on scientific research, and that the university receives financial support for scientific research from some international donor organizations.

These results may be explained by the university's efforts to diversify funding sources, especially since most Arab universities depend on government funding. This result is consistent with the results of Ahmed and Mahmoud's study (2017), which indicate the need to diversify university research funding sources. It also agrees with the results of Mahmoud's study (2022), which point out the importance of sufficient availability and diversity of financing sources. As for the item (2) stipulating "Selling intellectual property rights for innovations generates good income to fund scientific research." is ranked the lowest with a low degree with a mean of (2.59), which indicates the weak presence of inventions or innovations in Arab universities, and this may be due to the lack of a suitable research environment, the lack of financial resources allocated to scientific research, or the migration of creative minds abroad.

Results and Dicussion Related to the Second Research Question

Are there statistically significant differences between the response of faculty members to the degree of availability of the requirements of Arab universities to research-intensive universities due to the variables of country, academic rank, and years of experience?
To find out differences between the means regarding the availability of requirements for transforming Arab universities into research universities from the sample's perspective due to the number of years of experience variable, the F-test is used for a One-Way Analysis of Variance (ANOVA) between several groups for the research sample. Tables (11) and (12) illustrate those results.

Table 11: Results of the F-Test for Differences between the Means of the Response of the Research Sample According to the Country Variable.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Academic Freedom	Between Groups	334.462	2	167.231	11.790	.000
	Within Groups	7758.958	547	14.185		
	Total	8093.420	549			
University Vision	Between Groups	163.921	2	81.961	4.482	.012
	Within Groups	10002.777	547	18.287		
	Total	10166.698	549			
Organizational Culture and Prevailing Climate	Between Groups	2752.749	2	1376.375	63.505	.000
	Within Groups	11855.403	547	21.673		
	Total	14608.153	549			
Research Focus and Planning	Between Groups	4624.685	2	2312.343	148.717	.000
	Within Groups	8505.089	547	15.549		
	Total	13129.775	549			
Intellectual Property Rights and Research Commercialization	Between Groups	633.791	2	316.896	20.016	.000
	Within Groups	8660.202	547	15.832		
	Total	9293.993	549			
Research Agreements and Partnerships	Between Groups	17.469	2	8.735	.551	.577
	Within Groups	8675.724	547	15.861		
	Total	8693.193	549			
Financial Resources for Scientific Research	Between Groups	614.151	2	307.076	22.401	.000
	Within Groups	7498.324	547	13.708		
	Total	8112.475	549			
Total	Between Groups	38561.044	2	19280.522	126.826	.000
	Within Groups	83156.767	547	152.023		
	Total	121717.811	549			

As indicated in Table (11), there are no statistically significant differences between the means of the sample responses due to the country variable in the dimension "research agreements

and partnerships", which means that the research sample members agree on this dimension. However, there are statistically significant differences between the means of the research sample's responses at the level of (0.05) in the "university vision" dimension and (0.001) in the rest of the dimensions as well as in the total vlaue, which means a difference in the viewpoint of the sample members in evaluating those dimensions. To determine the direction of the differences in favor of any of the countries, the Scheffé's test is used. Table (12) illustrates the results.

Table 12: Results of the Scheffé's Test for the Direction of Differences between Country Categories.

No.	Dimension	Country	AM	Jordan	Egypt
1	Academic Freedom	Jordan	28.8865		1.39020*
		Egypt	29.5112		
		Suadia Arabia	30.9014	2.01492*	
2	University Vision	Jordan	31.4595		
		Egypt	30.9283		
		Suadia Arabia	32.3028		1.37457*
3	Organizational Culture and Prevailing Climate	Jordan	34.9405		
		Egypt	37.1794		
		Suadia Arabia	40.7817	5.84115*	3.60232*
4	Research Focus and Planning	Jordan	25.4486		4.99081*
		Egypt	30.4395		
		Suadia Arabia	32.6479	7.19924*	2.20843*
5	Intellectual Property Rights and Research Commercialization	Jordan	28.7189		1.36628*
		Egypt	30.0852		
		Suadia Arabia	31.5211	2.80221*	1.43592*
6	Financial Resources for Scientific Research	Jordan	25.9568		.90423*
		Egypt	26.8610		
		Suadia Arabia	28.6972	2.74043*	1.83620*
	Total	Jordan	206.0162		9.76854*
		Egypt	215.7848		
		Suadia Arabia	227.9225	21.90632*	12.13778*

As shown in Table (12), there are statistically significant differences in the dimension of "academic freedom" between Jordan and Egypt in favor of Egypt, and between Saudi Arabia and Jordan in favor of Saudi Arabia. There are also differences in the "university vision" dimension between Saudi Arabia and Egypt in favor of Saudi Arabia. Moreover, there are differences in the dimensions of "organizational culture and prevailing climate, research focus and planning, intellectual property rights and research commercialization, financial resources for scientific research, and the total value" between Jordan and Egypt in favor of Egypt and

between Saudi Arabia on the one hand and Egypt and Jordan on the other hand in favor of Saudi Arabia. These results may be explained by the Kingdom's interest in scientific research, especially in recent years, as this is consistent with the Kingdom's Vision 2030, which aims to increase the competitiveness of the Kingdom and the classification of its universities. The rate of spending on scientific research has also increased in recent years, with some Saudi universities occupying a place in the global university rankings, such as King Fahd University of Petroleum and King Saud University.

To find out differences between the means regarding the availability of requirements for transforming Arab universities into research universities from the sample's perspective due to the academic rank variable, the F-test is used for a One-Way Analysis of Variance (ANOVA) between several groups for the research sample. Tables (13) and (14) illustrate those results.

Table 13: Results of the F-Test for Differences between the Means of the Response of the Research Sample According to the Academic Rank Variable.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Academic Freedom	Between Groups	335.875	2	167.937	11.842	.000
	Within Groups	7757.545	547	14.182		
	Total	8093.420	549			
University Vision	Between Groups	224.144	2	112.072	6.166	.002
	Within Groups	9942.555	547	18.177		
	Total	10166.698	549			
Organizational Culture and Prevailing Climate	Between Groups	2994.534	2	1497.267	70.521	.000
	Within Groups	11613.619	547	21.231		
	Total	14608.153	549			
Research Focus and Planning	Between Groups	4349.588	2	2174.794	135.488	.000
	Within Groups	8780.187	547	16.052		
	Total	13129.775	549			
Intellectual Property Rights and Research Commercialization	Between Groups	755.217	2	377.608	24.190	.000
	Within Groups	8538.776	547	15.610		
	Total	9293.993	549			
Research Agreements and Partnerships	Between Groups	42.011	2	21.005	1.328	.266
	Within Groups	8651.182	547	15.816		
	Total	8693.193	549			
Financial Resources for Scientific Research	Between Groups	488.054	2	244.027	17.507	.000
	Within Groups	7624.420	547	13.939		
	Total	8112.475	549			
Total	Between Groups	38837.855	2	19418.928	128.163	.000
	Within Groups	82879.955	547	151.517		
	Total	121717.811	549			

As illustrated in Table (13), there are no statistically significant differences between the means of the research sample responses due to the country variable in the dimension "research agreements and partnerships", which means that the sample members agree on this dimension. However, there are statistically significant differences between the means of the research sample's responses at the significance level of (0.05) in the dimension "university vision" and at (0.001) in the rest of the dimensions, as well as in the total value, which means a difference in the point of view of the sample members in evaluating those dimensions. To determine the

direction of the differences in favor of any of the countries, the Scheffé's test is used. Table (14) illustrates the results.

Table 14: Results of the Scheffé's Test for the Direction of Differences between Academic Freedom Categories.

No.	Dimension	Country	AM	Professor	Associate Professor
1	Academic Freedom	Professor	30.8466		1.39020*
		Associate Professor	29.3062		
		Assistant Professor	28.9888	2.01492*	
2	University Vision	Professor	32.3129		
		Associate Professor	30.7512		
		Assistant Professor	31.5169		1.37457*
3	Organizational Culture and Prevailing Climate	Professor	40.7975		
		Associate Professor	36.6507		
		Assistant Professor	35.0337	5.84115*	3.60232*
4	Research Focus and Planning	Professor	32.3681		4.99081*
		Associate Professor	30.2584		
		Assistant Professor	25.4607	7.19924*	2.20843*
5	Intellectual Property Rights and Research Commercialization	Professor	31.4969		1.36628*
		Associate Professor	30.0813		
		Assistant Professor	28.5225	2.80221*	1.43592*
6	Financial Resources for Scientific Research	Professor	28.3681		.90423*
		Associate Professor	26.8708		
		Assistant Professor	25.9944	2.74043*	1.83620*
	Total	Total	227.4110		9.76854*
		Associate Professor	214.5120		
		Assistant Professor	206.1629	21.90632*	12.13778*

As shown in Table (14), there are statistically significant differences in the dimensions of "academic freedom, research focus and planning, intellectual property rights and research commercialization, financial resources for scientific research and the total value" between the category "professor" on the one hand and between the two categories "associate professor and assistant professor" on the other hand, in favor of the category "professor". Also, there are statistically significant differences in the dimension of "organizational culture and prevailing climate" between the category "professor" and the category "assistant professor" in favor of the category "professor", while there are differences between the category "associate professor" and the category "assistant professor" in favor of the category "associate professor".

There are also statistically significant differences in the dimension of "intellectual property rights and research commercialzation, financial resources for scientific research and the total value" between the categories "associate professor" and the category "assistant professor" in favor of the category "associate professor". These results may be explained by the fact that the higher academic rank can monitore the reality of the requirements for transforming Arab universities into research universities, and this is elucidated by the great research experience possessed by those with the highest rank. They may also be aware of university rankings, funded research projects, and research awards. There are also statistically significant differences in the dimension of "university vision, intellectual property rights and research commercialzation" between the "professor category and the assistant professor" category in favor of the "assistant professor" category.

This result may be explained by the fact that the lower academic rank are active and work in quality and accreditation, or they may have obtained degrees from abroad and gained experience with research commercialization there. This result is consistent with the results of Al-Mutairi's study (2012), which show statistically significant differences between the means of the research sample's responses due to the academic rank variable.

To find out differences between the means regarding the availability of requirements for transforming Arab universities into research universities from the sample's perspective due to the number of years of experience variable, the F-test is used for a One-Way Analysis of Variance (ANOVA) between several groups for the research sample. Tables (15) and (16) illustrate those results.

Table 15: Results of the F-Test for Differences between the Means of the Response of the Research Sample According to the Academic Rank Variable.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Academic Freedom	Between Groups	265.474	2	132.737	9.275	.000
	Within Groups	7827.946	547	14.311		
	Total	8093.420	549			
University Vision	Between Groups	197.966	2	98.983	5.431	.005
	Within Groups	9968.732	547	18.224		
	Total	10166.698	549			
Organizational Culture and Prevailing Climate	Between Groups	2729.900	2	1364.950	62.857	.000
	Within Groups	11878.253	547	21.715		
	Total	14608.153	549			
Research Focus and Planning	Between Groups	4417.370	2	2208.685	138.670	.000
	Within Groups	8712.405	547	15.928		
	Total	13129.775	549			
Intellectual Property Rights and Research Commercialization	Between Groups	682.018	2	341.009	21.660	.000
	Within Groups	8611.975	547	15.744		
	Total	9293.993	549			
Research Agreements and Partnerships	Between Groups	20.149	2	10.075	.635	.530
	Within Groups	8673.044	547	15.856		
	Total	8693.193	549			
Financial Resources for Scientific Research	Between Groups	655.138	2	327.569	24.027	.000
	Within Groups	7457.337	547	13.633		
	Total	8112.475	549			
Total	Between Groups	36106.798	2	18053.399	115.350	.000
	Within Groups	85611.013	547	156.510		
	Total	121717.811	549			

As shown in Table (15), there are no statistically significant differences between the means of the sample responses due to the country variable in the dimension "research agreements and partnerships", which means that the research sample members agree on this dimension. However, there are statistically significant differences between the means of the research sample's responses at the significance level of (0.01) in the dimension "university vision" and at (0.001) in the rest of the dimensions, as well as in the total value, which means a difference in the point of view of the research sample members in evaluating those dimensions. To determine the direction of the differences in favor of any of the countries, the Scheffé's test is used. Table (16) illustrates the results.

Table 16: Results of the Scheffé's Test for the Direction of Differences between the Numbers of Years of Experience Categories.

No.	Dimension	Country	AM	Less Than 20 Years	From 20 to Less Than 30 Years
1	Academic Freedom	Less Than 20 Years	28.8901		
		From 20 to Less than 30 Years	29.7287		
		30 Years and Above	30.8214	1.93138*	1.09268*
2	University Vision	Less Than 20 Years	31.4974		
		From 20 to Less than 30 Years	30.9433		
		30 Years and Above	32.5446		1.60132*
3	Organizational Culture and Prevailing Climate	Less Than 20 Years	34.7644		
		From 20 to Less than 30 Years	37.7530		
		30 Years and Above	40.9018	6.13739*	3.14875*
4	Research Focus and Planning	Less Than 20 Years	25.5707		5.16616*
		From 20 to Less than 30 Years	30.7368		
		30 Years and Above	32.6429		1.90602*
5	Intellectual Property Rights and Research Commercialization	Less Than 20 Years	28.6597		
		From 20 to Less than 30 Years	30.2591		
		30 Years and Above	31.6964	3.03674*	1.43732*
6	Financial Resources for Scientific Research	Less Than 20 Years	26.0419		
		From 20 to Less than 30 Years	26.8745		
		30 Years and Above	29.0625	3.02062*	2.18801*
	Total	Less Than 20 Years	206.0576		11.24605*
		From 20 to Less than 30 Years	217.3036		
		30 Years and Above	228.2768	22.21919*	10.97314*

As shown in Table (16), there are statistically significant differences in the dimension of "academic freedom, organizational culture and prevailing climate, intellectual property rights

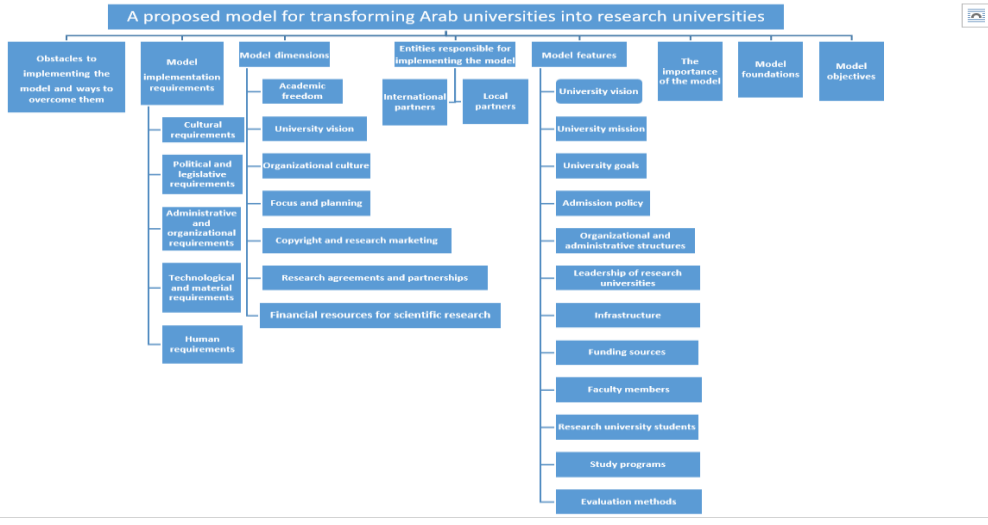
and research commercialization, financial resources for scientific research, and the total value" between the group "30 years and above" from one hand and the category "less than 30 years" and the category "from 20 to less than 30 years" on the other hand, in favor of the category "30 years and above". There are also statistically significant differences in the dimension of "university vision" between the group "30 years and above" and the group "from 20 to less than 30 years" in favor of the group "30 years and above". There are also statistically significant differences in the dimension "research focus and planning and the total value" between the category "less than 20 years" and the category "from 20 to less than 30 years" in favor of the category "from 20 to less than 30 years".

These results indicate that number of years of experience have a significant impact on the research sample's responses regarding the requirements for transforming Arab universities into research universities, which increase the research sample's awareness of the importance of research universities for developing knowledge and achieving investment in human capital and the progress and well-being of society. This result may be due to the research sample's completion of a large number of scientific research, their participation in research projects, and their research maturity. This result is consistent with the results of Al-Mutairi's study (2012), which show statistically significant differences between the means of the research sample's responses due to the number of years of experience variable.

Results and Dicussion Related to the Third Research Question

What is the proposed model for transforming Arab universities into research-intensive universities?

To answer this question, the following model for transforming Arab universities into research-intensive universitie is proposed using the previous literature review, the theoretical framework, experts' opinions, scientific sources and studies related to research universities, and the research results.



First: Proposed Model Objectives

The proposed model objectives are reflected in increasing awareness of the importance of the research University for its role in developing creativity among students and researchers,

contributing to achieving technological, economic, social and scientific development and directing the attention of those responsible for education in Arab countries in general and university education in particular to the role of research universities in developing university education and raising the level of university classification to the global level.

Other key objectives include providing some proposals for establishing a research university, including vision, mission, goals, funding sources, faculty members, educational process, study programs, and student evaluation, keeping pace with modern developments in the world that depend on the production of knowledge and technology and directing the attention of all concerned towards carrying out their responsibilities towards establishing a research university in the Arab countries, increasing research capabilities and raising the quality of research services and the level of social welfare, and determining the requirements for transforming Arab universities into research universities to achieve the knowledge society and the local and global market economies.

Second: Proposed Model Foundations

There are a set of foundations on which the proposed model of the research university is based, such as classifying the countries of the world into three sections: countries that have reached the pinnacle of scientific and technological progress, countries that are influenced by progress and development and have transferred the experiences of developed countries and are trying to reach progress, and other countries dazzled by the superiority of others and troubled with technological backwardness, as these countries will not be able to achieve mobility and strive to be advanced except through scientific research achieved by research universities with their intellectual and technical production. Other foundations are reflected in the increasing international trend towards research universities, which are the foundation and first building block for supporting the process of scientific research and technological development, and achieving comprehensive development of societies.

Contemporary economic, social, cultural and technological changes also emphasize the importance of the role of research universities in producing, developing and disseminating specialized scientific knowledge by conducting scientific and technological research and preparing distinguished cadres of scientists and researchers to contribute to solving local and global problems, facing the challenges of the times, and possessing the ability to control the future. Other important points include the need to create a conscious generation that believes in science and adopts it as a basis to bring about radical changes in aspects of knowledge and its development contributes to placing the university at the heart of successive developments and changes and seeks to launch it towards global competitiveness.

The reality of scientific research in Arab countries is modest and suffers from the absence of an effective system for scientific research, weak infrastructure, and lack of connection between it and addressing societal problems. Therefore, the need for a research university is imperative to provide appropriate solutions to problems, combine education and scientific research, and accelerate the development process.

Third: Proposed Model Significance

The research university is no longer an academic luxury that countries resort to to achieve institutional excellence. Rather, it has become an urgent necessity to eliminate society's problems, shape its future, and achieve sustainable development. Therefore, the significance of the proposed model is reflected in attracting the attention of those responsible for university

education to the significance of research universities at the local, regional and global levels, and their role in encouraging and advancing the movement of scientific research, which is one of the indicators of the progress and advancement of countries and educating all concerned about the university's research specifications and ways to ensure it achieves its goals, quality, and leadership for the present and future of countries.

Other key points relating to the significance of the proposed model is shown in enhancing the state of satisfaction among supporters of research universities who realize the importance of supporting this type of university by formulating an integrated system for the university's work methodology, enlightening community leaders about the university's research requirements in terms of human, material, technological, and other resources, in order to strive to take measures to meet those requirements and provide the appropriate environment, which is the correct beginning for establishing the research university in the Arab countries, keeping pace with world-class research universities, and establishing a culture of scientific research among all concerned.

Fourth: Proposed Model Features for Establishing Research-Intensive Universities

The features of the proposed model of the research-intensive university can be as follows:

1- The Research University Vision

It is essential to have a clear vision for the Arab Research University that stems from local and global challenges, and the desire to improve and develop reality and create the future. Therefore, the vision of the Arab Research University can be defined as a distinguished educational and research university that is a regional and global leader in education and scientific research at a global level, stimulates creativity, and disseminates knowledge and its applications to build a knowledge society that is a source of creative minds and a beacon for scientific research, knowledge production, and technical progress.

2- The Research University Mission

The Arab Research University seeks to provide an educational and research environment that works to develop and expand innovative research, produce knowledge, stimulate creativity, prepare qualified graduates with high competence, and produce distinguished research globally by expanding local, regional and international partnerships in research and with industrial institutions, government and academic institutions. It also encourages creative thinking, developing innovations, and forming a global network of competencies and cultures to shift towards a knowledge economy, support excellence, and create a pioneering learning environment based on cooperative learning and keeping pace with modern changes. Moreover, it supports diversity and research cooperation among students, researchers and faculty members, and strengthening partnerships in the field of research, whether inside or outside the university. Likewise, it provides an advanced technical environment that seeks to empower researchers and provide academic freedom for all concerned, strengthen the protection, transfer and market of intellectual property and develop links with economic institutions.

3. The Research University Objectives

Research universities have become a necessity that imposes itself as an educational institution in the knowledge era to prepare individuals capable of leading the future, meeting its current

and future needs, and achieving communication with relevant institutions, as the university's research objectives are derived from the nature of Arab society, its philosophy, and its current and future aspirations. Among these key objectives are preparing competencies that possess thinking and creativity skills and contribute to meeting current and future development requirements, adding production, localization and transfer of modern technology, and participation in its development in a way that suits development purposes, providing scientific and practical solutions to community problems, and advice to community institutions, transferring knowledge and technologies and marketing scientific and technical outputs to society to change them into projects that contribute to building a knowledge-based economy, establishing a culture of scientific research, self-learning and continuing education, in order to achieve comprehensive development of society at the present and future and build a generation of creative researchers and scientists capable of contributing to creating a knowledge society, and developing scientific creativity and achieving scientific freedom and free and creative communication between the administration, faculty members and students using modern and advanced technological methods.

Other key objectives include providing an environment that encourages freedom of thinking and intellectual and creative production to achieve the university's competitive advantage locally, regionally and internationally and provide the highest forms of scientific knowledge using the latest technological means in the modern world, increasing cooperation, interconnection and partnership between the university and community institutions in various sectors locally, regionally and globally, achieving international standards in educational, research and training activities to meet current and future labor market requirements, and expanding study programs to meet the ongoing changes in the world and creating a supportive environment for conducting world-class research to address the changing problems of the local and global community. Achieving the previous goals requires the necessity of having an insightful vision for those goals and recognizing the requirements for achieving each goal, which are vision, commitment, desire for change, and providing a high-quality educational environment in order to lead to the making of cognitive progress, creativity, and innovation.

4. Admission and Study Requirements Policy

To select the best elements to move towards internationalism, excellence and leadership, several features of the admission policy are set. The following are required for admission to the university's research programs:

The student must obtain a high school diploma or its equivalent with a grade of no less than 95%.

- The student must obtain a score of no less than (79) on the TOEFL Internet test, or (6) on the International English Language Testing System (IELTS) as a minimum, before the application for admission is considered.

The student submits a letter explaining his or her research and study interests, in addition to their plans for the future, and proving actual ability to study academically, and leadership potential.

The students must submit a letter of recommendation from the school stating that this student is qualified to attend the research university based on his research experiences at the school.

The student must obtain the International Computer Driving License (ICDL).

The student must pass an educational competency test to measure their ability to advance at the research university.

The student must pass an aptitude test in science and mathematics prepared by a specialized body, such as Zewail University of Science and Technology.

The same conditions apply when enrolling in postgraduate studies, with the addition of the following conditions: The student submits a letter of recommendation from three faculty members on the student's merit to enroll in graduate studies at the research university, obtains a very good grade in at least a bachelor's degree, and a student applying for admission to scientific colleges; engineering, science, and medicine must obtain at least 95% in mathematics, physics and chemistry courses. At the same context, anyone who meets the conditions applies for admission through the research university's website, filling out all the required data accurately and honestly, and the student bears all consequences for any error. Some requirements can be added according to the specialization, such as setting up some compulsory foundational courses, core courses for each specialization, specialized courses, and elective courses. Students who do not obtain 75% of the total grades should be removed and transferred to other colleges.

5. Organizational and Administrative Structures in Research Universities

The idea of the research university is to be affiliated in its administration to the Association of Arab Universities. The organizational and administrative structure consists of the Board of Trustees, the University President, the University Council, the Council of Scientific Affairs and Scientific Research, and the various administrative departments, with rules and competencies set for each of them.

6. University Leadership

Leadership forms the focus of the integrated system of research universities, as research universities need enthusiastic and visionary administrative leadership that believes in and encourages scientific research, is able to form work teams and research groups, seeks to provide an appropriate academic and technical environment, and concludes agreements with research and production institutions inside and outside the country. The leadership in research universities adopts a policy of attracting qualified human resources from all over the world while achieving more independence in university management, whether at the level of colleges, departments, or various departments, and paying attention to establishing bridges of cooperation with individuals and institutions at the local, regional, and global levels.

The university leadership system should also include the following:

The presence of a university board of trustees of distinguished local and international scientific figures with competence and interest in achieving the university's objectives, and the presence of a qualified, understanding and cooperative university council to achieve the university's research objectives. It is elected for a number of years, and its duties include drawing up the university's general policy to achieve its goals, following up on the university's performance, developing its resources and updating its performance, exchanging experiences and cooperating with local, regional and international universities, in addition to the Council's duties at any other university.

The presence of an administrative structure that meets the university's research requirements and its current and future burdens, and that the university must have a clear administrative system in accordance with modern global trends.

Adopting various training programs to raise the efficiency of all human resources and develop their skills.

Selecting university leaders based on their administrative and research experience, and their ability to attract funds and market research.

Leadership commitment to the participation of employees in all administrative processes at the university, possessing the skills of leading a research team and advanced technical competence, possessing the ability to be creative, and creating a stimulating work environment based on rewarding creative works, adopting new ideas, and encouraging dialogue and brainstorming.

Leadership must have the ability to unleash the giving energies of employees, respect their individual initiatives, and establish a culture of scientific research in service and production institutions.

Leadership must be capable of creative practices related to scientific research and the application and implementation of modern developments in scientific research in accordance with the era of technological progress.

The leadership should be aware of the most important technical, social, economic and environmental issues related to them and the role of scientific research towards them.
The leadership's adoption of modern administrative methods, such as managing work teams and managing change to reduce employees' resistance to implementing new ideas, developing their scientific research capabilities and competencies, and planning process to develop the university to be continuous and participatory.

7. Infrastructure for the Research University

A set of necessary requirements represents the infrastructure of the research university characterized by distinguished, creative, and highly qualified human resources at all levels: leadership, faculty members, researchers, students, workers, and technicians. Human resources must have the ability to deal with modern technologies, as well as physical resources, buildings, halls, and advanced educational and research laboratories, as all are connected to an internal LAN. The university is also connected to the international information network, as well as the availability of modern laboratories and training halls that contain the latest international technologies. The university must also have educational resources, equipment, and tools, modern and advanced digital library, as well as advanced databases, in addition to the availability of financial resources, government financial support, and financial resources from popular participation. There must be some kind of integration between all the previous elements so that the university's research objectives can be achieved efficiently and effectively, enabling it to compete locally, regionally, and globally, as the potential of the Nile University and Zewail City can be used as a starting point to establish the university.

8. Sources of Funding the Research University

Distinguished scientific research is a tool for community development and a means of creating its renaissance with its thinking and creative minds that create change. This distinguished

research requires the availability of the necessary financial resources, as funding is one of the most important requirements of the research university to provide resources and capabilities, reduce problems and raise the level of performance. Funding for the research university can be provided from several sources such as establishing a fund to provide a stable financial cover for the university whose resources come from some taxes on public and private companies and institutions, and increasing the contribution percentage of these institutions according to the size of capital or profits, obtaining support from some international organizations by concluding partnership agreements to conduct research to develop some fields or treat some diseases, gaining government grants to support some research that addresses some diseases or societal problems, and opening the way for popular participation in endowment financing, donations, donations, and grants.

Other key sources of funding the research university consist of obtaining some resources from providing direct services to students, community members and institutions, attaining some resources by establishing an office at the university to assist small business companies in some work, such as providing feasibility studies and marketing, in exchange for certain fees, establishing a start-up business incubation department at the university to provide support and services for businesses at their start, such as financing and business planning, as this department receives funding from the Ministry of Social Solidarity or the Social Fund for Development, and motivating banks to finance the research university and spend on research on the basis that this is a long-term investment by allocating a small percentage of profits to the university. There should also be a plan to secure financial resources to ensure the continuation of university activities - from previous resources - as well as a plan to control spending and use of resources.

9. Faculty Members at Research Universities

No matter how much potential the university has, it will not achieve progress in scientific research unless bright human cadres and knowledge-producing minds are available, as faculty members play an important and vital role in achieving the university's research goals. It is necessary to select distinguished people who possess vision and high research skills, distinguished thought, the ability to work and achieve, scientific and cultural qualifications and sufficient experience, and therefore the research university seeks to attract the best innovative, active and distinguished faculty members at the global level. The research university's faculty members should also have several elements such as the experience in supervision and the ability to provide support for research from outside the university, a distinguished CV, the availability of an appropriate number of qualified faculty members to work at the research university, the ability to employ technology in education and use various strategies to facilitate the teaching and learning process, and the permanent strive for professional development by enrolling in specialized, cultural, and other training programs.

Some of the personal traits and distinctive characteristics of faculty members are physical, mental, emotional, and social, which are curiosity and passion for knowledge, quick wit and observational power, critical analytical thought, mental flexibility and broad-mindedness, perseverance and impartiality, the ability to work collaboratively, and curiosity toward knowledge, where he or she is open to everyone, questions and dialogues, has authority that to rely on, and has a scientific and global vision. The faculty member excels in general culture, has a presence in the scientific community that influences and is influenced by it, and is a distinguished follower of conferences and seminars.

10. Research University Students

The research university requires the best students, scientifically and culturally, who possess scientific research skills, are able to be creative, produce knowledge, and comprehend scientific methods and techniques. Therefore, the research university seeks to attract the best talented and qualified students. There are some requirements that must be met by research university students:

The ability to criticize ideas and prove idea, and have scientific honesty.

Curiosity and a constant desire to learn, research, and investigate.

Boldness, intelligence, intuition, patience, deliberation, endurance, and objectivity.

To be broad-minded, meaning to accept the thought of others, not to be fanatical about a particular idea, and to avoid wrong interpretations.

Multiple and diverse interests, curiosity, knowledge, and leadership ability.

Speed in learning, ability to tolerate ambiguity and deal with abstract ideas.

High ability to see relationships between ideas and topics.

Speed and flexibility in the thinking process, and a high ability to comprehensively process information.

The ability to control and adjust internally and predict and care about the future.

To have a rich knowledge base, and a love of dealing with complex tasks and challenges.

Possessing effective communication skills, a fertile imagination and the power of observation.

The innate inclination towards knowledge means not being interested in learning, while mastering a language other than his original language.

It is worth noting that facilitating the process of the influx of outstanding foreign students - internationalization - plays an effective role in developing the academic level among students, and enriching students' expertise and experiences through multiculturalism. This internationalization is also one of the factors accelerating the transformation of universities into international universities and giving universities a prestigious position and competitive ability with international universities.

11. Academic Programs in the Research University

The research university seeks to achieve leadership in scientific research and community service. Therefore, it is necessary for the academic study programs at the research university to be diversified to include many modern and advanced specializations that keep pace with the times and are based on the use of modern technology and global techniques.

12. Evaluation Methods in in the Research University

Traditional assessment methods are no longer able to keep pace with global changes such as a knowledge explosion and a scientific and technological revolution. Therefore, it is necessary for a research university to use a realistic assessment method, which is student-centered and

immersed in tasks that are valuable and meaningful to him or her. They appear as learning activities and not as tests, in which the student practices higher-order thinking skills and combines a wide range of knowledge to formulate stories, make a decision, or solve the real-life problems he or she lives. Thus, they develop the ability to reflective thinking, which helps them process, criticize, and analyze information, as it strengthens the link between teaching and learning, and the defects of traditional tests that are concerned with memorization disappear. Realistic assessment includes several types, including: Performance-based Assessment, Reflection Asseaament Strategy, Communication Assessment Strategy, and Observation Assessment Strategy (Asiri, 2017).

Fifth: Entities Responsible for Implementing the Arab University Research Model

Implementing the model requires the presence of a group of partners to support the implementation of the proposed model, including the following:

A- Local partners: the Ministry of Education, universities, research centers, specialized bodies and centers such as quality assurance and accreditation bodies, centers of creativity and talent, civil society institutions and the private sector, intellectuals, businessmen, media institutions, and others.

B- International partners: Association of Arab Universities, United Nations Educational, Scientific and Cultural Organization (UNESCO), World Health Organization (WHO), International Labor Organization (ILO), and other related ones.

Sixth: Proposed Model Dimensions

The proposed model includes several key dimensions. They can be read as follows:

1. Academic Freedom: There are many mechanisms to actually activate it in research universities in Arab countries, including the freedom to publish scientifically in internationally classified journals, encouraging freedom of opinion and discussion, commitment to applying the principles of academic freedom at the university, and boosting creativity among faculty members.

2. The university Vision: The mechanisms for its activation are that there is a real direction for the university to transform into a research university. The vision shall focus on science and technology, has an innovative research focus, seeks to meet international standards for research universities, and attracts international students, and improves university positions in International Rankings.

3. Organizational Culture and the Prevailing Climate: The mechanisms for activating it are represented by the presence of a flexible administrative organizational structure that meets the university's research requirements and its current and future burdens, continue to communicate with distinguished scientific competencies, spread the values of excellence, creativity and innovation, develop loyalty to the university, and provide financial and moral incentives for excellence and creativity.

4. Research Focus and Planning: It is to developing an approved research strategic plan, planning to develop research performance, and achieving a balance between basic and applied scientific research.

5. Intellectual Property Rights and Research Commercialization: The mechanisms for activating them include marketing the university's production of innovations, building good

relations with industrial and production institutions, preserving the intellectual property rights of university employees, establishing a specialized unit to protect intellectual property rights, and preserving shareholders' rights.

6. Research Agreements and Partnerships: The mechanisms for activating them are to conclude research partnerships with major international universities, benefit from their expertise, and be open to global experiences, whether Arab, regional or global, establish a fund to finance research universities from the revenues and donations of companies and factories, develop laws to facilitate the university's establishment of companies and benefiting from the generated returns.

7. Financial Resources for Scientific Research: The mechanisms for activating them are to provide various funding sources that ensure the progress of work at the research university, such as research endowments, self-financing, and providing a set of material and moral incentives to researchers to ensure that they devote themselves to carrying out research and creativity in it, providing the necessary infrastructure, facilities, laboratories, and libraries to establish research universities.

Seventh: Requirements for Implementing the Proposed Model

Iimplementing this proposed model and turning it into a reality that can be applied practically in Arab societies requires considering the following requirements.

a. Cultural requirements: This includes adopting the model and applying it by Arab countries, and spreading the university's research culture.
b. Political and legislative requirements: This includes issuing legislation that allows the establishment of a research university based on partnership with universities in Arab countries, and regional and international institutions.
c. Administrative and organizational requirements: This includes having the trend towards flexible and innovative organizations with the use of smart tools in administrative and organizational work, building broad partnerships with universities in all Arab countries, establishing flexible regulations, laws and organizational structures, and building sustainable relationships with various community institutions.
d. Technological and material requirements: This includes finding various sources of funding, such as contributions from local, regional and international institutions, establishing an electronic network linking the research university and higher education institutions in Arab countries that is characterized by flexibility and speed, seeking funding from productive and community institutions, and allocating financial incentives to creators and innovators.
e. Human requirements: This includes attracting international research expertise, creative cadres of faculty members, distinguished administrative competencies, and providing researchers with the opportunity to communicate with their counterparts in international research universities.

Eighth: Obstacles to Implementing the Proposed Model and Methods to Confront them

a. The absence of a clear strategy for establishing an Arab research university. This obstacle can be overcome through the availability of political and societal support for the idea of a research university.
b. The lack of appropriate financial support. This obstacle can be overcome by building a positive culture supportive of the university's implementation of research, and spreading awareness of the culture of scientific research among all concerned.

c. The shortage of setting clear and specific criteria for admission to a research university. This deficiency can be avoided by reviewing the experiences of developed countries and benefiting from them.
d. The weak cooperation between concerned parties in Arab countries. This can be confronted by considering the research university as a national project around which all political, economic, social, cultural and educational forces of society unite.
e. The lack of a strong information base on the quality of research in Arab countries. This can be addressed by seeking the help of creative experts to prepare information bases based on the needs and requirements of the labor market.
f. The lack of awareness of research universities and their role in achieving societal well-being. This can be avoided by holding many conferences, seminars and lectures to raise awareness of the research university, its goals and outcomes, building a positive culture that supports the implementation of the research university, and spreading awareness of the culture of scientific research among all concerned.

9. Conclusion

In a nutshell, the current research paper develops a proposed model for transforming Arab universities into research-intensive universities. The findings indicate a high degree of availability of the requirements for academic freedom and university vision, and the medium degree of availability of the remaining requirements. The results show statistically significant differences among the means of the research sample's responses regarding the degree of availability of Arab universities' requirements for research universities due to country variables, academic rank, and number of years of experience in all aspects except research agreements and partnerships. Given the results, the research study concludes with developing a proposed model to transform Arab universities into research universities that includes the university's vision, mission, objectives, admission policy, university leadership, infrastructure, funding sources, faculty members, students, and evaluation methods.

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