The Reality Of Technological Business Incubators In Enhancing The Dimensions Of Competitiveness At The University Of Hail

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Abstract

The study aimed to identify the reality of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail in the city of Hail. As well as to identify the obstacles facing these incubators, and also aimed to reveal the extent of statistically significant differences between the average responses of the sample members about the role of technological business incubators in enhancing the dimensions of competitiveness due to the following variables: (gender, type of college (theoretical - applied), academic rank, years of experience), the study used the descriptive survey method, and relied on the questionnaire as a study tool applied to a sample of faculty members at the University of Hail. Their number is (525) faculty members, according to the statistics of Hail University for the year 1441 AH.

Among the most important findings of the study are the following:

1. It turned out that the responses of the study members on the axis of "the role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail" came with a "weak" approval degree, as the overall average for the axis was (2.60 out of 5), and the study's approval came on the dimension of "promoting flexibility" In the first place, with an average of (2.63 out of 5), with a “medium” degree of approval, while it came after “Promoting creativity and innovation” in the fourth and last place, with an average of (2.58 out of 5), with a “weak” degree of approval.

2. It turned out that the responses of the study members to the paragraphs of the axis of "obstacles facing technological business incubators in enhancing the dimensions of competitiveness at the University of Hail," the degree of agreement ranged between (weak / medium), as their arithmetic averages ranged from (2.52 to 2.68), and these averages indicate To the degree of agreement between (weak / medium) for the study tool, and the general average of the study members’ responses to the axis phrases reached (2.60 degrees out of 5), and this average indicates a (weak) degree of agreement.

It turned out that there were statistically significant differences at the significance level (0.05) between the responses of the study sample members about the role of technological business incubators in enhancing the dimensions of competitiveness due to the gender variable only in favor of males, where the significance level reached (0.04) which is less than the significance level (0.05).

Chapter one: the general framework of the study
Introduction:

University education has become one of the elements of economic, technological and social progress, the main engine for the renaissance of nations, and the means for societies to occupy a position among the developed countries. Hence, the real competition that is taking place now among the countries of the world is the competition in the development of education in general and university education in particular.

Universities in developed countries have given special attention to scientific research and development; Because of its essential role in the process of transferring, innovating and developing technology in it, by providing the appropriate practical environment in which practical research can grow and flourish, and for this purpose funds have been allocated to provide the devices, laboratories, equipment and libraries needed by researchers in their different specialties, and the Department of Scientific Research is a stone The basis on which scientific research is based (Hassan, 2018AD, 59).

One of the most important processes of innovation and technology development in universities is the idea of business incubators, as a study indicated that business incubators are an industry that provides all the assistance required for the development and development of investments and businesses and their progress towards success and independence for everyone who has the spirit of initiative and innovation and providing them with all facilities and services. Promote entrepreneurship and support small entrepreneurial institutions to face the difficulties of the launch stage. Incubators also have a role in helping graduates of universities and higher institutes establish their institutions, and help researchers move the results of their research from the stage of laboratory innovation to the stage of commercial promotion of the results of their research (Al-Bash, 2019).

Therefore, this study came through which the researcher is trying to identify the reality of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail, which is represented in creativity, innovation, competitiveness, flexibility, quality and quality, which lies in the importance of incubators at the present time in making a shift in all economic and development levels to achieve real growth The region in general and the Kingdom of Saudi Arabia in particular.

Study Problem:

The ability of universities to succeed is determined by their ability to deal with modern variables positively and effectively. Planning to reach competitiveness and the requirements for achieving it has become an original and not a complementary or optional work before universities in light of the emergence of modern concepts, including competitiveness, and competitiveness in the context of educational institutions is not pure competition. Rather, it is a mixture of traditional academic competition and new competition in the market (Abdel-Al, 2018AD, 143).

Believing in the importance of enhancing the competitiveness of Saudi universities, the Kingdom’s Vision 2030 affirmed among its objectives that in pursuit of an education that contributes to advancing the economy, “we will aim for at least five Saudi universities to become among the best (200) international universities by around the year (1452 AH-2030 AD) (Vision Saudi Arabia 2030, 40).
Based on what was confirmed by recent literature, and the findings of studies regarding the lack of interest in technological business incubators and their role in enhancing competitiveness in Saudi universities, this study came through which the researcher tries to answer the study questions about the reality of technological business incubators in enhancing the dimensions of competitiveness from the point of view of View of the faculty members at the University of Hail.

**Study aim:**

The study sought to achieve the following objectives:

1. Identifying the role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail.
2. Identifying the obstacles facing the role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail.
3. Revealing the extent to which there are statistically significant differences between the average responses of the sample members about the role of technological business incubators in enhancing competitiveness due to the following variables: (gender, type of college (theoretical - applied), academic rank, years of experience).

**Study question:**

The current study sought to answer the following questions:

1. What is the role of technological business incubators in enhancing competitiveness at the University of Hail?
2. What are the obstacles facing the role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail?
3. Are there statistically significant differences between the average responses of the sample members about the role of technological business incubators in enhancing competitiveness due to the following variables: (gender, type of college (theoretical - applied), academic rank, years of experience)?

**Study significance:**

**First: the scientific importance (Theoretical):**

1. This study derives its importance - to the researcher's knowledge - from the recent issue of technological business incubators, and considering it one of the most prominent topics that contribute to developing the performance of institutions.
2. Its importance stems from the compatibility of the subject of the study with management trends in the era of modernization and administrative development.
3. In response to the vision of the Kingdom of Saudi Arabia 2030, which seeks to achieve a competitive advantage for Saudi universities.
4. Enriching the Saudi and Arabic library in recent studies of this kind and on this particular subject.

**Second, the practical importance (Applied):**

1. The current study aspired to present a proposed scenario that would help decision makers and leaders in universities to develop the idea of technological business incubators.
2. It is hoped that the current study will contribute to enlightening decision-makers in the Ministry of Higher Education about the need for universities to possess the dimensions of competitiveness, and the proposed development mechanisms for their performance in accordance with these dimensions.

**Terminology of study:**

Technological business incubators:

**Authoritative:** It is an integrated system that encourages the creative ideas of pioneers, whether an individual or a group of scientific and academic researchers, and transforms them into successful projects by providing technical, administrative, production, marketing, financial, legal and technical advisory services for new projects (Ahmed, 2015 AD, 298).

**Procedurally:** It is defined as the efforts made by the University of Hail, which focus on sponsoring and developing creative ideas and applied research, and helping researchers to benefit from the results of the research they carry out from the stage of laboratory work to the stage of practical application with the aim of commercial production, through the establishment of a new project, and is interested in providing technical services, financial, administrative, technical and marketing for new projects.

**Competitive Advantage:**

**Authoritative:** It is “the ability to excel in vital areas such as study programs, teachers, halls, study equipment, management style and quality system, as well as creating new methods and methods that keep pace with environmental developments to improve the external efficiency of the educational process” (Mustafa, 2013 AD, 128).

**Procedurally:** It is the ability of universities to employ their available resources in achieving educational, research and societal outcomes that exceed the expectations of their clients, by enhancing the dimensions of competitiveness - quality, quality, flexibility, cost, creativity and innovation - and achieving success at the local and scientific levels, and this is evident through many indicators on all Global, regional and local levels.

**The limitations of the study:**

- **Objective limits:** the current study was limited to identifying the role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail, which are as follows:
  - The role of technological business incubators in enhancing quality at the University of Hail.
  - The role of technological business incubators in enhancing flexibility at the University of Hail.
  - The role of technological business incubators in enhancing costs at the University of Hail.
  - The role of technological business incubators in promoting creativity and innovation at the University of Hail.

- **Human limits:** the current study included faculty members at the University of Hail, according to statistic 1442 AH.
Spatial boundaries: The current study was conducted on the University of Hail in the city of Hail and on the number of theoretical and applied (15) colleges.

Temporal limits: the current study was conducted in the second semester of the current academic year 1442 AH corresponding to 2021 AD.

Chapter Two
Background and literature review
The second chapter deals with the background of the study, which consists of two main themes, followed by literature review related to the topic of the study, as follows:

The first topic: Background:
Background included two main axes, the first is concerned with theoretical framing about technological business incubators in higher education, and the second is concerned with competitiveness among higher education institutions.

The first theme: Technology business incubators in higher education:
First: The concept of business incubators:
Scholars and researchers differed about defining the conceptual framework for business incubators. However, there are assurances that it is an integrated environment of facilities and mechanisms that provide support to entrepreneurs in managing, developing and nurturing their small projects for a limited period to ensure a greater chance of success (Lavrow & Sample, 2012, 11).

Business incubators are defined as institutions that work to support initiators, who have ambitious ideas, sound economic study, and some necessary resources to achieve their ambitions, so that they have an appropriate work environment during the critical first years of the project’s life, and increase the chance of success by completing the technical and administrative aspects at a nominal cost. He prompted the project owner to focus on the work situation and for you for a specific period, after which the relationship diminishes to turn into a new initiative (Al-Riyani, 2015AD, 16).

Business incubators are also known as an integrated work system that provides all means from a well-equipped and appropriate place, with all the capabilities required to start and develop the project.

- It was clear from the previous definitions of business incubators that:
- It is a development institution that provides a range of services (administrative-technical-financial) for the projects incubated within it.
- Creating an integrated work environment aimed at helping community development projects succeed and be sustainable.
- These incubators are managed by a central administration specialized in project management.
- It helps to provide strong community projects for the community that are able to continue and develop in the future.

Second: The importance of business incubators:
We can clarify the importance of business incubators through their expected strategic roles, which can be clarified in a number of points, including (Al-Kinzi, 2018, p. 48):

- Provides scientific advice and feasibility studies for emerging small and medium enterprises.
- Linking emerging and innovative projects to the productive sectors and market dynamics and requirements.
- Encourages unconventional and enterprising investors to set up their own companies which are described as venture capital or venture capital firms.

**Third: The objectives of business incubators:**

Universities need business incubators to provide the required services; With the aim of facilitating the process of marketing technologies and research results, by establishing start-up companies based on research and development, the National Organization for Business Incubators in the United States of America lists a number of main points in its description of the tasks and objectives carried out by business incubators in the following points, including (Bukhari, 2014 AD, 81):

- By supporting start-up companies in their early stages, the business incubator contributes to accelerating the growth of these companies.
- The business incubator provides the administrative services and resources needed by entrepreneurs.
- The incubator manager supervises the control and development of the services provided by the business incubator through the network of relationships it owns and in the business incubator.

**Fourth: Characteristics of business incubators:**

Business incubators have several characteristics that distinguish them from other agencies that support and support small projects, and the most important of these characteristics are the following (Hindi, 2018AD, 569):

- They may be public, private or mixed institutions.
- It supports small and medium enterprises by providing an integrated package of support mechanisms.
- Availability of support within a certain period until the project is removed from the incubator after reaching maturity.

**Fifth: Types of business incubators:**

The development in economic life has led to the emergence of many types of business incubators, based on the objectives related to these incubators, the services they provide, and the nature of the incubated projects, and among these types are the following (Dardkeh, 2015 AD, 581), (Abu Hamada, 2015 AD, 282):

- Industrial or technical (technological) incubators.
- Technology research incubators.
- Economic incubators.
- Multipurpose incubators (mixed).
Sixth: Conditions for the success of business incubators:

To ensure success in incubator projects, there are several conditions that must be met, including (Al-Masry, 2018 AD, 317-318):

- The necessity of having a consultant or manager for the incubator in order to create a stimulating and positive environment for the incubated institutions in which management, marketing and accounting skills are available, and to explore sudden changes and problems before they occur.
- Supporting the local community.
- Selection of incubator projects, which increases the chance of attracting successful ideas, and these criteria include: (presenting a detailed and renewable work plan - the ability to grow rapidly - presenting the project owner to invent a new idea).

Seventh: Business incubators' methods of work:

There are several steps to organizing the work of incubators, and they are represented in three steps (Ahmed, 2015 AD, 299-300):

**The first step:** It is divided into three stages:

- **The first stage:** begins with the study of the project and discussion through personal interviews between the incubator management and the applicants for their projects to ensure that the selection criteria apply to the beneficiaries and their projects.
- **The second stage:** The services needed by the project to be incubated and the possibility of providing these services are discussed.
- **The third stage:** studying the product's ability to succeed in marketing, and its ability to develop marketing plans for the future expansion of the project.

**Second Step:** The project starts in this step after the initial encouraging results from the previous step appear.

**The third step:** which represents the final stage that the organized project passes through to the incubator, and this stage usually begins about two to three years after the start of the project's activity.

Eighth: Services provided by business incubators:

The services provided by the incubator, which are directly related to the difficulties and obstacles facing small projects in the early years of their life, can be divided as follows (Hindi, 2018AD, 571):

- Consulting services.
- Administrative services.
- Public services.
Secretarial services.

**Ninth: Criteria for evaluating business incubators:**

The most important criteria for evaluating business incubators can be summarized in a number of points, including: (Bin Abdulaziz, 2018 AD, 109):

- The facilities available in the incubator and the site.
- The level of services in the institution, and the quality of the business network.
- Entry and exit criteria for projects.
- Good follow-up of projects.

**Tenth: Obstacles facing business incubators:**

Despite the economic effects that incubators may have, and the role they play in serving projects, institutions and individuals, they may encounter some obstacles that may reduce their effectiveness, or may affect their performance, and among these obstacles are the following (Al-Masry, 2018AD, 318):

- The incubator may sometimes face the problem of reliability that the incubated companies may pursue and their reliance on the incubator to carry out all the work of their projects.
- The incubator did not obtain all means of support from the local community to which it belongs, especially at the beginning of its establishment; This will negatively affect the nature and volume of services that can be provided and provided, especially the assistance related to financing, which is the cornerstone of both the incubator and the incubated projects.

**Eleventh: Obstacles facing business incubators in higher education institutions:**

Higher education institutions suffer from many obstacles that neutralize the role of incubators or reduce their effectiveness, if any, and these obstacles include the following:

- The low quality of graduation projects for students, especially in the early stages, the diploma and bachelor's stages, for example.
- Qualitative research from faculty members in institutions of higher education, which carries an addition or is capable of being transformed through incubators into projects or products, has decreased.

**Second Theme Competitiveness in Higher Education Institutions:**

**First: the concept of competitiveness:**

Competitiveness is defined in general as: the skill, technology, or distinguished resource that allows the organization to produce values and benefits for customers that exceed what competitors offer, and confirms its distinction and difference from these competitors from the point of view of customers who accept this difference and distinction as it brings them more benefits and values that outweigh the What others offer (Al-Salmi, 2001, p. 17).

**The concept of competitiveness in higher education:**
Defined as: the university's ability to provide a high-quality educational and research service; This reflects positively on the level of its graduates and faculty members; Which gives them capabilities and competitive advantages in the labor market at its various levels, and at the same time reflects the confidence of society in it; and then cooperating with it, and increasing the demand for students to join it; Thus, the desired goal is achieved so that the university becomes at the service of society, and society at the service of the university (Mustafa, 2002 AD, p. 15).

Second: The importance of competitiveness:

The importance of improving competitiveness in higher education institutions:

The importance of competitiveness is evident through the benefits it achieves, which can be clarified as follows (Hassan, 2018AD, 76):

- It leads to achieving and gaining a permanent and continuous comparative advantage in reducing production costs while maintaining that.
- It leads to gaining a permanent and continuous comparative advantage in raising and improving the quality of products.
- Providing everything new and stimulating the spirit of creation and creativity.
- Competitiveness depends on more than one strategy for competition, such as the strategy of discrimination, focus, or overall cost leadership.
- Recognize institutions that achieve a high competitive advantage and employ technology to their advantage and try to seize market opportunities.
- Competitiveness brings added value through its dependence on the value chain of the main and supporting activities within the sector in which it operates.

Third: Dimensions of Competitive Advantages in Higher Education Institutions:

The most important dimensions can be stated as follows (Al-Wadi and Al-Zoubi, 2011, p. 77):

1. Quality and competitive quality.
2. Competitive flexibility.
3. Competitive speed.
4. Creativity and competitive innovation.
5. Competitive advantage.

Fourth: Mechanisms for Building Competitiveness in the Field of Scientific Research in Higher Education Institutions:

The basis of any prosperity in the educational and scientific sectors is based on three pillars, as follows (Iebian, 2012, pp. 56-57):

1. Higher education.
2. Scientific research.
3. Production sectors.

Scientific research is one of the basic criteria for academic progress and advancement. Therefore, the majority of countries in the world have committed themselves to the need to strengthen and support scientific research and support all its institutions, especially institutions of higher
education, and set policies to encourage them; This is because of her conviction that higher education institutions are the main engine in the development process (Ibrahim, 2011, p. 201).

Fifth: Global competitiveness and its implications for the scientific research system among higher education institutions:

The reflection of competitiveness on the scientific research function in universities appears in two aspects:

1. Global competitiveness and its implications for the scientific research system in enhancing the competitiveness of the national economy.
2. Universities have shifted from traditional performance to performance based on knowledge and information technology (Al-Khalifa, 2014 AD, p. 22).

Sixth: The difficulties that educational institutions face in enhancing the dimensions of competitiveness:

The most prominent difficulties in enhancing the dimensions of competitiveness in educational institutions were represented in the following (Sulaiman, 2017AD, 32):

- Internal difficulties at the macro level.
- External difficulties at the micro level

Seventh: Competitiveness Building Strategy:

The strategies enable universities to achieve a competitive advantage through three different bases, which are called the general strategies of competition, and they are as follows (Shaaban, 2011, p. 65):

1. Cost leadership strategy.
2. Excellence strategy.
3. Focus strategy.

The role of business incubators in enhancing competitiveness:

- Business incubators help universities and educational institutions within which they work to contribute to achieving sustainable local development goals in the surrounding communities through a number of points, including (Jadallah, 2018 AD, 162):
- Embracing the creative and distinguished ideas of the university.
- Contribute to providing continuous opportunities for self-development of the university in order to develop its competitiveness.
- Ensuring effective utilization of the creative human resources that the university enjoys.
- Contribute to the creation of a knowledge-based society.

The second topic: (literature review)

The previous studies related to the topic of the current study were divided into three axes. The first axis dealt with local studies, the second axis dealt with Arab studies and the third axis was foreign studies, and they were presented in a chronological sequence from the oldest to the most recent.

First theme: Local Studies, including:
A study by Rashid (2013) entitled: “Small and Medium Industries Support Strategy in the Kingdom of Saudi Arabia with a Reference to the Experience of Iraq”.

The study aimed to clarify the role of small and medium enterprises in achieving economic development and enhancing the capabilities of sustainable ornamental products and raising the level of their ability to face similar products, whether international or local, especially in light of economic openness and rapid global developments. The study used the descriptive analytical method, and relied on the questionnaire as a tool for the study, and the study reached many results, most notably: The Kingdom of Saudi Arabia was able to support small and medium industries, and enhance their sustainable capabilities in order to face global competition, especially after Saudi Arabia's accession to the World Trade Organization, and the lack of information and difficulty in obtaining it contributed to isolating some factories from the market needs, whether local or foreign, and the low level of human resources efficiency in small projects and the lack of training centers to qualify them.

The second theme: Arabic studies, including:

Al-Fawaz study (2014 AD) “The role of business incubators in guiding students towards entrepreneurship in Jordanian universities”.

The study aimed to identify the role of university business incubators in directing students towards entrepreneurship, and the study also aimed to identify the level of tendencies towards entrepreneurship among students affiliated with business incubators in Jordanian universities. (174) of the study sample.

The study reached several results, the most important of which are:

- There is a high level of services provided by university business incubators in its two dimensions (the field of technical support and performance evaluation for employees, and the field of administrative and office services) for students affiliated with university business incubators in its two dimensions (financial, financial and marketing support, and the field of training and modern scientific consultancy in entrepreneurship).
- There is a high level of students’ inclinations towards entrepreneurship in university business incubators in Jordanian universities.
- There is an important impact of the role of university business incubators in directing students towards entrepreneurship in Jordanian universities.

The third theme: Foreign Studies, including:

Gregson & Cooper (2010) study entitled "Measuring the impact of the university incubator program on pilot projects by applying to the case of the Edinburgh pre-kindergarten program".

The study aimed to measure the impact of the university incubator program on the pilot projects by applying the case of the Edinburgh program before the nursery school. That EPIS does not fall within the classification of the existing incubator model, the criteria for selecting EPIS, supporting and directing regional activities and projects of interest in building regional entrepreneurial capacities, and performance databases indicated that EPIS provides good value for money by program participants, and the positive impact of the project on capabilities of
Various types, and provide knowledge, academic support and facilitation of the development process.

**Fourth theme: Commenting on previous studies:**

The researcher presented previous studies related to the subject of the study, which amounted to (11) studies during the time period (2009-2018 AD), and these studies dealt with business incubators in multiple ways. In addition to benefiting from these studies in several matters, as follows:

- **First: Aspects of the current study’s agreement with previous studies:** This study agrees with the literature review on the point of business incubators and their importance in higher education and the extent of the importance of studying this subject in background and applied.

- **Second: The differences between the study and the literature review:** In the light of the comparison between this study and the literature review, the differences are as follows:
  - Introducing a type of business incubator, which is technology incubators, and studying its impact on enhancing competitiveness in one of the Saudi universities as a model, which is the University of Hail.
  - Linking the concept of competitiveness in technology incubators, which is one of the most important types of incubators, widespread and growing on the global economic and academic levels in general.

**Third: Aspects of Benefit: In light of the literature review, the researcher has benefited from several aspects, including:**

- The current study made use of literature review when preparing and treating the theoretical framework, when building the study tool (the questionnaire), and the steps for its design.
- The current study also benefited from literature review when commenting on the results of the current study.

**Fourth: What distinguishes the current study:**

One of the most important features of this study is that it dealt with the following:

- Studying technological incubators and studying their impact on enhancing competitiveness in one of the Saudi universities as a model, which is the University of Hail.
- The novelty of the presented studies, as well as the originality of the study in terms of subject matter and application.
- The possibility of completing the study, expanding its sample, and setting a developmental framework for a doctoral thesis in this field.
- The importance of technological incubators in emerging universities such as the University of Hail and the extent of enhancing competitiveness in general between local and international universities.
Chapter three

Study methods and procedures

This chapter includes a description of the study methodology, the study population and its sample, an explanation of the study tool and how it is applied to the study sample. This chapter also includes the appropriate statistical treatments, as follows:

Study Methodology:

The study dealt with the Descriptive approach to the survey as being appropriate to the nature of research and achieving its objectives in order to identify the role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail, as well as identifying the obstacles facing technological business incubators in enhancing the dimensions of competitiveness at the University of Hail.

The descriptive approach is defined as an attempt to obtain accurate and detailed knowledge of the elements of an existing problem or phenomenon, to reach a better and more accurate understanding, or to develop policies and future procedures for it. Describe the phenomenon studied in terms of its nature and degree of existence (Al-Mahmoudi, 2019).

Study population and sample:

The study population consisted of all viewpoints of the faculty members at the University of Hail, who numbered (1001) faculty members, with different personal and functional characteristics and the nature of their work. The sample size of the faculty members at the University of Hail who responded to the questionnaire was (525) faculty members.

Study tool:

The study used the questionnaire as a tool for collecting information in this study, which is “a set of various questions and inquiries, which are related to each other in a way that achieves the goal, or goals, which the researcher seeks in light of his subject and the problem he chose for his research” (Al-Mahmoudi, 2019, p. 126).

The questionnaire was built to obtain information after referring to some literature review, and the tool consisted of two main parts:

- **first part**: consists of the primary data of the study population, which are: gender, type of college, academic rank, and academic experience.
- **Second Part**: Themes include the basic study and include the following themes:

**First Theme**: The role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail, and includes (40) phrases, divided into (4) sub-dimensions.

**second theme**: Obstacles facing technological business incubators in enhancing the dimensions of competitiveness at the University of Hail, and includes (15) phrases.

The validity of the study tool:

**First**: The apparent validity of the study tool:
The research tool was prepared by making use of literature review questionnaires related to the subject of the study and reviewing the educational literature and literature review related to the topic of the research. The arbitrators made valuable observations that benefited the researcher in enriching and improving the tool, which helped to produce it appropriately, thus showing that the tool measures what it was designed to measure.

**Second: internal consistency:**

After confirming the apparent validity of the research tool, it was field-applied to the sample. Pearson's correlation coefficient was calculated to find out the internal validity of the questionnaire, by calculating the correlation coefficient between each phrase with the total score of the sub-axis and the total score of the questionnaire.

**Statistical Analysis Methods:**

To achieve the objectives of the study and to analyze the collected data, many appropriate statistical methods were used using the statistical packages for the social sciences, which is symbolized by the acronym (SPSS). After coding and entering the data into the computer, the answer was given: very large (5) degrees, large (4) degrees, medium (3) degrees, weak (2) two degrees, very weak (1) one degree, and then the researcher Calculate the arithmetic mean of the answers of the study members.

To determine the length of the cells of the pentatonic scale (lower and upper limits) used in the study axes, the range (5-1 = 4) was calculated, and then divided by the number of scale cells to get the correct cell length, i.e. (4/5 = 0.80), after that these were added value to the lowest value in the scale in order to determine the upper bound for this cell.

**Chapter Four**

**Presentation and analysis of study data and discussion of its results**

This chapter deals with a presentation of the research results that were reached, after processing the data using the statistical methods referred to in the previous chapter, where in the current chapter the research questions were answered.

**Presentation and discussion of the results of the study:**

First / Presentation and discussion of the results related to the characteristics of the study sample members: This was done through:

1. Gender
2. College type
3. Academic rank
4. Academic experience.

Second / Presentation and discussion of the study questions:

Presentation and discussion of the results of the first question: What is the role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail?
To answer this question, the arithmetic averages, standard deviations, and ranks of the responses of the study sample members were calculated on the dimensions of the axis "the role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail."

**Presentation and discussion of the results of the second question: What are the obstacles facing technological business incubators in enhancing the dimensions of competitiveness at the University of Hail?**

To answer this question, the arithmetic averages, standard deviations, and ranks of the responses of the study sample members were calculated on the dimensions of the axis "obstacles facing technological business incubators in enhancing the dimensions of competitiveness at the University of Hail."

**Presentation and discussion of the results of the third question: Are there statistical differences between the average responses of the sample members about the role of technological business incubators in enhancing the dimensions of competitiveness due to the following variables: (gender, type of college “theoretical – applied”, academic rank, years of experience).**

To answer this question, the Kruskall-Wallis test was used, as an alternative to One Way-ANOVA, to find out the extent to which the respondents' opinions differ about the role of technology business incubators in enhancing the dimensions of competitiveness according to their personal and functional variables, which are divided into more Of two categories because the condition of moderation is not available.

While to find out the extent of the different opinions of the study members about the role of technological business incubators in enhancing the dimensions of competitiveness according to their personal and functional variables, which are divided into only two categories, the Mann-Whitney Test was used for the two independent samples, as an alternative to the “t” test, because the condition of moderation unavailable.

**Chapter Five**

**Summary of the study, its results and recommendations**

This chapter includes a summary of the study, the most important findings, and the most prominent recommendations proposed in the light of those findings.

**First: Summary of the study:**

This study contains five chapters in addition to references and appendices.

Second: The most important results of the study:

A. Summary of the results related to the characteristics of the study individuals:

- It was found that (51.6%) of the total study sample members are males, which is the dominant group among the study groups, and that (51.4%) of the total study sample members belong to applied colleges, and (43.4%) of the total study sample members rank The Academy is associate professors, and (40.6%) of the total study sample members have academic experience from (5) years to less than (10) years, which is the dominant category among the study categories.

B. Summary of the results related to the study questions:
Summary of the results of the first question: What is the role of technological business incubators in enhancing the dimensions of competitiveness at the University of Hail?

- It became clear that the responses of the study members on the axis came with a degree of “weak” approval, as the general average of the axis was (2.60 out of 5), and the approval of the study members on the dimension of “enhancing flexibility” came in the first place, with an average of (2.63 out of 5), with a degree of approval. Medium”, while it came after “Promoting creativity and innovation” in the fourth and last place, with an average of (2.58 out of 5), with a “weak” degree of approval.

Summary of the results of the second question: What are the obstacles facing technological business incubators in enhancing the dimensions of competitiveness at the University of Hail?

The responses of the study members on the axis items came with a degree of agreement that ranged between (weak/medium) on the study tool, as their arithmetic averages ranged from (2.52 to 2.68), and these averages indicate a degree of agreement between (weak/medium) for the study tool. The general average of the responses of the study members to the axis phrases was (2.60 degrees out of 5), and this average indicates a (weak) degree of approval for the study tool.

Summary of the results of the third question: Are there statistical differences between the average responses of the sample members about the role of technological business incubators in enhancing the dimensions of competitiveness due to the following variables: (gender, type of college (theoretical - applied), academic rank, years of experience)?

- It was found that there were statistically significant differences at the significance level (0.05) between the responses of the study sample members about the role of technological business incubators in enhancing the dimensions of competitiveness due to the gender variable, where the significance level reached (0.04) which is less than the significance level (0.05).
- There are no statistically significant differences at the significance level (0.05) between the responses of the study sample members towards the role of technological business incubators in enhancing the dimensions of competitiveness as a whole due to the variable of the type of college (theoretical / applied), where the significance level reached (0.93) which is greater than Significance level (0.05).
- There are no statistically significant differences at the significance level (0.05) between the responses of the study sample members towards the role of technological business incubators in enhancing the dimensions of competitiveness as a whole due to the academic rank variable, where the significance level reached (0.71) which is greater than the significance level (0.05).
- There are no statistically significant differences at the significance level (0.05) between the responses of the study sample members towards the role of technological business incubators in enhancing the dimensions of competitiveness as a whole due to the variable of academic experience, where the significance level reached (0.08), which is greater than the significance level (0.05).

Third: Recommendations:
Through the results of the study, the researcher presented a set of recommendations as follows:
1. The need to use technological business incubators with high capabilities to respond to developments, with the use of multiple means to control the quality of research projects and their applications, and to ensure commitment to quality in providing their services.

2. The necessity of using multiple methods to improve the quality of scientific research, with the use of multiple means of control to control the quality of research projects, with the use of comprehensive quality standards in controlling quality processes in research projects.

3. The need for optimal employment of the continuous changes in the administrative organizations, with care for the administrative development of the continuous changes in the patterns of innovative work through the economical use of the available resources.

4. It is useful for workers to have multiple skills to perform a variety of tasks, while responding to changes in the needs and desires of the labor market, and providing support for creative ideas by those engaged in scientific research.

5. The importance of investing the available equipment and capabilities in designing projects, with the use of various methods to improve the quality of projects, and providing financial methods that are superior to those offered by competitors.

6. The need for the technology business incubator to provide continuous updates of innovative ideas, while developing mechanisms for detecting innovative projects and research, by providing continuous support to the academic community in a way that facilitates the process of creativity and innovation.

7. It is useful to increase the quality and quality of communications and the reaction of the parties targeted by the incubator to facilitate the work of the incubated institution.

8. The necessity of strengthening coordination between technological business incubators and the industry sector to transform innovative research ideas into projects.

9. The need to increase the financial support allocated to support technological business incubators within the university, and to increase the support allocated to the incubator from the local community.

10. The need to increase the attention of the academic community to the importance of technological business incubators, while ridding the technological business incubators of facing the problem of reliability that the incubated companies may pursue.

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