The effect of Strategic Renewal on organizational immune systems (A field Study on Egyptian Universities)

تأثير التجديد الاستراتيجي على نظم المناعة التنظيمية (دراسة ميدانية على الجامعات المصرية)

A Research submitted to fulfill the requirements of PHD degree in Business Administration

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مجلة الدراسات المالية والتجارية

Abstract:

The main objective of this research is to test the direction, strength, and significance of the influence relationship between strategic renewal activities and organizational immune systems, depending on sample that consists of (246) university leaders and their assistants at public universities, and (117) university leaders and their assistants at private universities, two models were chosen to compare the relationships between the variables in the two study populations. The two relationship models were tested using the structural equation modeling method by (AMOS V.25) program using a five Likert scale with a response rate of approximately 90%.

The results showed that strategic renewal activities has a significant positive effect on organizational immune systems in the two samples, as well as conducting a test of comparative models, it was concluded that there are no differences in the relationships between the two societies. At the end of the research and based on the research results, the researcher suggested some future research that could be conducted concerning the research model variables.

Key words: strategic renewal, organizational immune systems, public universities, and private universities.

1- <u>Introduction</u>

In an effort to build a broader perspective on the phenomenon of strategic renewal, key decision-makers must maintain continually developing and renewing the organization to ensure the simultaneous creation of value for its customers and the capture of value by the business. As the goals of strategic renewal are varied and may refer to the modification of all aspects, methods and directions of the current and future operations of the organization, this takes place by adjusting the organization's elements, including its competences, to the environment in order to improve the current competitive position of the organization (Mielcarek, 2018).

Organizational immunity (OI) is one of the key competencies in business organizations and effective management in building and defending competitive advantages, its ability to protect and defend itself, whether by preventing or overcoming vulnerabilities and threats, removing and avoiding them by preventing their growth or stopping their impact (Assayah, A.M, 2020 citing from Farncombe, 2014; Simmons, 2013).
In light of the scarcity of Egyptian and foreign studies examined the relationship between strategic renewal and the organizational immune systems of university leaders and their assistants; The current study aims at studying and analyzing the relationship between strategic renewal and the organizational immune systems of university leaders and their assistants, in Egyptian public and private universities, especially in the absence of an Egyptian or foreign study that examined that relationship by applying it on the geographical area of the study.

2- Previous studies:

Shin and Perez-Nordvedt, (2020) aimed at ascertain the type of knowledge in its two dimensions (the efficiency of knowledge acquisition from key customers, and the efficiency of knowledge acquisition from product development experts) that contributes to promoting the strategic renewal of organizations operating in rapidly changing environments. The results showed that the organizations follow the policy of strategic renewal outperform the organizations with lower rates of strategic renewal, as the repetition of strategic renewal mitigates the bad effects of the absence of unsaturated legitimacy with the support of the franchisor, in addition to the importance of acquiring knowledge to increase the efficiency of organizations. Al-Aboudi, (2019) study indicated that there is a significant

effect of strategic renewal activities (exploration and exploitation) on natural and acquired organizational immunity; and there is a significant effect of strategic exploratory renewal on natural and acquired organizational immunity; There is a significant effect of strategic renewal activities (exploratory and exploitative strategic renewal) on each dimension of natural and acquired organizational immunity (competitive position, DNA, immune cells, organizational memory, organizational vaccine, benchmarking).

laftah & Rashid, (2015) study aimed to measure the effect of organizational learning practices (as dimension of organizational immune) on achieving strategic renewal. The study tests the four practices of organizational learning (Instructional Practices, Supportive Leadership, Communication and Education, and Cooperation and Information Sharing) on strategic renewal. The study reached some conclusions as the clear presence of an orientation in all sampled colleges for practicing knowledge transformation on individuals and group levels to the organizational level and adding institutional frame to it to make it part of its organizational memory.

3- <u>Research problem</u>

Higher education institutions face many challenges resulting from the rapid changes in the environment and in all political, economic, social and technological fields; and recently the importance of developing the university education sector and educational institutions has become necessary, and many studies indicated that the changing nature of the higher education sector and what is imposed by globalization and the renewable nature of work, which require those institutions to renew their strategies, activities and educational programs in a way that suits those changes and responds to their requirements in a way that enables them to achieve dynamic compatibility with their environment and ensures their survival and continuity (Laftah, 2015).

Strategic renewal activities are useful for understanding the challenges of leading change and help to avoid expected surprises, as the world is becoming more dangerous and complex, which makes organizations more vulnerable to change. Strategic renewal activities continually monitor the external environment in order to enhance the work of organizational immune systems, and thus strengthens the organization's defenses as it is considered one of the most important factors for the success of organizations (Al-Aboudi, 2019). The studies indicate that there

is a significant effect of strategic renewal activities (exploratory and exploitative strategic renewal) on each dimension of natural and acquired organizational immunity (competitive position, DNA, immune cells, organizational memory, organizational vaccine, benchmarking)(Al-Aboudi, 2019; Shin and Perez-Nordvedt, 2020; Ali, Muhammad; Yasir, Muhammad; & Abdul Majid,.2020).

In light of what many studies have emphasized the importance of strategic renewal in improving and developing the organization's performance and the formation of educational institutions, especially higher education by describing universities as a basic function for the advancement of society and its development and in harmony with the specificity of the research field, technological development and intense competition (Laftah, 2015; Hodeib & Houria, 2021).

The researcher conducted an exploratory study included convenience interviews with 30 individuals from Egyptian universities leaders (university presidents and their assistants, deans and their assistants, and department heads) to identify the phenomena related to the research problem, and A mini-survey was presented that included 20 statements that review the two research variables. **The most important results of the exploratory study analysis were as follows:**

-Respondents' perspectives in the universities under study differ regarding the importance of activating strategic renewal.

-The dimensions of strategic renewal most recognized by the respondents were: (exploratory strategic renewal, exploiting strategic renewal).

-Respondents' perspectives in the universities under study differ regarding the importance of activating organizational immune systems.

- The dimensions of organizational immune systems most recognized by the respondents were: (organizational learning, organizational memory, and organizational genes).

- The results also showed that there is agreement that strategic renewal adds real value to the Egyptian universities under study, which in turn encourages the implementation of organizational immune systems.

From reviewing the literature and the results of exploratory study, the researcher can crystallize research problem in the presence of a research gap represented in answering the main question about "**What is the effect of strategic renewal activities on organizational immune systems of university leaders and their assistant in Egyptian universities?**"

This main question is divided into the following sub-questions:

2/1 Is their significant differences in the perceptions of university leaders in public and private universities regarding the dimensions of strategic renewal activities?

2/2 Is their significant differences in the perceptions of university leaders in public and private universities regarding the dimensions of organizational immune systems?

2/3 Is there a significant positive effect of the dimensions of strategic renewal (exploration and exploitation) on organizational immunity systems (learning, memory, and DNA) of university leaders and their assistants in the Egyptian universities under study?

2/4 Is there a significant difference in the relationship between these variables in public universities compared to private universities?

4- Research objective

The main objective of this research is to study and analyze the effect of strategic renewal on the organizational immune systems of university leaders and their assistants in the Egyptian universities under study.

The Sub-objectives are as follows:

3/1 Measuring the perceptions of university leaders and their assistants regarding the strategic renewal in the Egyptian universities under study.

3/2 Measuring the perceptions of university leaders and their assistants regarding the organizational immune systems in the Egyptian universities.

3/3 Determining the direct effect of strategic renewal on organizational immune systems of university leaders and their assistants in the Egyptian universities under study.

3/4 Comparing the research model on both public and private universities to determine the extent of the significant difference in relationships.

3/5 Providing recommendations that contribute to improving the application of the dimensions of research variables in the universities.

5- __Research importance__

- The importance of the applied field stems from the importance of developing the university sector as the universities play a vital role in social, economic, cultural, and political development

- The university leaders in Egyptian universities are vital, strategic and influential because they have the authority to make decisions and influence the higher education sector.

- The importance of this research is represented in extracting a relationship between strategic renewal and the organizational immune systems of university leaders and their assistants in the Egyptian universities   especially with very few studies that discussed such relationship.

- This topic may open new horizons for researchers to conduct more in-depth research in the field of strategic renewal and organizational immune systems to enrich the library with more comprehensive studies on contemporary vital topics.

- There is no Arabic or English study analysis the relationship between strategic renewal and organizational immune systems of university leaders (Within the limits of the researcher's knowledge).

6- Research model:

the exploratory study, and based on the research problem and its objectives, and after defining its theoretical framework and field implications, a hypothetical model was built to explains the relationships between the research variables, as well as clarifying the dimensions of variables and their effect of the researched organization, taking into account the possibility of measuring the variables. According to the research model, the research variables are determined as follows:

The independent variable: Strategic renewal, includes: Exploration Strategic renewal, Exploitation Strategic renewal.

The dependent variable: organizational immune systems, includes: Organizational learning, Organizational memory, Organizational genes.

Public universities	← H1, H2, H4 →	Private universities

__Strategic renewal:__ - Exploration - Exploitation	→	__Organizational immune systems:__ - Organizational learning - Organizational memory - Organizational genes (DNA)
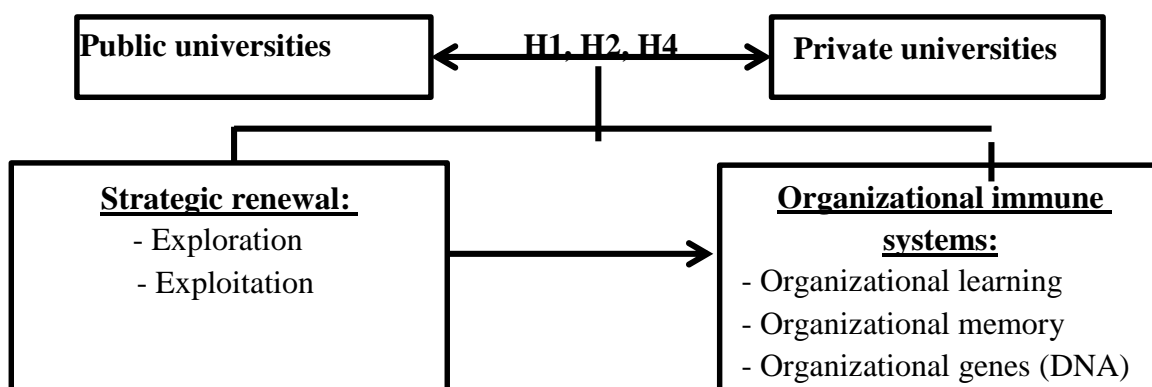
7- <u>Research hypotheses</u>

Based on the review of previous studies and the research questions and achieving its goal, the research hypotheses were also determined on the basis of the hypothetical model with the aim of proving the statistical relationship and its branches. The research hypotheses were formulated as follows:

The first hypothesis (H1): There are statistically significant differences in the perceptions of university leaders in public and private universities regarding the dimensions of strategic renewal.

The second hypothesis (H2): There are statistically significant differences in the perceptions of university leaders in public and private universities regarding the dimensions of organizational immune systems.

The third hypotheses (H3): There is a significant positive effect of strategic renewal on organizational immune systems of university leaders in the Egyptian universities under study.

The fourth hypothesis (H4): There is significant difference in the influential relationships of the research model variables in public universities compared to private universities.

8- <u>Research limitations</u>

The study limitations could be presented as follows:

- The survey study conducted upon a random probability sample of academic leaders represented by (university presidents and their assistants, deans and their assistants, and department heads).

- The research will focus only on strategic renewal activities and organizational immune systems.

9- <u>Research methodology</u>

The researcher used the deductive approach in determining the relationships between the variables included in the research model based on previous studies, and use the same approach in determining methods for measuring these dimensions and developing the proposed framework for the relationships between the research variables.

The researcher also used the inductive approach by directing a survey list to a sample of the research community, analyzed the data, and reached to the results of the research.

10- Literature Review
10/1: Conceptual framework of strategic renewal activities.

Organizations today face increasingly dynamic environments, characterized by significant and often unexpected technological, political and economic changes (Schmitt et al., 2018). So, the organization are under intense pressure to renew and upgrade their business strategies and core competencies in an era of extreme change, due to the entry of new competitors, the development of new technologies, and the diversification of client preferences and expectations; thus, "Strategic renewal" is one of the terms that started to replace the older term of "strategic change" (Sriboonlue et al., 2015). Strategic renewal has become a prominent topic in many areas of organization and management research, and Researchers have explored the managerial perceptions, capabilities and processes of learning underlying corporate strategic renewal efforts (Schmitt et al. 2018). Tushman et al., (2013) mentioned that strategic renewal is not just an event or a set of steps or a program that leads to the success of organizations, but rather it is a social engineering process based on comprehensive ambition and strategic intentions that discover and adapt over time, and that proactive change can be implemented through continuous learning in the organization to promote innovation and change from top-down, bottom-up, a common language and tool for problem-solving and disciplined follow-up through which the senior management team collectively learns how to lead innovation and change and achieve organizational success.

10/1/1 Strategic renewal definition:

Strategic renewal is one of the modern approaches to the strategic management literature, in addition to being one of the concepts that has not received sufficient research by writers and researchers (Hassan & Al-Hamiry, 2022).

The intellectual roots of the subject of strategic renewal go back to (March & Simon, 1958) in their book "Organizations" which is the main entry point for the study of strategic renewal, as their focus is on issues of technological change, or product innovation, and this is done through the difference in existing businesses, or reorientation towards business new commercial (Hodeib & Houria, 2021; Al-Ghalbi & Al-Zubaidi, 2018). On the other hand, strategic renewal is "the transformation of organizations through renewal of the main ideas on which they are built" (Guth and Ginsberg, 1990).

Strategic renewal is "an evolutionary process associated with promoting, assimilation, and use of new knowledge and innovative behavior in order to bring about a change in the core competencies of an organization and/or change the market area of its products" (Floyd &lane, 2000, citing from Burgelman, 1991; Huff et al., 1992; Hurst et al, 1989). Agarwal and Helfat, (2009) define strategic renewal as "The process, content, and outcome of refreshment or replacement of the organization's traits that have the potential to substantially affect its long-term prospects".

Eventually, the researcher can define strategic renewal as "a set of procedures, processes and activities developed by the organization on a periodic basis with the aim of promoting and exploiting its current core competencies, or explore new competencies and opportunities to confront the environmental changes, whether (internal or external) to achieve survival and success in the present and future and sustainable competitive advantages".

10/1/2 Strategic renewal dimensions:

The current research has resorted to choose the strategic renewal (SR) dimensions that were repeated more than others in previous studies due to the existence of a relative agreement on them by several studies, including: (Al-Romeedy & Mohamed, 2022: Amel, 2021; Laftah & Rashid, 2015; Hassoun, 2021; Alamro & Alzu'bi, 2022), these dimensions are as follows:

10/1/2/1 Exploratory strategic renewal:

Amel, (2021) define Exploratory strategic renewal as "inventing something new into existence or experimenting with new ideas and alternatives that stimulate and encourage the brainstorming of individuals in using future experiences, possibilities and expectations to explain market forces and assess and explore opportunities faster than competitors to break the burden of tradition to renewal. " It is the development and improvement implemented by the company in the form of radical changes in the products or services it provides in line with the desires and needs of the customers and leads to enhancing its competitiveness" (Al-Romeedy & Mohamed, 2022).

Briefly, The exploratory strategic renewal are actions such as starting up new business, launching new products/services, entering new technology fields, entering new markets/geographic regions (Kwee et al., 2010).

10/1/2/2 Exploitation strategic renewal:

Exploitation strategic renewal is embodied in multiple activities such as refinement, choice, production, efficiency, selection, implementation, execution (March, 1991) It refers to "the procedures implemented by companies to exploit and invest opportunities to achieve their objectives, which reflected in an increase in the ability to adapt with changes in the work environment, and increase profits (Al-Romeedy & Mohamed, 2022). Its core is the refinement and utilization of existing capabilities, technology and models in the Organization with aim to achieving positive and predictable short-term returns (Laftah & Rashid, 2015).

Exploitation is associated with mechanistic structures, tightly coupled systems, path dependence, routinization, control and bureaucracy, and stable markets and technologies (He & Wong, 2004). Briefly Exploitative strategic renewal actions as improving existing product quality, expanding existing markets, improving existing competencies, reduce operational costs e.g. closure, consolidation, downs coping; these actions are associated among others with refinement and efficiency (Kwee et al., 2010).

10/2: Conceptual framework of organizational immune systems.

The organization's immune system is similar to the human body's (biological immune system), which indicates the efficiency of the body's physical ability in preserving and protecting it (Al-Saidi, 2020& Al-Saidi, 2017). As in the human immune system, it works to protect the institutional entity from internal and external threats and risks, to find the best solutions for them and to establish strong barriers against any change (Abu Huzima, 2021).

This is a vital topic in today's business environment and it is rarely discussed at a theoretical level, despite its beginnings and early literature began in the mid-1990s of the 20th century (Al-Saidi, 2020 & Al-Saidi, 2017). The organizational immune systems drawing the attention of researchers, as it can be one of the main systems that act as a protective shield that protects the organization from the danger of the external environment and the disturbances of the internal environment (Abdul Majeed, 2016)

10/2/1 Organizational immune systems definition:

Degus, (1997) was the first to introduce the term ―Organizations' immune systems in the literature on business administration, where he mentioned it in a narrow framework in which he discussed the organizations culture, calling for the need to deal with organizations as a living organism that can adapt and interact with the environment and overcome its threats in order to be able to survive. He also defined organizational immunity systems as "the ability of organizations to face continuous attacks from people who do not have full loyalty to the organization, and the organization's immune system works to immunize it from external dangers, exclude them and address their effects according to both (Abdul-Majeed, 2016; Abu Hajaaj,2020). Gilley et al., (2009) pointed to the organization immune system, like the human immune system, protects the organization against change (dangers and threats) by establishing a strong barrier. The organizational immune system consists of the people, policies, procedures, processes, and culture to prevent change, regardless of the potential consequences.

Wang et al., (2010) indicated that the organizational immunity is "the self-organizing system, the ability and the action, dynamically, to identify and remove unwanted changes both inside and outside of the organization and remembers them, through which an organization maintains its health in an environment full of risks".

In the light of the above discussion, the researcher can define organizational immune systems as "a set of procedures and policies that work to form modern and developed systems and mechanisms of work on a periodic basis that act as a strong barrier to face external threats and address weaknesses within the organization; and generate an organizational immune memory within the organization resulting from the organization learning from previous events and benefiting from them in the future to reduce the occurrence of crises and Maintain the health and stability of the organization".

10/2/2 <u>Organizational immune systems dimension:</u>

The current research has resorted to choose the organizational immunity(OI) dimensions that were repeated more than others in previous studies due to the existence of a relative agreement on them by several studies, including: (Fairuz, 2017; Abdul-Mageed, 2016; Assayah, 2020; El-Masry & El-Agha, 2021; Elnokirah, 2021; Abu Hajaaj, 2020; Sarsour,2021; Ismail, 2020; Sherwani,2021; Ibrahim,2021) based on the study (Huang, 2013:233) and these dimensions are as follows:

10/2/2/1 Organizational learning (OL):

Fairuz, (2017) mentioned to organizational learning as "the organization's ability to generate, acquire, share and develop knowledge (implicit and explicit) through various organizational methods and practices, which aim to improve organizational performance, such as focusing on task teams, staff training, and strategic planning". It consists of (individual learning, group learning, learning from others i.e. competing organizations, and self-learning i.e. within the organization) according to (Assayah, 2020).

The researcher concluded that the most common dimensions of organizational learning depending on (Sari & Sukmasari,2018; Pham, 2019; Turulja &Bajgoric, 2018; Migdadi, 2019) are as follow:

1-Managerial Commitment to learning: It refers to the values focused on learning activities inside the organization, and the extent to which these values are regarded as axiomatic for the organization, employee training, and management development.

2- Openness and experimentation: It represents the critical evaluation of organization's day to day operations and the acceptance of new ideas, and situations as well as tolerance of ambiguity, uncertainty, and flaws. Also, it encourages the creation of a risk environment.

3- Shared vision / system perspective/system thinking: It relates to the gathering of all employees around a common identity and a shared vision such as learning that enhances their energy, commitment and goals.

4-Dialog: It relates to ongoing collective participation in the processes, assumptions, and beliefs that shape every day experiences.

5-Knowledge transfer and integration: It is the development of organizational knowledge, based on the internal dissemination of knowledge acquired at an individual level through communications and interaction between members of the organization which is supported by an

agile information system that ensures the accuracy and availability of the information and team works.

6- Interaction with the external environment: It refers to the scope of relationships with the external environment. Relations and links with the environment are critical, as the organization tries to adapt at the same time to its changing environment.

10/2/2/2 Organizational memory (OM):

Organizational memory is the utilization of organizational knowledge that has previously gained from previous projects in order to meet current and future needs. OM is defined as the process of acquiring, retaining, and retrieving and using historical knowledge of an organization for the benefit of current organizational decisions. OM consists of two key processes: knowledge acquisition and retention, as well as knowledge storage and retrieval. The first process is related to collecting, writing, organizing, and storing memories. The second process is concerned with the ability to retrieve and reuse information. (Almomani et al, 2019).

Li et al., (2004) identified four dimensions of OM: technical OM, managerial OM, cultural OM, and marketing OM, are as follows:

1-Technical OM: defined as "stored knowledge that includes technology and related experience used in the context of product development, quality management, production control, and IT and internet applications, equipment, technique style, re-engineering in the past, total quality management, and so on".

2-Managerial OM: refers to knowledge that controls the functioning of an organization, and can be described as the organization's management method and structure, such as knowledge management method, plant planning, human resources management, short-term and long-term strategies, equipment management, production management, document management, member training, registration, and crisis management

3-Cultural OM: described as mental wealth that has been accumulated with the development of the organization. C-OM is found almost everywhere in any organization, such as the organization's history, Shared values, informal organization, suggestions from the employees. Organizational culture is viewed as the organization's "embedded memory", as well as Collective memory sees as a cultural system. C-OM refers to how people think, communicate, and collaborate.

4-Marketing OM: related to suppliers, intermediaries, customers, marketing relationships, sales, purchases, customer relationship management (CRM), external cooperation, supplier and intermediary selection principles, subscription, channels, 4P and so on.

10/2/2/3 Organizational genes (DNA) or organizational environment:

Abdul-Mageed, (2016) define Organizational genes as "a set of characteristics that represent the organizational identity which distinguishes it from others, and it is an integral part of the cultural and social fabric". These characteristics are inherited through generations of employees of the organization include: the organization's organizational structure, the culture of information exchange, decision-making rights, incentive system. The DNA of a living organization has four bases, combined in a variety of ways, that define the unique traits of the organization (Hovivyan, 2006; Abdel-Raheem & Saad, 2019; Nafei, 2015; Qabaja, 2018), These bases are as follows:

1- Decision making rights: Who decides what? How many persons are engaged in the decision-making process? Where does one person's decision-making power end and another person's begin? It is the definition of the core techniques of actual decision making in the organization, in addition to the effectiveness of the organization's work, speed of supplying products, good services, and the time required to obtain the result.

2- Information: The free flow of information inside the organization's boundaries is critical for obtaining for achieving high performance and competitive advantage (Hovivyan, 2006).

3- Motivation: motivation is a powerful tool for enhancing the strategic goals organization, that rewards have a positive impact on employee's attitudes. And employee's compensation is usually a significant organizational cost, and therefore requires careful scrutiny (Qabaja, 2018).

4- Structure: Organizational structure refers to the models of internal relationships of an organization. Authority, relationships and reporting, formal communication channels, responsibility, decision making, and delegation are clarified. Assisting in the flow of information is one of the facilities provided by organizational structure (Qabaja, 2018).

In the end, the researcher asserts that there is integration between the four constructive blocks in the organization and it is necessary to work with each other in order to solve the problems of the organization and achieve the organizational goals.

10/3 <u>Methodology:</u>

10/3/1 Community of the research :

The research community focused on the leadership of Egyptian Universities (public and private), represented by university leaders (academic leaders) for the year 2023 with a total number of (9669), and the reason for this is that university leaders have the authority to make decisions and influence the organizations environment.

10/3/2 Sample of the research:

The researcher selected a random probability sample from within the research community, and the sample size was determined based on sampling tables and amounted to (369 items) [*], which increased to (400) items to increase the percentage of responses. To select the sample items the researcher relied upon Random tables, then design a survey list and distributed it to the research sample items through direct personal interviews and by sending an electronic copy via WhatsApp and Messenger groups. 400 survey lists were sent, and 363 complete and valid lists were retrieved (consisting of 246 valid retrieved lists at public universities, 117 valid retrieved lists at Private universities) are suitable for statistical analysis, with a response rate of approximately 90%.

10/3/3 Sampling unit :

The results of the exploratory study concluded that the sampling unit appropriate for this study is the leaders of Egyptian universities (public and private), represented by academic leaders (university presidents and their assistants, deans and their assistants, and department heads)

10/3/4 Measures of research variables :

The researcher relied on the scales used in previous studies in measuring the research variables. The scales were translated from English to Arabic, and then the statements were re-translated from Arabic to English again using the electronic translation website http://translate.google.com.

The statements were reformulated to give the same meaning in English, and content validity was used by reviewing the survey list with some academics in the field of business administration via e-mail and the WhatsApp application. Some of the statements were reformulated as they are included in the survey list.

- **To measure the strategic renewal: the researcher uses the scale** Developed by (Al-Ghazali, 2013) and used many studies such as (Aboudi, 2019; Hassoun, 2021; Al-amro & Alzu'bi, 2020; Al-amro& Alzu'bi, 2022)**.** The exploitation strategic renewal measured by the statements (1-5) and the exploration strategic renewal by the statements (6-10) the survey list.
- **To measure Organizational immune systems: the researcher use the** *The sample size was determined (at 95% confidence and ±5% error limits and at community size = 9669) using the website http://Sample Size Calculator - Good Calculators.19

  scale Developed by (Huang, 2013) and used in various studies such as (Assayah, 2020; Elnokirah, 2021; Abu Hajaaj,2020; Abu Huzima,2021; Al-Asoufi & Al-Hawajra, 2020; Ismail, 2020; Aboudi, 2019; Youssef, 2021; Fayrouz, 2017). The organizational learning measured by the statements (11-16), Organizational memory measured by the statements (17-22) and Genes (DNA) measured by the statements (23-28) the survey list.

10/3/5 Reliability and Validity of the scales:

The Measurement model aims at ensure the validity and reliability of the scales used to measure the research variables and to know the existence of relationship between variables to continue testing the relationship between them or not. Confirmatory factor analysis for each scale using the Amos v.25 program was used to test of reliability (internal consistency) and construct validity. Confirmatory factor analysis (CFA) is part of a more general technique called structural equation modeling. CFA serves two purposes: first, to assess how well a specific model fits the data; second, to estimate the factor loadings, variances, and covariance of the factor(s), and the residual error variances of the observed variables. All goodness-of-fit measures are a function of the chi-square and the degrees of freedom.

The following tests are conducted to determine the degree of reliability and validity of each scale by testing the measurement model using the Amos v.25 program; Construct validity and internal consistency were tested using confirmatory factor analysis of the measurement model, Composite Reliability (CR) was tested using MacDonald's Omega Reliability, and the validity of the scales was tested by convergent validity test and discriminant

Validity test; as shown in Figure No (2) the results of the testing measurement model according to these tests:

10/3/5/1 Model fit measures test (Construct validity and internal consistency were tested using confirmatory factor analysis of the measurement model):

Figure No (2), shows the loading factors for the scale items and the correlation coefficients between the variables of the measurement model.

The data received indicate that the loading factors for the items of each scale on its latent variable are greater than (0.6 or 60%), and it is necessary for the scale items to be close to each other because they are coefficients of correlation of the items with each other, as shown in the figure that the loading factors ranging from (X1) to (X28), with items saturation rates ranging from (.80) to (.88) on the latent variable are greater than (0.6), which indicates a high degree of consistency For each scale and the validity of the scales, and therefore the results of the analysis of the measurement model can be relied upon to test the reliability and validity of the scales used.

The results of confirmatory factor analysis of the research scale items, as shown in figure No (2) were as follows :

(A) The independent variable (strategic renewal): As shown in Figure No (2), The loading factors for items of strategic renewal scale ranging from (X1) to (X5) for its latent variable (Exploitation strategic renewal) with saturation coefficients ranged between (0.86) to (0.88) and the loading factors for items ranging from (X6) to (X10) for its latent variable (Exploration strategic renewal) with saturation coefficients ranged between (0.79) to (0.87), which means a high degree of validity on the scale's ten items and their internal consistency
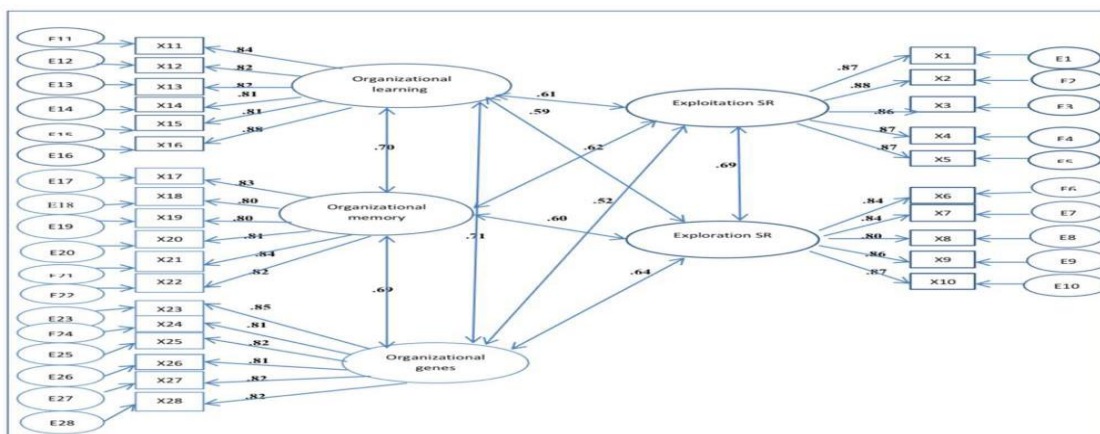

Figure No (2) Results of testing model fit measures using confirmatory factor analysis of the research variables

(B) The dependent variable (organizational immune systems): The reliability and validity of this scale using its eighteen items. As shown in Figure No (2), the loading factors for items ranging from (X11) to (X16) for its latent variable (organizational learning) with saturation coefficients ranged between (0.81) to (0.88), The loading factors for items ranging from (X17) to (X22) for its latent variable (organizational memory) with saturation coefficients ranged between (0.80) to (0.84), and The loading factors for items ranging from (X23) to (X28) for its latent variable (organizational genes) with saturation coefficients ranged between (0.81) to (0.85), which means a high degree of validity on the scale's eighteen items and their internal consistency.

The model fit measures were **CMIN=1326.720; DF=719.000; CMIN/DF=1.845; CFI=0.950; SRMR=.0.033; RMSEA= 0.048; PClose=0.748)** as shown in table No (1).

Table No (1) Results model fit measures

Measure	Estimate	Threshold	Interpretation
CMIN	1326.720	--	--
DF	719.000	--	--
CMIN/DF	1.845	Between 1 and 3	Excellent
CFI	0.950	>0.95	Excellent
SRMR	0.033	<0.08	Excellent
RMSEA	0.048	<0.06	Excellent
PClose	0.748	>0.05	Excellent

Source: Statistical analysis results: Testing model fit measures using Amos v.25.

Table No (2) Criteria for matching the models fit indexes using structural equations

Measure	Terrible	Acceptable	Excellent
CMIN/DF	> 5	> 3	> 1
CFI	<0.90	<0.95	>0.95
SRMR	>0.10	>0.08	<0.08
RMSEA	>0.08	>0.06	<0.06
PClose	<0.01	<0.05	>0.05

Source: Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural equation modeling: a multidisciplinary journal, 6(1), 1-55.

These indexes express the high quality of conformity of the model that was measured to the hypothetical model of the data, The results indicate that the quality indexes of the model fit measures are excellent and therefore the results of the analysis of the model fit measures can be relied

upon it to test the reliability and validity of the scales, according to the criteria for fit of measurement models as shown in table No (2).

10/3/5/2 Composite Reliability (CR) Test:

Composite Reliability (CR) test for research scales aims to verify the internal consistency and reliability of the scale using MacDonald's Omega Reliability, which is an alternative test to Cronbach's Alpha, as one of the conditions for using Cronbach's Alpha is equal saturations of one scale dimensions, and this condition is not required by the MacDonald Omega test, so it is preferable to use it to verify the reliability of scales (variables) using confirmatory factor analysis and to test the relationships between them using structural equation modeling (Dunn. T.j. & Brunsden, V., 2014; Viladrich, C., et al., 2017). The Composite reliability (CR) of the scale is achieved if the coefficient is greater than (0.7 or 70%). The McDonald-Omega reliability coefficient, which is symbolized by the symbol (ω), is calculated by the following equation**:**

$$\omega = \frac{(\sum \gamma)^2}{\left((\sum \gamma)^2 + \sum var(\theta)\right)}$$

y = Standard regressions for scale items, ($\sum var(\theta)$) = Total error variance

10/3/5/3 Convergent Validity:

Convergent validity is achieved when there is a large amount of shared variance between the same items that measure one latent variable (dimension or concept). This means that the items that measure the same variable are close to each other. It is determined by calculating the Average Variance Extracted (AVE), and the value (AVE) of the scale must be greater than (0.5) and less than the value of composite reliability (CR) at the same time. It is calculated by the following equation:

$$AVE = \frac{(\sum \gamma^2)}{n}$$

y = Standard regressions for scale items, (n) = Number of items

10/3/5/4 Discriminant Validity:

The variance between the items of a single variable is greater than the variance between the latent variables and each other. It is determined by comparing the "mean extracted variance value" of each latent variable to the Maximum Shared Variance (MSV). Discriminant validity is achieved when the value (AVE) of each latent variable is greater than the value of the Maximum Shared Variance (MSV) and less than the value of (MaxR(H)). Tables No (3-6) also shows the results of these tests for the research variables, and this is what we will discuss as follows.

Table No (3) Indexes of reliability and validity of scales

Scales:	Composite Reliability CR	Convergent Validity AVE	Maximum Shared Variance MSV	Discriminant Validity
Exploitation	0.941	0.760	0.483	Achieved
Exploration	0.925	0.712	0.483	Achieved
Organizational learning	0.930	0.690	0.506	Achieved
Organizational memory	0.924	0.669	0.494	Achieved
Organizational genes(DNA)	0.925	0.672	0.506	Achieved

Source: prepared by the researcher by results of testing the measurement model using Gaskin, J., James, M., and Lim, J. (2019), "Master Validity Tool", AMOS Plugin. Gaskination's StatWiki.

The results of the tests (Composite Reliability, Convergent Validity, and Discriminant Validity) for the degree reliability and validity of the research scales, as shown in table (3) were as follows :

1. The independent variable (strategic renewal): The researcher concluded that the strategic renewal scale with its two dimensions and ten items has high degree of reliability, as the composite reliability value was (CR = 0.941 For Exploitation and CR= 0.925 For Exploration), and the convergent validity of the scale was achieved, as the value of (AVE = 0.760 For Exploitation and AVE = 0.712 For Exploration), and the discriminant validity of the scale was achieved, as the value of (AVE) for two latent variables (Exploitation and Exploration) was larger than the value of (MSV = 0.483 For Exploitation and MSV = 0.483 For Exploration), and therefore strategic renewal was measured with ten items, designed on a five-point Likert scale, and ranked from (1) to (10) on the survey list**.**

2. The dependent variable (organizational immune systems): The researcher concluded that the organizational immune systems scale with its three dimensions and eighteen items has high degree of reliability, as the composite reliability value was (CR = 0.930 For organizational learning, CR= 0.924 For organizational memory, and CR = 0.925 For organizational genes), and the convergent validity of the scale was achieved, as the value of (AVE = 0.690 For organizational learning, AVE = 0.669 For organizational memory, and AVE = 0.672 For organizational genes), and the discriminant validity of the scale was achieved, as the value of (AVE) for three latent variables

(organizational learning, organizational memory, and organizational genes) was larger than the value of (MSV = 0.506 For organizational learning, MSV = 0.494 For organizational memory, and MSV = 0.506 For organizational genes) , and therefore organizational immune system were measured with eighteen items, designed on a five-point Likert scale, and ranked from (11) to (28) on the survey list.

10/3/6 Methods of data collection:

To achieve the objectives of the research, the researchers resorted to two main sources to obtain data:

1- Secondary sources:

The researchers are directed to secondary data sources, which are scientific books and references, specialized websites and databases or official reports whether Arabic or English, related to the variables of the study, to build the theoretical framework.

2- Primary data:

the researchers resorted to collecting primary data by designing a survey list that they prepared as a main tool for the study in order to address the analytical aspects of the subject of the study, which included a number of statements that reflect the objectives of the study.

Likert scale was used in the questionnaire design which is a detailed, non-comparative rating scale, this scale consists of 5 response categories ranging from " strongly agree" to "strongly disagree" as shown in a survey which requires the respondents to indicate a degree of agreement or disagreement for each sentence. All research measures were designed on a five-point Likert scale (1=strongly agree, 2=agree, 3=neutral, 4=disagree, 5=strongly agree) and included a number of (28) statements to measure the research variables. The statements were arranged in the following order on the survey:

10/4 Research results (Results of statistical analysis and hypotheses testing):

8/4/1 Descriptive statistics of the research variables:

The following part will include the descriptive statistics for the study variables where the Statistical Package for Social Sciences (SPSS) was used to analyze the data. The IBM SPSS Statistics V. 26 software package was used to determine the general mean and standard deviation of the research variables, and Table No (4) shows the general mean and standard deviation of the research variables.

As shown in table No (4) the following:

1. The convergence of the arithmetic means between the research variables in general, which ranged between (3.8209 and 3.9676) and according to the range of the five-point Likert scale (1-179, 1.8-259, 2.6-3.39, 3.40-4.19, 4.2-5) Despite this convergence, there is a noticeable increase in the level of perception of the sample members about the research variables. It was discovered that the sample members' perception of strategic renewal mean was (3.9676) followed by organizational immune systems with a mean of (3.8209)

Table No (4) The general mean and standard deviation of the research variables

The Scale	Dimensions	Sample*	Mean	Standard Deviation
Strategic renewal	**Exploitative strategic renewal**	363	3.6766	1.03858
	Exploration strategic renewal	363	3.7063	.90623
	Strategic renewal	363	3.9676	.75541
Organizational immune Systems	**Organizational learning**	363	3.8182	.87878
	Organizational memory	363	3.8462	.85711
	Organizational genes (DNA)	363	3.7984	.88980
	Organizational immune systems	363	3.8209	.76714

Source: Prepared by the researcher using the results of statistical analysis of field study data.

* The mean of the research variables was calculated based on the measurement using a five-point Likert scale.

2. In relation to the strategic renewal dimensions, it was discovered that the research sample's perception of the exploration dimension is the highest with a mean of (3.7063), followed by the exploitative dimension with a mean of (3.6766); concerning the organizational immune system dimensions, it was discovered that the sample members' perception of the organizational memory dimension is the highest with a mean of (3.8462), followed by organizational learning with a mean of (3.8182), and finally organizational genes with a mean of (3.7984).

3. Standard deviation scores greater than one correct degree showed that there was a degree of difference in the sample members' opinions about the study variables, while there was a large degree of agreement regarding the study variables when the standard deviation scores were less than one correct degree. The standard deviation decreases for all dimensions of the research variables, except for the exploitative dimension of strategic renewal, with a score of (1.03858) higher than the correct degree (1).

10/4/2 Testing hypotheses (first and second):

The researcher tested the validity of the hypotheses (first, second, and third) for this study by relying on a (T-Test) to measure and test the hypotheses between two independent samples (public universities and private universities), as follows:

10/4/2/1　T-test to measure the significance of the differences between the two study samples with regard to their perception of the strategic renewal variable.

Table No (5)　T-test to measure the significance of differences between the study samples for the strategic renewal variable.

Dimensions	Study sample (Academic leaders)	Mean	Standard deviation	"T" Value	Sig. (2-tailed)	The decision (Significance level)
m	Public universities	3.5561	.93102	-4.333-	.000	Significance
	Private universities	3.9761	.69774			
Exploitative strategic renewal	Public universities	3.5463	1.11189	-4.389-	.000	Significance
	Private universities	3.9504	.80211			
Exploration strategic renewal	Public universities	3.5659	.92765	-3.519-	.000	Significance
	Private universities	4.0017	.78455			

As shown in table No (5), the mean of strategic renewal in public universities for academic leaders and their assistants (3.5561) and in private universities (3.9761), as well as the standard deviation in public universities (.93102) and in private universities (.69774), has reached the level of significance (.000), and thus the effect is significant.

- The mean of exploitative strategic renewal in public universities for academic leaders and their assistants (3.5463) and in private universities (3.9504), as well as the standard deviation in public universities (1.11189) and in private universities (.80211), has reached the level of significance (.000), and thus the differences are statistically significant.
- The mean of exploration strategic renewal in public universities for academic leaders and their assistants (3.5659) and in private universities (4.0017), as well as the standard deviation in public universities (.92765) and in private universities (.78455), has reached the level of significance (.000), and thus the differences are statistically significant.

Although there are no statistically significance differences between the two samples in some strategic renewal items, generally there are statistically significance differences between the two samples' perception of this variable. This supports the validity of the first hypothesis of this study. So, we can accept the first hypothesis.

10/4/2/2   T-test to measure the significance of the differences between the two study samples with regard to their perception of the organizational immune systems variable.

As shown in table No (6), the mean of the organizational immune systems in public universities for academic leaders and their assistants was (3.7333) and in private universities (4.0052), as well as the standard deviation in public universities (.80595) and in private universities (.64351), has reached the level of significance (.000), and thus the effect is significant.

1. The mean of organizational learning in public universities for academic leaders and their assistants (3.7290) and in private universities (4.0057), as well as the standard deviation in public universities (.90561) and in private universities (.79085), has reached the level of significance (.005), and thus the differences are statistically significant.

Table No (6) T-test to measure the significance of differences between the study samples for the organizational immune systems variable.

Dimensions	Study sample (Academic leaders)	Mean	Standard deviation	"T" Value	Sig. (2-tailed)	(Significance level)
Organizational immune systems	Public universities	3.7333	.80595	-3.196-	.002	Significance
	Private universities	4.0052	.64351			
Organizational learning	Public universities	3.7290	.90561	-2.727-	.005	Significance
	Private universities	4.0057	.79085			
Organizational memory	Public universities	3.7595	.88594	-2.821-	.005	Significance
	Private universities	4.0285	.76511			
Organizational genes (DNA)	Public universities	3.7114	.94006	-2.831-	.007	Significance
	Private universities	3.9815	.74464			

2. The mean of organizational memory in public universities for academic leaders and their assistants (3.7595) and in private universities (4.0285), as well as the standard deviation in public universities (.88594) and in private universities (.76511), has reached the level of significance (.005), and thus the differences are statistically significant.

3. The mean of organizational genes (DNA) in public universities for academic leaders and their assistants (3.7114) and in private universities (3.9815), as well as the standard deviation in public universities (.94006) and in private universities (.74464), has reached the level of significance (.007), and thus the differences are statistically significant.

   Therefore, there are statistically significance differences between the two samples' perception of organizational immune systems variable, which supports the validity of the second hypothesis of this study and we can accept the second hypothesis.

10/4/3 Testing the third hypothesis:

The methodology for testing the influential relationships between the variables of the study model relied on the use of structural equation modeling using the (AMOS) program. In order to do this, the path analyses of (three) structural models were tested as follows:

A. Testing the path of relationships for the model variables on the level of all samples (public and private universities sample.
B. Testing the path of relationships for model variables on the level of the public universities sample.
C. Testing the path of relationships for model variables on the level of the private universities sample.

The three models' efficiency indexes were: **(CMIN (X or Y) = .000; DF= 0; GFI=1.000; NFI=1.000; IFI=1.000; CFI=1.000; RMSEA=.031)**, and these indexes reflect the high quality of fit of the models that were measured.

To measure the relationships between variables, the researcher will test the final model using the path analysis method to interpret the variables of the research model, and test the relationships between these variables relied on the (AMOS) progra. Figure (3) shows the test results for all samples. Figure (4) shows the test results for academic leaders and their assistants in public universities, while Figure (5) shows the test results for academic leaders and their assistants in private universities.
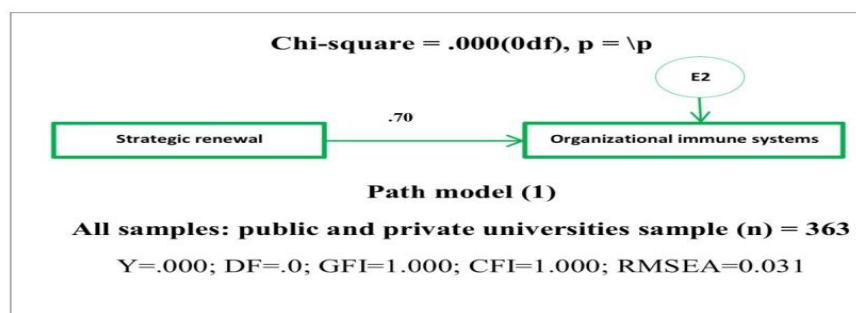

Chi-square = .000(0df), p = \p

E2

Strategic renewal → .70 → Organizational immune systems

Path model (1)

All samples: public and private universities sample (n) = 363

Y=.000; DF=.0; GFI=1.000; CFI=1.000; RMSEA=0.031

Figure No (3)
Parameters of path analysis of relationships for the research model for all sample
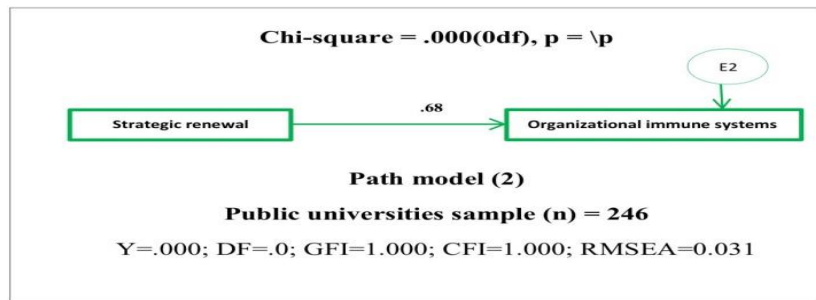
Figure No (4)
Parameters of path analysis of relationships for the research model for public universities sample
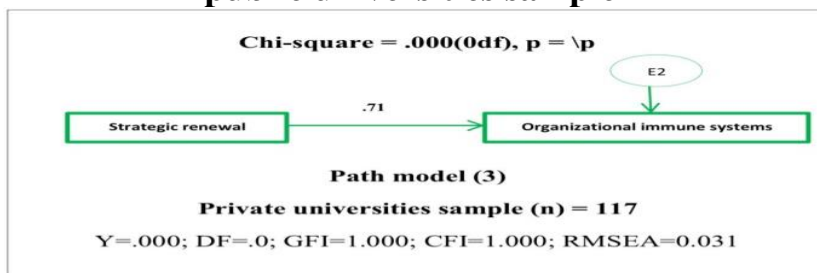

Figure No (5)
Parameters of path analysis of relationships for the research model for private universities sample

After verifying the final model fitness for the research, the researcher interprets the results of the path analysis between the model variables, and interprets the rest of the hypotheses based on the results shown in the following tables: from table (7) to table (20), as follows:

Table No (7)
Estimates of the parameters of the standard paths of the model for all samples

Paths		Path Parameter B	Standard Errors S.E	T. Test C.R	Significance level*** P
Strategic Renewal ------>	Organizational immune systems	.69737	.03272	18.49982	***

*** indicates a significance level less than or equal to (.01)

Table No (8)
Estimates of the parameters of the standard paths of the model for public universities sample

Paths		Path Parameter B	Standard Errors S.E	T.Test C.R	Significance level*** P
Strategic Renewal ------>	Organizational immune systems	.68054	.04052	14.53757	***

*** indicates a significance level less than or equal to (.01)

Table No (9)

Estimates of the parameters of the standard paths of the model for private universities sample

Paths		Path Parameter B	Standard Errors S.E	T.Test C.R	Significance level*** P
Strategic Renewal ------>	Organizational immune systems	.71067	.06011	10.90377	***

*** indicates a significance level less than or equal to (.01)

Table No (10)

Standardized total direct effect between the model variables for all samples

Variable	Strategic renewal
Organizational Immune systems	.69737

Table No (11)

Standardized direct effects between the model variables for all samples

Variable	Strategic renewal
Organizational Immune systems	.69737

Table No (12)

Testing the significance of standardized direct effect between model variables for all samples using the Bootstrap-Two Tailed Significance (BC) test

Variable	Strategic renewal (Direct)
Organizational Immune systems	.01240

Table No (13)

Standardized total direct effects between the model variables for public universities sample

Variable	Strategic renewal
Organizational Immune systems	.68054

Table No (14)

Standardized direct effects between the model variables for public universities sample

Variable	Strategic renewal
Organizational Immune systems	.68054

Table No (15)
Testing the significance of standardized direct effects between model variables for public universities sample using the Bootstrap-Two Tailed Significance (BC) test

Variable	Strategic renewal (Direct)
Organizational Immune systems	.01000

Table No (16)
Standardized total direct effects between the model variables for private universities sample

Variable	Strategic renewal
Organizational Immune systems	.71067

Table No (17)
Standardized direct effects between the model variables for private universities sample

Variable	Strategic renewal
Organizational Immune systems	.71067

Table No (18)
Testing the significance of standardized direct and indirect effects between model variables for private universities sample using the Bootstrap-Two Tailed Significance (BC) test

Variable	Strategic renewal (Direct)
Organizational Immune systems	.00930

10/4/3/1 Testing the validity of the Third hypothesis:

Third hypothesis (H3): "Strategic renewal has a direct positive and significant effect on the organizational immune systems of research communities' items".

The data shown in the previous figures and tables refer to the following:

(A) On the level of all samples (public and private universities sample:

The data in the figure (3) show that the value of the relationship path parameter in the study model for all samples (.70) is a standard score, and the data in the path parameters in table (7) confirm that this effect is positive and significant; Where the value (t = 18.49982) was achieved for the path parameter with a degree of confidence of 95 %(Significance ≤0.05), and the data for both tables (10) and (11) of standardized total and direct effects for all samples indicate the same result, which means that the greater the value of the variable "strategic renewal" by one standard deviation degree, the

higher the level of "organizational immune systems" by (.70) a standard deviation score.

In other words, "strategic renewal" contributes by (.70) to explaining the diversity and difference in the opinions of academic leaders and their assistants about "organizational immune systems," while the remaining percentage is due to other factors; in addition to the table (12) shows that this effect is significant (significance =.00802) using the Bootstrap-Two Tailed Significance (BC) test that examined the significance of this effect. Therefore, these results support the validity of this hypothesis, as one of the hypotheses of the direct effects model of strategic renewal and its relationship with organizational immune systems.

 (B) On the level of the public universities sample:

The data in the figure No (4) show that the value of the relationship path parameter in the study model for public universities sample (.68) is a standard score and the data in the path parameters in table No (8) confirm that this effect is positive and significant; Where the value (t = 14.53757) was achieved for the path parameter with a degree of confidence of 95 %(Significance ≤0.05), and the data for both tables No (13) and No (14) of standardized total and direct effects for public universities sample indicate the same result, which means that the higher the value of the variable "strategic renewal" by one standard deviation degree, the higher the level of "organizational immune systems" by (.68) a standard deviation score. In other words, "strategic renewal" contributes by (.68) to explaining the diversity and difference in the opinions of academic leaders and their assistants about "organizational immune systems," while the remaining percentage is due to other factors; in addition to the table No (15) shows that this effect is significant (significance =.00802) using the Bootstrap-Two Tailed Significance (BC) test that examined the significance of this effect. Therefore, these results support the validity of this hypothesis, as one of the hypotheses of the direct effects model of strategic renewal and its relationship with organizational immune systems.

 (C) On the level of the private universities sample:

The data in the figure No (5) show that the value of the relationship path parameter in the study model for private universities sample (.71) is a standard score and the data in the path parameters in table (9) confirm that this effect is positive and significant; Where the value (t = 10.90377) was achieved for the path parameter with a degree of confidence of 95 %(Significance ≤0.05), and the data for both tables (16) and (17) for

standardized total and direct effects for private universities sample indicate the same result, which means that the higher the value of the variable "strategic renewal" by one standard deviation degree, the higher the level of "organizational immune systems" by (.71) a standard deviation score. In other words, "strategic renewal" contributes by (.71) to explaining the diversity and difference in the opinions of academic leaders and their assistants about "organizational immune systems," while the remaining percentage is due to other factors; in addition to the table (18) shows that this effect is significant (significance =.00802) using the Bootstrap-Two Tailed Significance (BC) test that examined the significance of this effect. Therefore, these results support the validity of this hypothesis, as one of the hypotheses of the direct effects model of strategic renewal and its relationship with organizational immune systems.

10/4/3/2 Testing the validity of the fourth hypothesis:

The fourth hypothesis (H4):" There is a significant difference in the influential relationships of the study model in public universities compared to private universities".

To test the validity of the eighth hypothesis and determine the extent of the significance of the differences in effects between the variables of the study model in both public and private universities. The test's findings partially supported the validity of the hypothesis; it was determined whether the path of the influential relationships between the model variables differs significantly based on the difference in community. Therefore, the researcher used the path analysis of relationships for multiple groups (Multi-group analysis), using the tool developed by (Gaskin & Lim.2018) depending on the Amos program.

Both Table (19) and (20) show the results of this test; Table (19) shows the significance of the differences between the path parameters for both models; Where the value of the coefficient of difference between the two models was (9.723) at the degree of freedom (60) and the significance value was =1.000 which is greater than .05; which means that the difference in the influential relationships between the two models at the general level is not significant, and the table (20) shows the extent of the significance of the difference in the path effect between the variables for both models, as follows:

Table No (19) Global test

	X2	DF
Unconstrained	0.000	**0**
Constrained	9.723	**60**
Difference	9.723	**60**
P-Value*	**1.000**	

Source: Results of statistical analysis.
Notes:
- X2, Y2, CMIN refer to Coefficient of difference or chi-square.
- DF refers to degree of freedom.
- P-Value refers to significance value.

Results (interpretation): *The p-value of the chi-square difference test is not significant.

Table No (20) local test

Path Name	All Universities Sample Beta	Public Universities Sample Beta	Difference in Betas	P-Value for Difference	Results
Strategic renewal → Organizational Immune systems.	0.697***	0.681***	0.017	0.000	The positive relationship between Organizational Immune systems and Strategic Renewal is stronger for All Universities Sample.

Source: Results of statistical analysis.
  Notes: Significance Indicators:
  †p < 0.100
  *p < 0.050
  **p < 0.010
  *** p < 0.001

As shown in Figure (20):

- The effect of strategic renewal on organizational immune systems: The path parameter in all samples was (0.697), while the path parameter in the public universities sample was (0.681), and this difference is significant because the significance value is (0.000) which is smaller than (.05), and the test showed that the impact of strategic renewal on organizational immune systems is stronger in private universities than in public universities with a difference (0.017).

We conclude from this that although there is a significant difference in the effect of strategic renewal on organizational immune systems in the two models, but these differences at the general level were not significant, and this means that **the fourth hypothesis is invalid**.

10/5 Summary, research results and future research

The aim of this research was to investigate the relation between strategic renewal and organizational immune systems by studying the conceptual framework of two variables and conducting a survey study to explore the relation between them. **The researcher concluded the following results:**

-There are statistically significant differences in the perceptions of university leaders in public and private universities regarding the dimensions of strategic renewal.

-There are statistically significant differences in the perceptions of university leaders in public and private universities regarding the dimensions of organizational immune systems.

- There is a significant positive effect in the relationship between strategic renewal and organizational immune systems of university leaders in the Egyptian universities under study.

- There is no significant difference between the model variables in public universities compared to private universities.

Future research:

Based on the research results, the researcher suggests the following future researches:

- It is necessary for the administration under study should formulate an integrated strategy of creating a culture around organizational immune systems, whether natural or acquired.

- It is necessary to pay attention and enhance exploratory and exploitative strategic renewal activities in the universities under study to build a distinguished strategic center that serves as an immune system to confront environmental threats and develop appropriate solutions to them.

- It is necessary to hold seminars and workshops to consolidate the concept of strategic renewal and organizational immune systems and the mechanisms for their application by the researched organizations and remove obstacles to their application.

- It is necessary to enhance the dimensions of organizational immune systems in the universities under study.

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