

**The effect of Organizational immune systems on crisis
management strategies (A field Study on Egyptian
Universities)**

تأثير نظم المناعة التنظيمية على استراتيجيات إدارة الأزمات (دراسة ميدانية على
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**A Research submitted to fulfill the requirements of PHD degree in
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Abstract:

The main objective of this research is to test the direction, strength, and significance of the influence relationship between organizational immune systems and crisis management strategies, 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 organizational immune systems have a significant positive effect on crisis management strategies 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.

Keywords: organizational immune systems, crisis management strategies, public universities, and private universities.

1- Introduction

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, 2020 citing from Farncombe, 2014; Simmons, 2013).

A crisis is a series of unforeseen events that launch a group, team or an organization into a downward spiral that is quick and will have long term effects if the situation is not rapidly handled effectively and efficiently (Taneja et al., 2014). According to (Taneja et al., 2014 Citing from Hermann, 1972) argues that a crisis is a “situation that incorporates the following three conditions: (a) a surprise (b) a threat to high-priority goals, and (c) a restricted amount of time available for response” (As cited in Choi, Sung, and Kim, 2010). Crises are not limited to any organizational size or type. They occur in all types of organizations so decision makers must be ready to act fast when they occur. Such as the current crisis of covid 19 that facing the whole world and how to prevent and prepare for it.

So, it is important for university leaders to understand why crisis situations occur. In addition, it is also very important to understand when a crisis situation will happen, how it will occur, what can be done to handle it, and the extent to which it can be prevented, or its impact minimized. In order to better understand crises, organizational leaders have to be oriented toward the strategic management of crisis. In addition, they must be continually ready to change their management philosophies, decisions, and actions as they prepare to be socially responsible in their management of crisis situations (According to Taneja et al., 2014 as cited in Rosenblatt, 2002). As universities take actions to deal with the Covid 19 crisis, such as online learning by reducing the attendance of students, employees and faculty members and evaluating students by preparing research and presenting them via the Internet, other exams via the Internet, and others by attending examinations under strict procedures; and digital transformation courses, converting university cities into isolation hospitals for Covid 19 patients, and allowing Exceptional vacations.

In light of the scarcity of Egyptian and foreign studies that examined the relationship between organizational immune systems and crisis management strategies of university leaders and their assistants; The current research deals with studying and analyzing that relationship between organizational immune systems and crisis management strategies of university leaders and their assistants, by applying it on Egyptian public universities and Egyptian 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 research.

2- Previous studies

Youssef , (2021) aimed to clarify the role of organizational immunity in facing crises within organizations. This study found several findings, the most important of which is: There is an effect of the organizational immune systems represented in organizational learning, organizational memory and organizational genes (DNA) combined in preventive and treatment crisis management strategies. On the other hand, (Muskopf, Jamie; Sudan, Nimit; Verdooner, Elise & Nair, Murali., 2021) study aimed to learn about how to respond to future disasters from the evolution of disaster management as performed by helping professionals and policymakers over the past century and best practices seen today. The study concluded with innovative practices and use of various technologies in local patient care systems.

While (Al-Abbasi, Youssef Samir Ibrahim., 2020) study aimed to discover the nature of the relationship between organizational genes and crisis management, as well as to investigate the impact of organizational genes dimensions on crisis management in the Palestinian Ministry of Public Works and Housing's Southern governorates. this study concluded the following: There is a statistically significant relationship between dimensions of organizational genes and crisis management in the Palestinian Ministry of Public Works and Housing - Southern governorates; There is a statistically significant effect of the dimensions of organizational genes on crisis management in the Palestinian Ministry of Public Works and Housing - Southern governorates; There are no statistically significant differences between the averages of the respondents 'responses to the organizational genes in the Palestinian Ministry of Public Works and Housing - Southern governorates, due to the following personal variables (gender, years of service, job title), and there are statistically significant differences in the following personal variables (age, Qualification);and There are no statistically significant differences between the averages of

the respondents' responses to crisis management in the Palestinian Ministry of Public Works and Housing - the southern governorates, due to the following personal variables (gender, job title), and There are statistically significant differences in the following personal variables (age, educational qualification, Years of service).

According to (Abdul-Majeed, 2016) study aimed at showing the impact of Organizational Immune Systems on Crisis Management Strategies in the Food Industry Companies in Jordan, through testing the mediating role of Strategic Information Systems. Also identifying the level of applying Organizational Immune Systems with its all dimensions (Organizational Learning, Organizational Memory, and Organizational DNA) and the level of applying the strategies of the crisis management at preventive and treatment levels, Also the level of using the Strategic Information Systems in the studied companies. this study found that Organizational Immune Systems and their dimensions (Organizational Learning, Organizational Memory, and Organizational DNA) have statistical significance on Crisis Management Strategies .Furthermore, there is statistical significance of Strategic Information Systems on Crisis Management Strategies. And there is statistical significance of Organizational Immune Systems on Crisis Management Strategies with the mediation of Strategic Information Systems. Also the preventive strategies had a greater impact than treatment strategies of crisis management strategies.

Laftah, (2014) study aimed to identify officials' perspectives on organizational immunity and crisis management at the General Company for Iraqi Leather Industries, as well as to clarify the relationship and impact between them at the macro level and at the level of its natural and acquired dimensions and crisis management, and to determine which of these dimensions is most influential in crisis management. This study concluded there is a strong correlation between organizational immunity and crisis management, there is a positive effect of organizational immunity in crisis management. The study recommended the necessity of the senior management's initiative to create an appropriate organizational climate through the embodiment of organizational immunity in order to be organizationally able to deal with crises in ways that have been pre-planned and with the fewest losses possible.

3- Research problem

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).

Organizational crises can rival natural disasters in their destructive outcomes. The impact of an organizational crisis may be so significant that it cripples the organization, making it impossible to effectively meet organizational goals and mission. And for some organizations, it may end their very existence the serious outcomes of organizational crises illustrate the importance of preventing and preparing for them (Dinkin, 2007). Such as the current crisis of covid 19 that facing the whole world and how to prevent and prepare for it.

Today's organizations face increasingly dynamic environments, characterized by substantial and often unpredictable technological, political, and economic change. Due to the increase in the occurrence of crises, their diversity, and the severity of their impact, as well as the expansion and complexity of the activities of organizations that traditional strategies are no longer useful for managing crises of the current era, so the need for more studies in the field of crisis management has become necessary (Schmitt et al., 2016).

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 organizational immune systems.

- The dimensions of organizational immune systems most recognized by the respondents were: (organizational learning, organizational memory, and organizational genes).
- Respondents' perspectives in the universities under study differ regarding the importance of activating crisis management strategies.
- The dimensions of crisis management strategies most recognized by the respondents were: (proactive strategies, reactive strategies).
- The results also showed that there is agreement that organizational immune systems add real value to the Egyptian universities under study, which in turn encourages the implementation of crisis management strategies.

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 **“what is the effect of organizational immune systems on crisis management strategies of university leaders and their assistant in Egyptian universities?”**

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

2/1 Is there significant differences in the perceptions of university leaders in public and private universities regarding the dimensions of organizational immune systems ?

2/2 Is there significant differences in the perceptions of university leaders in public and private universities regarding the dimensions of crisis management strategies?

2/3 Is there a significant positive effect of the dimensions of organizational immunity systems (learning, memory, DNA) on crisis management strategies (proactive, reactive) 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 framework of organizational immune systems and determine its effect on crisis management strategies 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 organizational immune systems in the Egyptian universities.

3/1 Measuring the perceptions of university leaders and their assistants regarding crisis management strategies in the Egyptian universities.

3/3 Determining the direct effect of organizational immune systems on crisis management strategies 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 the organizational immune systems and crisis management strategies 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 organizational immune systems and crisis management strategies to enrich the library with more comprehensive studies on contemporary vital topics.
- There is no Arabic or English study analysis the relationship between organizational immune systems and crisis management strategies of university leaders (Within the limits of the researcher's knowledge).

6- Research model:

In light of the previous studies, 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 explain the relationships between the research variables, as well as clarifying the dimensions of variables and their effect on 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: organizational immune systems, includes: Organizational learning, Organizational memory, Organizational genes (DNA).

The dependent variable: crisis management strategies, includes: Proactive strategies, and Reactive strategies.

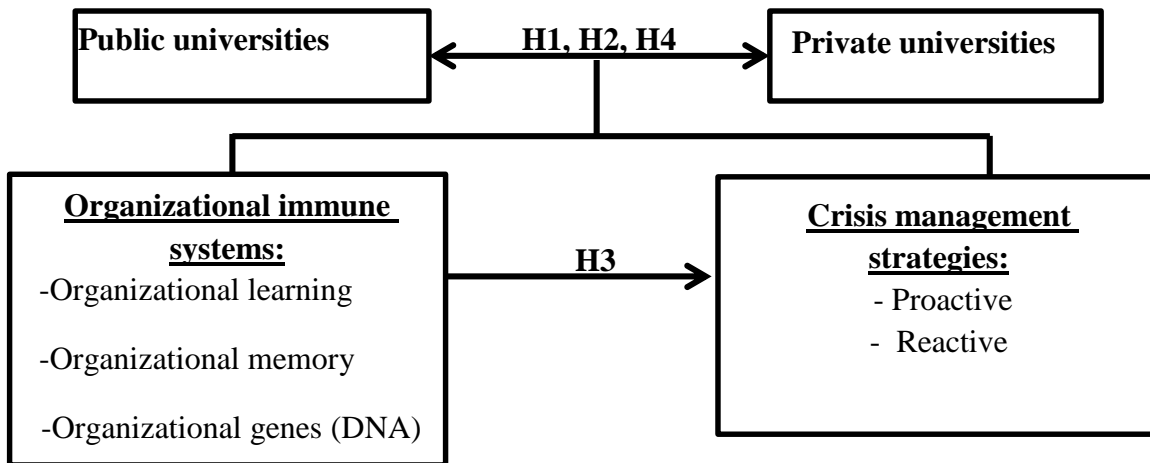


Figure No (1) The theoretical model of the research

7- Research hypotheses

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 organizational immune systems.

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

The third hypotheses (H3): There is a significant positive effect of organizational immune systems on crisis management strategies 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- Research limitations

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 organizational immune systems and crisis management strategies.

9- Research methodology

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 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)

10/1/1 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”.

10/1/2 Organizational immune systems dimension:

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:

10/1/2/1 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
- 2- Openness and experimentation
- 3- Shared vision / system perspective/system thinking.
- 4-Dialog
- 5-Knowledge transfer and integration
- 6- Interaction with the external environment

10/1/2/2 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.

10/1/2/3 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
- 2- Information
- 3- Motivation
- 4- Structure

10/2: Conceptual framework of crisis management strategies.

The impact of crises on organizations and individuals is stronger than ever. Despite the growing awareness of the effects of crisis events, most organizations are not adequately prepared for crises management (Wang, 2008), so leaders in organizations must be aware of these terms. They must have specific skills, which will enable them to prepare, manage, and find a solution for potential crises that may threaten the existence of their organizations (Harwati, 2013).

Crisis management is a very important organizational function in due to the nature of the current business environment, which is influenced by the impact of globalization and high market dynamics (Vašíčková, 2019). Failure can lead to serious harm to stakeholders, losses for an organization, or even the termination of its existence, so crisis management is a process designed to prevent or reduce the damage that a crisis can do to an organization and its stakeholders (Coombs, 2007).

10/2/1 Organizational crisis management strategies definition:

The origin of the term crisis management derives from the political field. Specifically, it is claimed that American president J.F. Kennedy first used this expression during the Cuban Missile Crisis of 1962, when the confrontation between US-USSR over the installation of Soviet nuclear missiles in Cuba pushed the world to the verge of World War III. This is how Kennedy characterized dealing with a critical emergency situation. (Milašinović & Kešetović, 2008).

Crisis management can be defined as a set of functions or processes that aim to identify, examine and anticipate potential crisis situations and to create special means that will enable an organization to prevent a crisis or to deal with it and overcome it with the least amount of damage and the fastest possible return to a normal state (Milašinović & Kešetović, 2008; Spillan, 2000).

Both (Lockwood & SPHR, 2005) defined crisis management broadly as an organization's pre-established activities and guidelines for safely and effectively preparing for and responding to major catastrophic events or incidents (e.g., fires, earthquakes, severe storms, workplace violence, kidnappings, bomb threats, acts of terrorism, etc.). Crisis management is defined as the governance style used to move the system from a state of crisis to a (possibly new) stable and acceptable state (Benaben et al., 2014).

Through the above, the researcher believes that the crisis Management (CM) is the overall coordination of an organization's response to a crisis, in an effective, timely manner, with the goal of avoiding or minimizing damage to the organization's profitability, reputation, or ability to work and often involves the need to make quick decisions on the basis of uncertain or incomplete information.

10/2/2 Organizational crisis management strategies dimensions:

Those two main dimensions have been adopted and agreed upon through several studies such as: (Youssef, 2021; Abdul-Majeed, 2016; Vašíčková, 2019).

These two stages of crisis management process are as follows :

- 1- The proactive approach: It is a set of procedures and activities that provide timely and adequate information on the potential crisis and potential risks; creates an early warning system; crisis plans, and scenarios are drawn up; a crisis team is formed; address the problems

that cause the crisis, this is what the university takes to prevent crises from occurring (Vašíčková, 2019; Sahin et al., 2015).

- 2- The reactive approach: It is a set of procedures and principles to help eliminate and stabilize an affected business from crisis, to contain the damage; quickly recover from the current situation; and restore activity; this requires analyzing the results of crisis in detail and identifying the causes of the crisis. Based on these analyses, the corrective actions are determined (Vašíčková, 2019).

10/3 Methodology:

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 Organizational immune systems: the researcher use the 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.
- **To measure the crisis management strategies: the researcher uses the scale** Developed by (Abdel-Majeed, 2016 citing from Al-Araji and Daqasma, 2000; Mitroff & Alpaslan, 2003; Baubion & Jacobzone, 2014;

* The sample size was determined (at 95% confidence and $\pm 5\%$ error limits and at community size = 9669) using the website <http://Sample Size Calculator - Calculators.19Good>

Baubion, 2013), which consists of 12 statements and 6 statements for each dimension and is used by various studies such as (Youssef, 2021; Vašíčková, 2019; Mehr & Jahanian, 2016).

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

The Measurement model aims at ensuring 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.

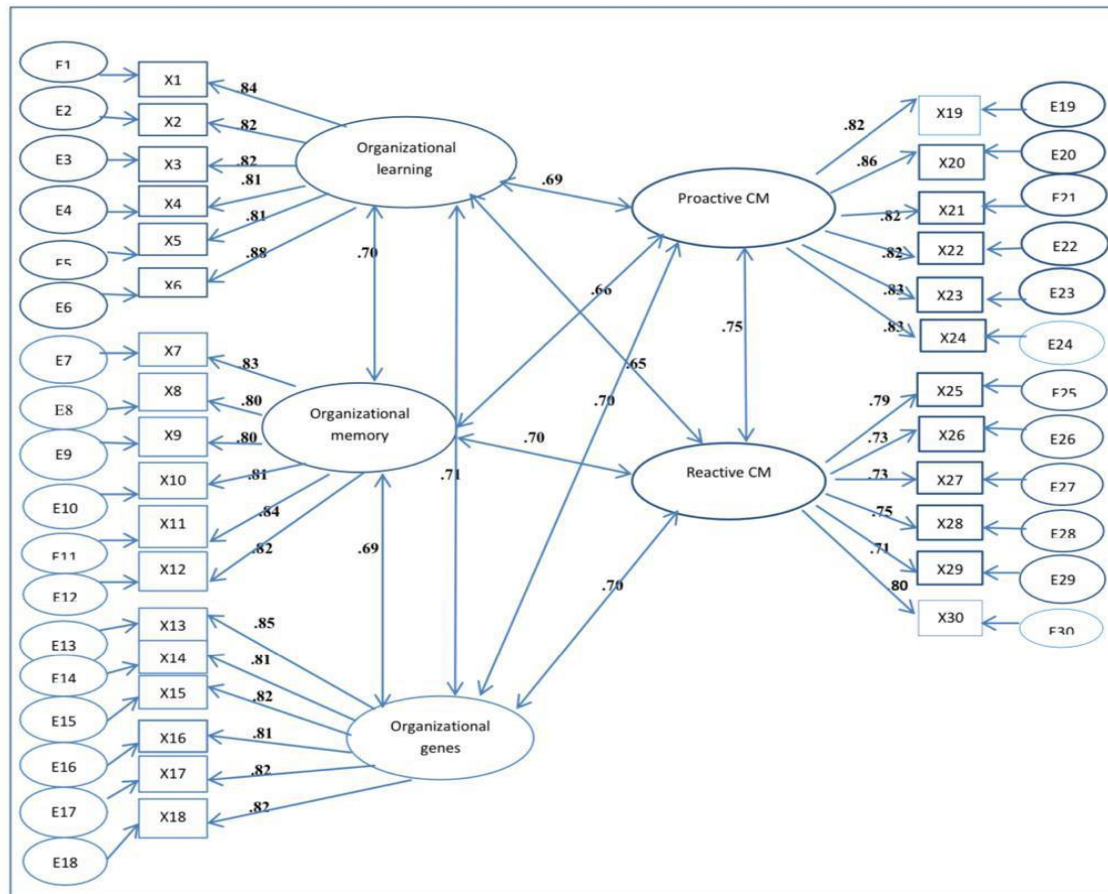
The following tests are conducted to determine the degree of reliability and validity of each scale by testing the measurement model using the Amos v.25 program; Construct validity and internal consistency were tested using confirmatory factor analysis of the measurement model, Composite Reliability (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 (X30), with items saturation rates ranging from (.70) 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.



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

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

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

(A) The independent 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 (X1) to (X6) for its latent variable (organizational learning) with saturation coefficients ranged between (0.81) to (0.88), The loading factors for items ranging from (X7) to (X12) for its latent variable (organizational memory) with saturation coefficients ranged between (0.80) to (0.84), and The loading factors for items ranging from (X13) to (X18) 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.

(B) The dependent variable (crisis management strategies): The reliability and validity of this scale using its twelve items. As shown in Figure No (2), the loading factors for items ranging from (X19) to (X24) for its latent variable (proactive approach) with saturation coefficients ranged between (0.82) to (0.86) and The loading factors for items ranging from (X25) to (X30) for its latent variable (Reactive) with saturation coefficients ranged between (0.71) to (0.80), which means a high degree of validity on the scale's twelve items and their internal consistency.

The model fit measures were **CMIN=1326.720; DF=719.000; CMIN/DF=1.845; CFI=0.950; SRMR=.0033; 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) riteria 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. & Brunsten, 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:

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

γ = Standard regressions for scale items, $(\sum \text{var}(\theta))$ = 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:

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

γ = 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) ndexes of reliability and validity of scales

Scales:	Composite Reliability	Convergent Validity	Maximum Shared Variance MSV	Discriminant Validity
	CR	AVE		
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
Proactive	0.930	0.690	0.566	Achieved
Reactive	0.892	0.580	0.566	Achieved

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 No (3) were as follows :

1. The independent 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 (1) to (18) on the survey list.

2. The dependent variable (crisis management strategies): The researcher concluded that the crisis management strategies scale with its two dimensions and twelve items has high degree of reliability, as the composite reliability value was (CR = 0.930 For Proactive and CR= 0.892 For Reactive), and the convergent validity of the scale was achieved, as the value of (AVE = 0.690 For Proactive and AVE = 0.580 For Reactive), and the discriminant validity of the scale was achieved, as the value of (AVE) for two latent variables (Proactive and Reactive) was larger than the value of (MSV = 0.566 For Proactive and MSV = 0.566 For Reactive), and

therefore crisis management was measured with twelve items, designed on a five-point Likert scale, and ranked from (19) to (30) 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 (30) 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 (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 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) he general mean and standard deviation of the research variables

The Scale	Dimensions	Sample*	Mean	Standard Deviation
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
Crisis management strategies	Proactive approach	363	3.8861	.91575
	Reactive approach	363	4.0491	.72614

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

2. In relation 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 (1) showed that there was a degree of difference in the sample members' opinions about the research 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.

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 organizational immune systems variable.

As shown in table No (5), 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 (5) -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			

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

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 first hypothesis of this research and we can accept the first hypothesis.

10/4/2/2 T-test to measure the significance of the differences between the two studies samples with regard to their perception of the crisis management strategies variable.

Table No (6) -test to measure the significance of differences between the study samples for the crisis management strategies variable

Dimensions	Study sample (Academic leaders)	Mean	Standard deviation	"T" Value	Sig. (2-tailed)	(Significance level)
Crisis management strategies	Academic leaders in public universities	3.8946	.82165	-2.692-	.007	Significance
	Academic leaders in private universities	4.1211	.56556			
Proactive approach	Academic leaders in public universities	3.7988	.98241	-2.657-	.008	Significance
	Academic leaders in private universities	4.0698	.72689			
Reactive approach	Academic leaders in public universities	3.9905	.79076	-2.242-	.026	Significance
	Academic leaders in private universities	4.1724	.54970			

As shown in table (6), the mean of Crisis management strategies in public universities for academic leaders and their assistants (3.8946) and in private universities (4.1211), as well as the standard deviation in public universities (.82165) and in private universities (.56556), has reached the level of significance (.007), and thus the effect is significant.

The mean of proactive approach in public universities for academic leaders and their assistants (3.7988) and in private universities (4.0698), as well as the standard deviation in public universities (.98241) and in private universities (.72889), has reached the level of significance (.008), and thus the differences are statistically significant.

The mean of reactive approach in public universities for academic leaders and their assistants (3.9905) and in private universities (4.1724), as well as the standard deviation in public universities (.79076) and in private universities (.54970), has reached the level of significance (.026), and thus the differences are statistically significant.

In summary, the validity of the second hypothesis of this research, as there are statistically significant differences between the two samples' perception of the crisis management strategies variable.

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) program. 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.

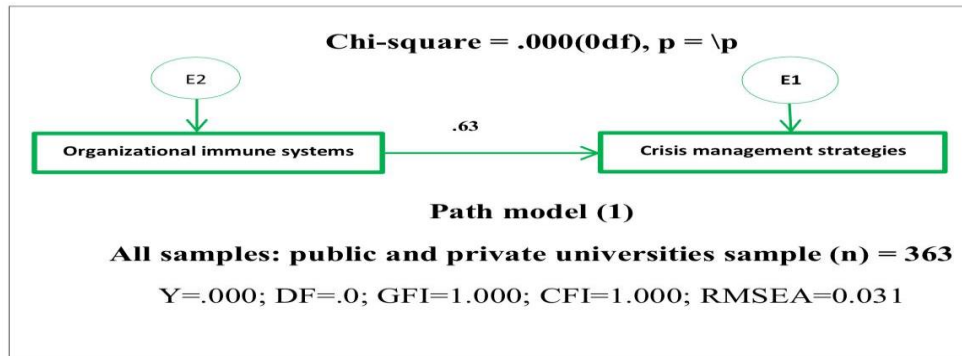


Figure No (3) arameters of path analysis of relationships for the research model for all samples

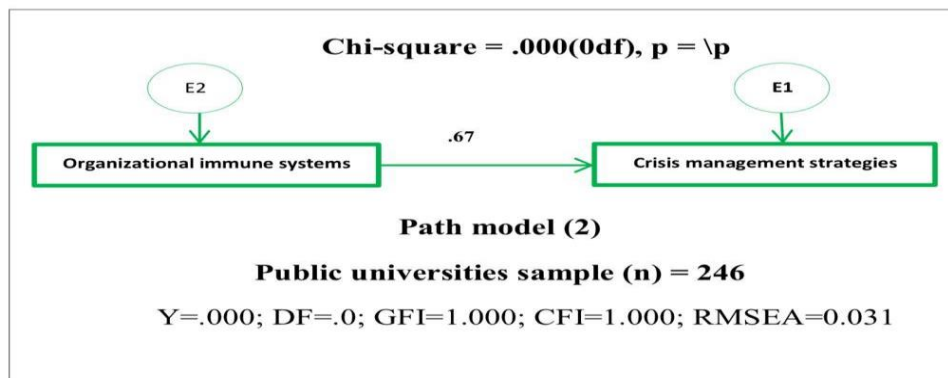


Figure No (4) arameters of path analysis of relationships for the research model for public universities sample

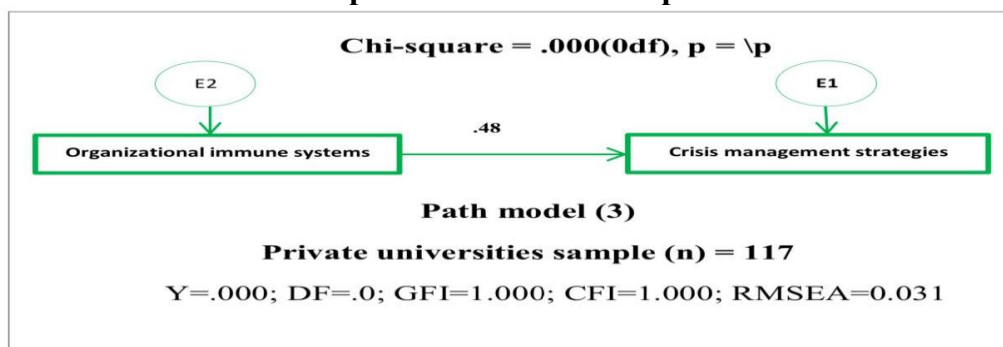


Figure No (5)
Parameters of path analysis of relationships for the research model for private universities sample

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
Organizational immune systems -----> Crisis management strategies	.63197	.04351	14.30199	***

*** 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
Organizational immune systems -----> Crisis management strategies	.66766	.05247	12.97178	***

*** 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
Organizational immune systems -----> Crisis management strategies	.47915	.07559	5.57119	***

*** 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	Organizational immune systems
Crisis management strategies	.63197

Table No (11)**Standardized direct effects between the model variables for all samples.**

Variable	Organizational immune systems
Crisis management strategies	.63197

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	Organizational immune systems (Direct)
Crisis management strategies	.02297

Table No (13)**Standardized total direct effects between the model variables for public universities sample.**

Variable	Organizational immune systems
Crisis management strategies	.66766

Table No (14)**Standardized direct effects between the model variables for public universities sample.**

Variable	Organizational immune systems
Crisis management strategies	.66766

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	Organizational immune systems (Direct)
Crisis management strategies	.00864

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

Variable	Organizational immune systems
Crisis management strategies	.47915

Table No (17)

Standardized direct effects between the model variables for private universities sample.

Variable	Organizational immune systems
Crisis management strategies	.47915

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	Organizational immune systems (Direct)
Crisis management strategies	.00369

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

Fourth hypothesis (H3): "Organizational immune systems have a direct positive and significant effect on crisis management strategies 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 No (3) show that the value of the relationship path parameter in the study model for all samples (.63) is a standard score, and the data in the path parameters in table No (7) confirm that this effect is positive and significant; Where the value ($t = 14.30199$) was achieved for the path parameter with a degree of confidence of 95 % (Significance ≤ 0.05), and the data for both tables No (10) and (11) of standardized total and direct effects for all samples indicate the same result, which means that the higher the value of the variable "organizational immune systems" by one standard deviation degree, the higher the level of "crisis management strategies" by (.63) a standard deviation score. In other words, "organizational immune systems" contributes by (.63) to explaining the diversity and difference in the opinions of academic leaders and their assistants about "crisis management strategies" while the remaining percentage is due to other factors; in addition to the table (12 shows that this effect is significant (significance = .02297) 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 organizational immune systems and its relationship with crisis management strategies.

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

The data in the figure (4) show that the value of the relationship path parameter in the study model for public universities sample (.67) 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 ($t = 12.97178$) 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 “organizational immune systems” by one standard deviation degree, the higher the level of “crisis management strategies” by (.67) a standard deviation score. In other words, “organizational immune systems” contributes by (.67) to explaining the diversity and difference in the opinions of academic leaders and their assistants about “crisis management strategies” while the remaining percentage is due to other factors; in addition to the table No (15) shows that this effect is significant (significance = .00864) 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 organizational immune systems and its relationship crisis management strategies.

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

The data in the figure (5) show that the value of the relationship path parameter in the study model for private universities sample (.48) is a standard score and the data in the path parameters in table No (9) confirm that this effect is positive and significant; Where the value ($t = 5.57119$) 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 “organizational immune systems” by one standard deviation degree, the higher the level of “crisis management strategies” by (.48) a standard deviation score. In other words, “organizational immune systems” contributes by (.48) to explaining the diversity and difference in the opinions of academic leaders and their assistants about “crisis management strategies” while the remaining percentage is due to other factors; in addition to the

table No (18) shows that this effect is significant (significance =.00369) 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 organizational immune systems and its relationship with crisis management strategies.

In conclusion, the third hypothesis of this research is supported by structural equation modeling tests, which demonstrate that organizational immune systems have a direct positive and significant impact on crisis management strategies, although there is a difference in this effect between public and private universities.

**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.2019) 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) lobal 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
Organizational Immune systems. → Crisis management strategies.	0.632***	0.668***	-0.036	1.000	There is no difference.

Source: Results of statistical analysis.

Notes: Significance Indicators:

- †p < 0.100
- *p < 0.050
- **p < 0.010
- *** p < 0.001

As shown in table No (20):

- **The effect of organizational immune systems on crisis management strategies:** The path parameter in all samples was (0.632), while the path parameter in the public universities sample was (0.668), and this difference is not significant because the significance value is (1.000) which is greater than (.05), which means that this relationship does not differ significantly in both models.

We conclude from this that although there is no a significant difference in the effect of organizational immune systems on crisis management strategies in the two models, 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 organizational immune systems and crisis management strategies 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 organizational immune systems.
- -There are statistically significant differences in the perceptions of university leaders in public and private universities regarding the dimensions of crisis management strategies.
- There is a significant positive effect in the relationship between organizational immune systems and crisis management strategies 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 research:

- It is necessary for the universities administration under study should formulate an integrated strategy of creating a culture around organizational immune systems, whether natural or acquired.
- It is necessary for the universities adopts treatment measures to manage crises after their occurrence, takes steps to mitigate the crisis's effects after it has occurred, benefits from the lessons learned from its previous experiences, and work to train employees to develop their skills in a systematic planned manner.
- It is necessary for the universities to hold brainstorming sessions to examine deviations to develop solutions to them, and make decisions based on memory, and retrieve previous experiences from memory to avoid any deviations.

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ملخص البحث:

هدف البحث إلى اختبار اتجاه وقوة ومعنوية علاقة التأثير بين أنشطة التجديد الاستراتيجي وأنظمة المناعة التنظيمية، وذلك بالاعتماد على عينة تتكون من (246) من القيادات الجامعية ومساعدتهم في الجامعات الحكومية، و(117) من القيادات الجامعية ومساعدتهم في الجامعات الخاصة. تم اختيار نموذجين لمقارنة العلاقات بين المتغيرات في مجتمعي الدراسة. تم اختبار نموذجي العلاقة باستخدام طريقة نمذجة المعادلات الهيكلية ببرنامج (AMOS V.25) باستخدام مقياس ليكرت الخماسي ونسبة استجابة 90% تقريباً، وأظهرت نتائج الدراسة الميدانية أن أنظمة المناعة التنظيمية لها تأثير إيجابي معنوي على استراتيجيات إدارة الأزمات في العينتين، فضلاً عن إجراء اختبار النماذج المقارنة، وتم التوصل إلى عدم وجود فروق في العلاقات بين المجتمعين. وفي نهاية البحث وبناء على نتائج البحث اقترحت الباحثة بعض البحوث المستقبلية التي يمكن إجراؤها فيما يتعلق بمتغيرات نموذج البحث.

الكلمات الرئيسية: نظم المناعة التنظيمية، استراتيجيات إدارة الأزمات، الجامعات الحكومية والجامعات الخاصة.