The Effect Of E-Leadership On Organizational Innovation During The COVID19 Pandemic Crises (An Analytical Study From The Point Of View Of Employees In Iraqi Universities)

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أثر القيادة الإلكترونية على الابتكار التنظيمي خلال أزمة جائحة فيروس كورونا

دراسة تحليلية من وجهة نظر العاملين في الجامعات العراقية

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كلية الادارة والاقتصاد / جامعة الموصل

تاريخ استلام البحث	2022/ 6 /29	تاريخ قبول النشر	2022/8/28	تاريخ النشر	2022/10/17

https://doi.org/10.34009/aujeas.2022.178638

Abstract:

The Corona crisis affected various sectors around the world, and the education sector was one of the most affected sectors due to the continuous closures. Therefore, international universities have transformed to electronic work within different managements and the students' learning process. So, the study comes to focus on the electronic leadership impact on organizational innovation in Iraqi universities during Corona pandemic. The study aimed at the following: To identify the reality of electronic leadership in, to clarify the status of organizational innovation, and to clarify the role of electronic leadership in improving organizational innovation in Iraqi universities during the Corona pandemic period.

The descriptive analytical approach was used in the study, questionnaire design and distribution of 180 questionnaires at various administrative levels in (University of Baghdad, University of Mosul, Mansoura University College in Baghdad, University College of Iraq in Basra Governorate), in addition to data entry and analysis by two programs. SPSS and SMARTPL programs..

The study reached the following results: There is a direct positive impact of the electronic infrastructure on the development of the organizational structure in Iraqi universities during the crisis of Corona virus pandemic. There is a direct positive impact of electronic performance on the electronic development of human resources during that period. There is a direct positive impact of electronic infrastructure on the electronic development of human resources. There is a direct positive impact of electronic infrastructure on the development of the organizational structure during the quarantine period. There is no direct positive impact of electronic performance on the development of information technology during the pandemic.

***Keywords**: electronic leadership, organizational innovation, electronic performance, organizational structure, electronic infrastructure.*

المستخلص

أثرت أزمة كورونا على مختلف القطاعات حول العالم، وكان قطاع التعليم من أكثر القطاعات تضررا بسبب الإغلاق المستمر. لذلك، تحولت الجامعات العالمية وعملية تعلم الطلاب إلى العمل الإلكتروني داخل إدارات مختلفة، لذا تأتي الدراسة للتركيز على أثر القيادة الإلكترونية على الابتكار التنظيمي في الجامعات العراقية خلال جائحة كورونا. هدفت الدراسة إلى ما يلي: التعرف على واقع القيادة الإلكترونية، وتوضيح حالة الابتكار التنظيمي، وتوضيح دور القيادة الإلكترونية في تحسين الابتكار التنظيمي في الجامعات العراقية خلال فترة جائحة كورونا.

تم استخدام المنهج الوصفي التحليلي في الدراسة، كما تم تصميم الاستبيان وتوزيعه على عينة مؤلفة من ١٨٠ استبانة على مختلف المستويات الإدارية في (جامعة بغداد، وجامعة الموصل، جامعة المنصورة، وكلية العراق الجامعة في البصرة) بالإضافة إلى إدخال البيانات وتحليلها بواسطة برنامجي SPSS وSMARTPLs.

توصلت الدراسة إلى النتائج التالية: هناك أثر إيجابي مباشر للبنية التحتية الإلكترونية على تطوير الهيكل التنظيمي في الجامعات العراقية خلال أزمة جائحة فيروس كورونا. هناك أثر إيجابي مباشر للأداء الإلكتروني على التطور الإلكتروني للموارد البشرية خلال تلك الفترة. هناك تأثير إيجابي مباشر للبنية التحتية الإلكترونية على التنمية الإلكترونية للموارد البشرية. هناك تأثير إيجابي مباشر للبنية التحتية الإلكترونية على تطور الهيكل التنظيمي خلال فترة الحجر الصحي. لا يوجد تأثير إيجابي مباشر للأداء الإلكتروني على تطور تكنولوجيا المعلومات أثناء الجائحة.

الكلمات المفتاحية: *القيادة الإلكترونية ، الابتكار التنظيمي ، الأداء الإلكتروني ، الهيكل التنظيمي ، البنية التحتية الإلكترونية.*

Introduction:

The concept of organizational innovation refers to the method used by companies and organizations to adapt to the changing conditions of technological progress and to enter the market competing with other companies by providing new services and products in markets that meet the needs of the method used by companies and organizations to adapt to the changing conditions of technological progress and market entry competition with companies In markets that meet the needs of society.

In conjunction with the interest in the concepts of organizational innovation, new concepts have emerged, including electronic leadership, servant leadership..etc. Electronic leadership is of great importance through electronic interaction and the management of university affairs remotely in the normal situation and in light of the spread of crises. (lio,2016, p192)

Many studies have emphasized the importance of adopting and applying e-leadership concepts and methods in many organizations, especially in service organizations, including universities, because of their importance in meeting students' desires and needs in electronic ways away from traditional services and routines. Many studies have also confirmed the existence of a strong relationship between e-leadership and organizational innovation in many organizations around the world, where e-leadership directly affects organizational innovation. (Avolio,2014, P12.)

Hence the importance of the study by measuring the impact of electronic leadership on organizational innovation in many public and private ethnic universities, by focusing on the opinion of the administrative levels operating in those universities.

Methodological Formwork:

First: The problem of the study:

Iraq has suffered greatly from the effects of the Corona pandemic, more than many neighboring countries, as the pandemic has spread greatly, and many partial and total closures have taken place. These shuts down affected various sectors, and the education sector was one of the most affected sectors, as work was suspended in most universities and schools. As a result, many universities went to activate the concept of electronic management and leadership in remote academic education. This adoption was accompanied by the development of the concept and work of organizational innovation in universities.

From the above, the main problem of the study can be formulated through the following question: Is there an impact of electronic leadership in Iraqi universities on organizational innovation during the Corona pandemic?

Second: Study Objectives:

The objectives of the study can be defined as follows:

- Learning about the reality of electronic leadership in Iraqi universities during the Corona pandemic.
- Displaying the status of organizational innovation in Iraqi universities during the Corona pandemic.
- Displaying the role of electronic leadership in improving organizational innovation in Iraqi universities during the period of the Corona pandemic.
- Reaching a set of results and recommendations that could contribute to improving the reality of electronic leadership and organizational innovation in Iraqi universities.

Third: Study Methodology:

The descriptive analytical approach was used in the study, which is one of the appropriate approaches to give a clear image of the study's problem. In addition, it helps in understanding the study by clarifying and explaining the relationship between its variables.

Fourth: Study Tool:

The main tool of this study was a questionnaire, and it included three parts .

The first part included the demographic information of the study sample members related to the topic (gender, age, academic level, occupational level). The second part included the dimensions of the electronic leadership variable, namely (electronic performance13 questions and electronic infrastructure 5 questions), The third part included the dimensions of the organizational innovation variable (organizational structure development 6 questions , electronic human resource development 5 questions and information technology development 6 questions), and the questionnaire's paragraphs were designed based on the fivefold Likert model.

Fifth: Statistical Methods:

The appropriate analysis method is based mainly on the type of data to be analyzed. The statistical package (SPSS) and structural equations modeling based on molecular small squares were used. Also, the ready-made software (SmarPLS) was adopted to analyze the collected data to achieve the objectives of the study and test hypotheses. the following test methods were used:

- Validity and reliability test of the study tool.
- t-test and mono-variance analysis.
- Path analysis to find the level of influence and test hypotheses.

Sixth: Study Limits:

The spatial limits of the study were represented by administrators in many Iraqi universities (4 public and private universities). The time limits were represented in the year 2022, which is the year of designing the questionnaire and distributing it to the study sample in the mentioned universities. The study limits were confined to the two variables of electronic leadership and organizational innovation.

Seventh :Study community and sample:

The study population was identified with Iraqi universities, while the study sample was (4 private and public Iraqi universities) (University of Baghdad, University of Mosul, Mansoura University College in Baghdad, University College of Iraq in Basra Governorate), and it was relied on intentional facilitator, and 160 questionnaires were distributed Equally between the four universities, with 40 forms to each university, and 142 forms were retrieved, of which 7 were rejected, and therefore the number under analysis reached 135 forms, which were analyzed using the SPSS program.

Theoretical Formwork:

First: The Concept Of E-Leadeship:

Distance leadership is sometimes referred to as e-leadership . The distinctive feature of this leadership style is based on premises of technology-driven means of communication. E-leadership differs from traditional leadership to the extent that work depends largely on the use of information technology

successful e-leadership involves an appropriate balance of traditional and new methods, avoiding misunderstandings by carefully and clearly communicating intent to followers, using technology to reach out to others in responsive ways, and using technology to deal with greater workforce diversity.

Researchers declare e-leadership to be “a dynamic, robust system embedded within a larger organizational system”

The purpose of e-leadership is explained as using relationships among members and enhancing them. The role of the leader becomes more proactive, with the need to establish social structures alongside (Murat,2022,P 21)

identify the challenge for e-leaders in handling affective processes, such as the management of emotions and expressions, in a much more complex environment. Furthermore, leaders of e-teams must foster team trust and cultivate the team toward a stage of frequent interaction by defining roles, ensuring clear task distribution, and forming a shared understanding within the team. As understanding in a remote environment relies heavily on nonverbal cues, managing team conflict can be difficult for e-leaders. The leader will have to establish team norms and free time whenever social support is needed by a team member (Murat,2022,P 22)

Electronic leadership is defined as: "a modern administrative method that depends in the implementation of business and administrative activities on information and communication technology to deliver information and provide services electronically, safely and accurately with the fastest time and the lowest cost. This method is characterized by transparency, high flexibility, and the abolishment of bureaucracy in business organizations. (lio,2016, p192)

Second: The importance of electronic leadership in universities

The application of electronic management needs unconventional material and human capabilities. It requires the development of administrative organizations internally to fit in with the variables of the external environment in order to create appropriate conditions for success. This is directly reflected on performance by achieving the desired balance and

consistency between variables, individual behavior, relationships between work groups and performance methods and systems. (Avolio,2014, P12.)

The importance of electronic leadership is determined by the ability of the electronic leader to improve the performance effectiveness and efficient decision-making because of his ability to obtain information easily by being able to use the means of researching available on the network to employ them in the service of the institution.

The importance of electronic leadership in universities can be determined as follows: (Arokiasamy, 2015, P 321)

- The ability of building and managing remotely the virtual team.
- Mastering effective communication skills and taking into account the individual differences from a distance.
- The ability to adapt with the rapid technical changes.
- The ability to devise modern means to achieve the objectives of the electronic institution.
- The ability of influencing the work team to achieve the institution's goals.

As a result, we see that many universities and educational institutions in the world, especially the advanced one, have realized the great and unlimited ability of the Internet in the service of education because of its distinctive and many characteristics. Its use has increased remarkably that is unparalleled in the last years until education has become one of the most widespread sectors on the Internet. Numerous studies indicated that there is a strong relationship between the use of modern technologies in education and academic achievement among teaching staff (Mumford, 2004, P 78).

There are many goals of e-management or leadership in organizations in general and universities in particular. It aims to reduce administrative complexities, employ information technology in the organization, achieve efficiency in providing services to beneficiaries and the optimal utilization of resources, continuous education and knowledge building, rapid completion of business, continuity of the organization’s work, cost reduction, reducing the use of papers and excessive human resources, helping in reducing human errors and providing information and data very quickly...etc. Electronic management presents a modern approach that uses modern technology due to the changes caused by digital advancement. The main objective of this system is to eliminate the traditional management. The shift to electronic leadership would reduce the management cost of the educational process, facilitating procedures and shortening or canceling distances, in addition to accuracy and objectivity in conducting operations in order to raise the efficiency of administrative work and reach the desired goals. (shalabee,2011, P22)

Third: The advantages of electronic leadership in universities:

The most important features of electronic leadership in businesses and universities in particular can be identified as follows:

- Providing the required information to the administrative levels electronically.
- Facilitating procedures inside the institution, so that it is positively reflected on the provided services.
- Reducing costs resulting from administrative work.
- Speed and accuracy in the completion of work, and increase the efficiency and effectiveness of the organization.
- Managing and following up the various managements of the organization as if they are a central unit.
- Reducing the obstacles that affect and impede decision-making.

- Raising the efficiency of the administration through its dealings with individuals and institutions. (Ridha,2018, P779) (Amshaoy,2021, P9)

Fourth: dimensions of electronic leadership:

The dimensions of electronic leadership vary according to the references and studies related to the subject.

 Electronic performance: It is everything related to the administrative aspect within organizations in its electronic form. Organizations seek to transform their traditional work into electronic. This transformation requires the presence of a management capable of leading the digital transformation at work. In addition, it can amend the work environment, applications and laws; as well as the relationship between chiefs and subordinates. (Ivanova, 2014, p256)

 Electronic infrastructure: It is the natural, tangible component of the electronic management project, without which the project cannot be done. It is represented in a set of physical, human and logical components through which electronic applications can be implemented. Infrastructure components can be as follows: (Li etal,2116, P193)

- Physical components: such as computers and peripheral devices.
- Intellectual components: such as software and application programs.
- Human components: such as computer operators, programmers, system analysts, and designers.
- Infrastructure requirements for computer work: such as spatial locations and connections.

Fifth: The concept of organizational innovation:

Innovation is the ability of electronic business to develop new values for different customers through solutions that are consistent with its new needs and letting employees make effort and time in order to apply an idea more professionally to establish the work. Creativity is important and necessary for excellence and leadership.

The concept of innovation refers to the development way that, in turn, adds a value to the organization's and companies' performance, leading to an increase in its potential and activities. Therefore, innovation is referred to as a way of developing benefit for beneficiaries by providing new options for their needs, or developing market demands in new ways.

Organizational innovation focuses on the process of creating or finding an idea to produce new products, services, structures, and new policies for organizations. Companies practice these activities in a compatible way that enables them to find solutions for problems and new ideas. So, all subordinates work with each other for one reason that is innovation, which is a process in which an invention becomes a product that leads to profitability. (Viana, 1999, P548)

Organizational innovation is a variable that can be exploited to obtain new management ideas, behaviors, products, services and practices that stimulate processes and practices in the organization for innovative ends, whereby flexible organizations are more efficient and effective. (Trott, 2008, p. 198)

Knowledge for innovation requires more than one method of communication that requires active interaction between researchers, stakeholders and leaders that results in new concepts, processes and interaction that can be transferred from one person to another or from one university to another for commercial benefit. So, most organizations' and universities' leaders and managers need to be aware of many ways of innovation that must be specially equipped in countries such as China, Russia, India, etc. (Vlok, 2012, P212)

Sixth: Dimensions of organizational innovation:

The dimensions of organizational innovation can be identified as follows:

 Organizational Structure Development:

The development of the work organizational structure in organizations and universities in particular is one of the most important components of organizational innovation. The organizational structure clarifies the way of work and powers in organizations. However, traditional organizational structures are often characterized by restricting creativity, so it is necessary to develop the organizational structure in its various dimensions and focus on electronic work, giving wide powers to talents, and giving greater flexibility to cadres (Yaw, 2019, P33)

 Electronic Development of Human Resources:

Organizational innovation depends on creativity and excellence, and therefore on human talent. For organizational innovation to take place, human resources must be developed electronically in accordance with modern technologies. This can be done through attraction, training, skill development and capacity building inside organizations according to modern electronic methods of work. (Spil, 2016, P44)

 Information Technology Development:

One of the important factors in organizational innovation is the complete development of information technology in the organization, and this includes internal information systems, providing necessary technologies and software, in addition to the electronic infrastructure. Today's work focuses on electronic technologies and global administrative developments related to technical developments. (Tidd etal,2015, P21)

Seventh: The relationship between e-leadership and organizational innovation

Electronic management helps to achieve the transition and radical transformation from traditional management to modern management by implementing businesses electronically. In fact, the process of transformation from traditional to electronic management is not only preparing the technical aspects of computers, communication networks and others, but also it is firstly considered an administrative issue that depends on a developed administrative philosophy and thought. Moreover, it is based on conscious administrative leaders in order to achieve development and customer satisfaction.

Electronic leadership enhances organizational capacity and performance potential as it deals with new technologies, thus enhancing creativity and organizational performance. This would create a strategic innovation environment that helps in developing new strategies, products and services. As strategic innovation contributes with business models to create a distinct value for customers and companies at the same time when effective and influential leadership and technology are available.

The adoption of modern administrative concepts requires accurate knowledge of the administrative reality and its problems, and to have the maximum benefit from technology and electronic management and use it correctly. So that, it becomes an integrated element in the inputs and outputs of the administrative process, as it requires a creative approach for necessities involving the ability to lead organizations in a consistent manner with the integration of efforts to achieve development. (Read 2000, P103)

The issue of the creative approach is an urgent necessity to reach the future administrative effectiveness. Creativity goals are the ultimate goal that any organization endeavors to achieve in order to give a positive impetus towards enhancing the individuals' capabilities for practicing rational and conscious thinking of how to develop goals by updating the

approach and creative method in the performance of the provided services. (Yang,2012, P322)

In the end, there is a great relationship between electronic leadership and organizational innovation. The more the university administration relies on electronic leadership, the more this will help in achieving organizational creativity, provided that the appropriate environment and the necessary needs are available. (Slimane, 2015, P2019)

Eighth: The role of electronic leadership during the Corona pandemic crisis

Throughout history, various crises have threatened the work of most economic sectors worldwide. So, the sectors that cannot deal with crises by effective planning and management and careful follow-up of the various stages of the crisis are destined to incur heavy losses, which may lead to collapse.

In fact, the Corona pandemic constituted a real crisis at the global level in various directions, the most important is the economic field. Through fast spread and development of the pandemic all over the world in 2019, most states try to adopt part or full closure policies. This affects greatly the economic situation and leads to production wheel stop in many countries. (Asaad,2020, P4)

In economic terms, the crisis means: "A disruption in the path of economic growth until production declines or when the actual growth is less than the expected growth.

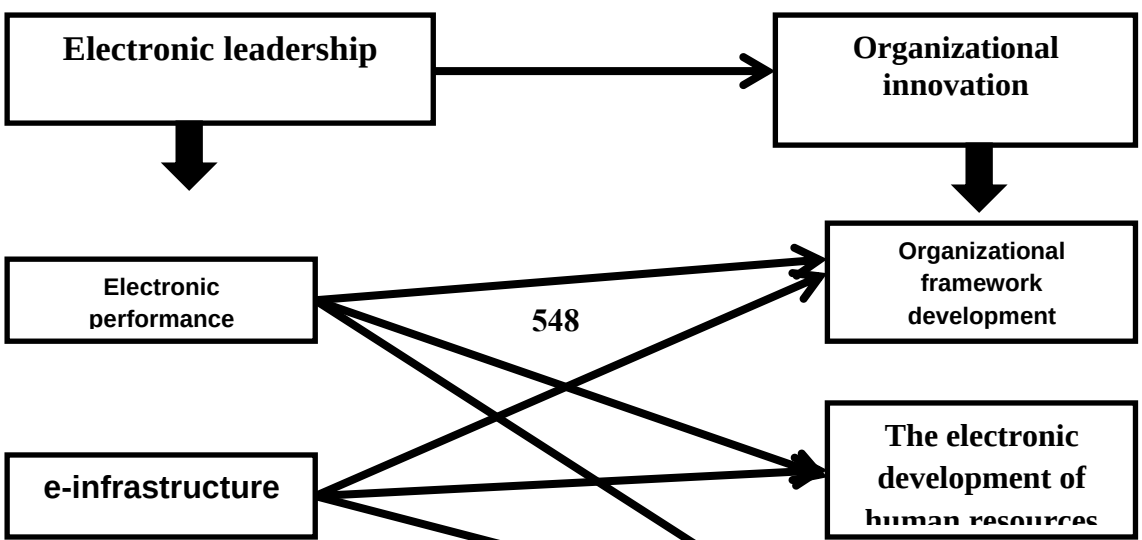
The crisis is also defined as: "An emergency situation or sudden event that leads to a disruption of the organization's system, which weakens its competitive position and requires it to move quickly and pay immediate attention. Thus, any event can be classified as a crisis depending on the defect level of the organization's normal work progress resulting from this event. (Asaad etl,2021, P4)

In fact, the Corona crisis has affected the nature of work worldwide. The education sector was one of the most affected sectors by the pandemic. Work has been directed to administrative and educational electronic work in many countries for several years, and as a result the role of electronic leadership in education has evolved, where management has been electronically most times. This, in turn, led to activating the role of organizational innovation in universities.

Analytical framework:

First: The model and hypotheses of the study:

The study model shown in Figure (1) was designed depending on the study variables, literatures, and reference studies related to the topic. The impact of electronic leadership on organizational innovation in Iraqi universities during the Corona pandemic period is included, and the following figure illustrates the study model:



Fig(1):Study Model

Based on the study model, the following hypotheses can be developed:
H1: Electronic leadership affects organizational innovation during the Corona pandemic in Iraqi universities.
H2: Electronic performance affects the development of the organizational structure in Iraqi universities.
H3: Electronic performance affects the electronic development of human resources in Iraqi universities.
H4: Electronic performance affects the development of information technology in Iraqi universities.
H5: The electronic infrastructure affects the development of the organizational structure in Iraqi universities.
H7: The electronic infrastructure affects the electronic development of human resources in Iraqi universities
H8: The electronic infrastructure affects the development of information technology in Iraqi universities

Second: Analyzing the demographic characteristics of the study population:

Table (1) Features and demographic characteristics of the study sample

Gender							
Female				**Male**			
%		Number		%		Number	
25.19		34		74.81		101	
Age							
51-75				**26-50**		**18-25**	
%		Number		%	Number	%	Number
34.07		46		61.48	83	4.44	6
Study level							
Postgraduate		**University**		**High school**		**Middle school**	
%	Number	%	Number	%	Number	%	Number
5.19	7	54.81	74	25.16	34	14.81	20
Employment level							
Middle management				Senior management		Low management	
%		Number		%	Number	%	Number
60		81		20	27	20	27

Source: Prepared by the researcher based on SPSS results.

Table (1) includes the demographic analysis of the study sample as follows:

- According to gender, the number of males was greater than the number of females because of the significantly higher number of males working in universities than females in the universities under study.
- According to age, the questionnaire was distributed in a manner that takes into account the distribution of the age groups of the bank's customers. The greatest proportion of customers are between the age 26-50 years. The distributed forms were 61.48%, while the proportion of 34.6 was distributed on the age group 51-75, and 4.44% was distributed among the younger age groups.
- According to the academic level, all educational categories were approved for distribution, and more emphasis was focused on the university graduates' points of view, with 54.81% of the study sample. While 25.16% were distributed on high school certificate holders, and 14.81% on the holders of intermediary school certificates, and a rate of 5.16 on post-graduate graduates.
- According to the job level, the distribution took into account the various administrative levels. Because the middle administrative level is the largest, 60% of the questionnaires were distributed, while 20% were distributed to the higher and lower administrative levels, due to the small number of higher administrative levels.

Third: Analyzing the results and testing the hypotheses:

To test the validity of the hypotheses and analyze the data of the study using the *Smart PLS* program to model structural equations in small squares, which is a methodology based on an algorithm to estimate the specific model. It uses two models (internal and external models) simultaneously when performing the estimation process. (Aisha, Atiq, Siti, and Al-Ajal, 2016)

In order to prove the suitability of the study model according to the pls smart program, three basic steps must be followed:

1- Ensure the quality and conformity of the measurement model

2- Ensure the quality of the structural model

3- Test the significance of the structural paths of the study model.

To measure the quality and conformity of the measurement model, this can be done by using the following indicators: Cronbach's alpha coefficient, composite reliability, the explained average variance (AVE), and the validity of the differentiation (Atallah and Ben Habib, 2021).

The test will be for two models in the study:

The first model: The impact of electronic leadership on organizational innovation during the Corona pandemic in Iraqi universities

The second model: (electronic performance & electronic infrastructure) in the presence of an impact on (organizational structure development & electronic human resource development & information technology) in Iraqi universities

First: The impact of electronic leadership on organizational innovation during the Corona pandemic in Iraqi universities

Table(2): Measuring the degree of reliability and honesty (electronic leadership, organizational innovation)

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)

E-leadership	**1.000**	**1.000**	**1.000**	**1.000**
Organizational Innovation	**1.000**	**1.000**	**1.000**	**1.000**

Source: Prepared by the researcher based on SMARTPLS program

The previous table shows that the value of Cronbach's alpha coefficient for all study variables exceeds 0.6, and the value of cognitive reliability for all study variables exceeds a value of 0.7, and the AVE values for all study variables exceed the required minimum of 0.5. Therefore, all indicators of quality and model conformity have been achieved. For complete model dimensions.

Table(3): Measuring the validity of differentiation for the study variables (electronic leadership, organizational innovation)

	E-leadership	Organizational Innovation
E-leadership	1.000	
Organizational Innovation	0.921	1.000

Source: Prepared by the researcher based on SMARTPLS program

The previous table shows that all the variables of the first model are distinct from each other and there is no intersection between them, and this indicates that each variable expresses itself and has no relationship with the other variables, that is, the square root of the AVE for any latent variable is greater than the value of its association with the remaining variables

Table(4): The saturation of the paragraphs on the latent variables (electronic leadership, organizational innovation

EI	**1.000**	
OI		**1.000**

Source: Prepared by the researcher based on SMARTPLS program

The previous table shows that all the paragraphs of the model have a high level of saturation on the latent variables, and the correlation of these paragraphs with the latent variables exceeds the required limit of 0.70, and the saturation values indicate a high correlation for most of the study paragraphs that exceeds 0.90

Table(5): Assessment of the quality of the structural model, electronic leadership, and organizational innovation.

	R Square	R Square Adjusted
Organizational Innovation	0.848	0.846

Source: Prepared by the researcher based on SMARTPLS program

Table No. (5) shows that the value of R^2 for each of ((electronic leadership, organizational innovation) is high, exceeding the value of 0.70, which indicates that the model is strong.

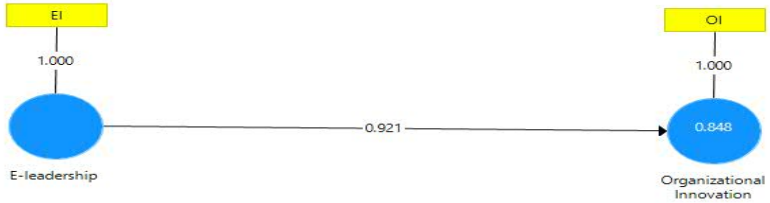


Fig (2): Study variables model, electronic leadership, organizational innovation)
Source: Prepared by the researcher based on SMARTPLS program

Second: Electronic performance & electronic infrastructure) In the presence of an impact on (organizational structure development & electronic human resource development & information technology) in Iraqi universities, we will study the model for the study variables with the same steps

Table(6): Measuring the degree of reliability and honesty, electronic performance, electronic infrastructure, organizational structure development, electronic human **resource development and information technology development.**

	Cronbach's Alpha	**Composite Reliability**	**Average Variance Extracted (AVE)**
Electronic Infrastructure	**0.981**	**0.985**	**0.928**
Electronic human resource development	**0.957**	**0.967**	**0.855**
Electronic performance	**0.982**	**0.984**	**0.828**
Information technology development	**0.942**	**0.951**	**0.764**
Organizational Structure Development	**0.977**	**0.981**	**0.896**

Source: Prepared by the researcher based on SMARTPLS program

The previous table shows that the value of Cronbach's alpha coefficient for all study variables exceeds 0.6, and the value of cognitive reliability for all study variables exceeded a value of 0.7, and the AVE values for all study variables exceed the required minimum of 0.5, and therefore all indicators of quality and model conformity have been achieved for the full study dimensions.

Table(7): Measuring the validity of differentiation for the study variables: electronic performance, electronic infrastructure, organizational structure development, electronic human resource development and information technology development)

	Electronic Infrastructure	**Electronic human**	**Electronic performance**	**Information technology**	**Organizational Structure**

		resource development		development	Development
Electronic Infrastructure	0.963				
Electronic human resource development	0.956	0.925			
Electronic performance	0.957	0.957	0.910		
Information technology development	0.685	0.712	0.688	0.874	
Organizational Structure Development	0.956	0.971	0.974	0.700	0.947

Source: Prepared by the researcher based on SMARTPLS program

The previous table shows that all the variables of the study are distinctive from each other and there is no intersection between them and this indicates that each variable expresses itself and has no relationship with the other variables, that is, the square root of AVE for any latent variable is greater than the value of its association with the remaining variables.

For Table(8): the saturation of paragraphs on the latent variables (electronic performance, electronic infrastructure, organizational structure development, electronic human resource development and information technology development).

	Electronic Infrastructure	Electronic human resource development	Electronic performance	Information technology development	Organizational Structure Development
eh1		**0.939**			
eh2		**0.931**			
eh3		**0.913**			
eh4		**0.874**			
eh5		**0.963**			
ei1	**0.982**				
ei2	**0.972**				
ei3	**0.943**				
ei4	**0.955**				
ei5	**0.963**				
ep1			**0.845**		
ep10			**0.953**		
ep11			**0.949**		
ep12			**0.900**		
ep13			**0.931**		
ep2			**0.896**		
ep3			**0.671**		

ep4			**0.924**		
ep5			**0.956**		
ep6			**0.964**		
ep7			**0.895**		
ep8			**0.956**		
ep9			**0.950**		
it1				**0.693**	
it2				**0.896**	
it3				**0.908**	
it4				**0.919**	
it5				**0.889**	
it6				**0.919**	
os1					**0.943**
os2					**0.969**
os3					**0.947**
os4					**0.971**
os5					**0.915**
os6					**0.933**

Source: Prepared by the researcher based on SMARTPLS program

The previous table shows that most study paragraphs have a high level of saturation on the latent variables, and the correlation of these paragraphs with the latent variables exceeds the required limit of 0.70, and the saturation values indicate a high correlation for most study paragraphs that exceeds 0.90. While both items (ep1 & it3) had a saturation rate of less than 0.70, both of them had (0.671 & 0.693), and they had to be deleted because of their effect on the rest of the items in the study.

Table(9): Assessment of the quality of the structural model (electronic performance, electronic infrastructure, organizational structure development, electronic human resource development and information technology development

	R Square	R Square Adjusted
Electronic Infrastructure	0.917	0.916
Electronic human resource development	0.935	0.934
Information technology development	0.482	0.474
Organizational Structure Development	0.955	0.955
Electronic performance	0.941	0.941

The previous table shows that the value of R^2 for (electronic performance, electronic infrastructure, organizational structure development, electronic human resource development and information technology development) is very high, exceeding 0.70, which indicates the strength of the study model and its ability to predict the degree of influence for each of the independent study variables on the dependent variable.

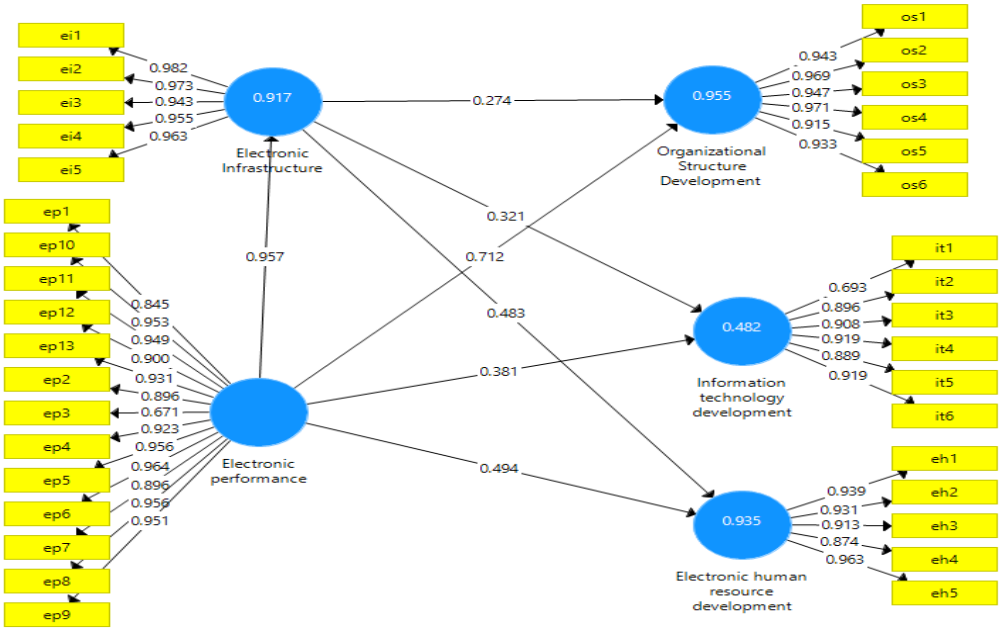


Fig (3): Study variables model, electronic performance, electronic infrastructure, organizational structure development, electronic human resource development and information technology development)

The figure shows the existence of the latent variables that form the study, which include (electronic performance, electronic infrastructure, organizational structure development, electronic human resource development and information technology development) and a set of questions that were posed through the questionnaire.

Hypothesis testing:

First: leadership and innovation

H1: Electronic leadership affects organizational innovation during the Corona pandemic in Iraqi universities.

Depending on the previous form of the study model, the hypothesis of the first model can be analyzed and tested as follows:

Table(10): Results of the study hypotheses test for electronic leadership, organizational innovation

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
E-leadership -> Organizational Innovation	0.921	0.919	0.018	50.032	**0.000**

Fig(4): The direct effects of electronic leadership, organizational innovation

The validity of the first hypothesis was confirmed, where (influence factor = 0.921, average = 0.919, standard error = 0.018, T = 0.50.032, and the P value = 0.000). That is, there is a direct positive impact of electronic leadership on organizational innovation in Iraqi universities during Corona virus pandemic.

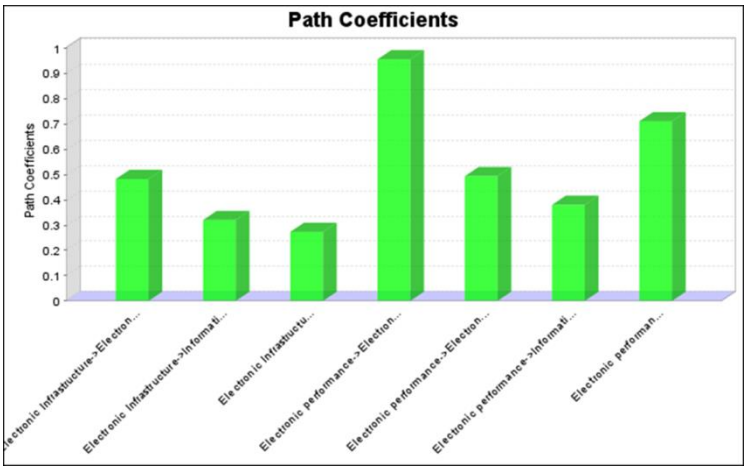
Second: electronic performance, electronic infrastructure, organizational structure development, electronic human resource development and information technology development)

Depending on the previous form of the study model, hypotheses can be analyzed and tested as follows:

Table(11): Results of testing the study hypotheses: electronic performance, electronic infrastructure, organizational structure development, electronic human resource development and information technology development)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Electronic Infrastructure -> Organizational Structure Development	0.274	0.288	0.107	2.553	**0.011**
Electronic performance -> Electronic human resource development	0.494	0.491	0.087	5.684	**0.000**
Electronic performance -> Information technology development	0.381	0.399	0.238	1.601	**0.110**
Electronic performance -> Organizational Structure Development	0.712	0.698	0.104	6.839	**0.000**
Electronic Infrastructure -> Electronic human resource	0.483	0.487	0.088	5.463	**0.000**

development					
Electronic Infrastructure -> Information technology development	0.321	0.317	0.235	1.366	**0.173**



Fig(5): Direct effects of electronic performance, electronic infrastructure, organizational structure development, electronic human resource development and information technology development)

H2: Electronic performance affects the development of the organizational structure in Iraqi universities.

The validity of the second hypothesis was confirmed, as (influence factor = 0.274, average = 0.288, standard error = 0.107, T = 0.553, and P value = 0.011). So, there is a direct positive impact of electronic infrastructure on the development of the organizational structure in Iraqi universities during a crisis Corona virus pandemic.

H3: Electronic performance affects the electronic development of human resources in Iraqi universities.

The validity of the third hypothesis was confirmed, where (effect factor = 0.494, mean = 0.491, standard error = 0.087, T = 5.684, and the value of P = 0.00). So, there is a direct positive impact of electronic performance on the electronic development of human resources during that period.

H4: Electronic performance affects the development of information technology in Iraqi universities.

The fourth hypothesis was confirmed to be incorrect, where (influence factor = 0.381, average = 0.399, standard error = 0.238, T = 1.601, and P value = 0.110). That is, there is no direct positive impact of electronic performance on the development of information technology during the pandemic.

H5: The electronic infrastructure affects the development of the organizational structure in Iraqi universities.

The validity of the fifth hypothesis was confirmed, where (influence factor = 0.712, average = 0.698, standard error = 0.104, T = 6.839, and the value of P = 0.00). So, there is a direct

positive impact of electronic infrastructure on the development of the organizational structure in the quarantine period.

H6: The electronic infrastructure affects the development of human resources electronically in Iraqi universities

The validity of the sixth hypothesis was confirmed, where (effect factor = 0.483, average = 0.487, standard error = 0.088, T = 5.463, and the value of P = 0.00). That is, there is a direct positive impact of electronic infrastructure on the electronic development of human resources

H7: Electronic infrastructure affects the development of information technology in Iraqi universities.

The seventh hypothesis was confirmed to be incorrect, where (influence factor = 0.321, average = 0.317, standard error = 0.235, T = 1.366, and the value of P = 0.173). So, there is no direct positive impact of electronic infrastructure on the development of information technology in Iraqi universities.

Conclusions & Recommendations.

1. The discreet electronic leadership of the organizational structures in universities enables its employees to innovate and deal with electronic business in a way that helps develop new values for working in the university as a whole, especially with regard to dealing with different forms of human resources through solutions that are consistent with the new conditions imposed by Corona pandemic, and its negative repercussions on the university sector as a whole.
2. The Corona pandemic formed a real global crisis in various directions. This constitutes an important challenge for the university's work sectors through the university's electronic performance and infrastructure in relation to the evolution of organizational structures, human resource development and information technology development.
3. There is a direct positive impact of electronic leadership on organizational innovation in Iraqi universities during the crisis of the Corona Virus pandemic. The leadership cadres have the ability to directly influence the organizational structures in the university, especially by finding new ways of working that contribute to enhancing the ability to create a new reality imposed by the pandemic.
4. There is a direct positive impact of the electronic infrastructure on the development of the organizational structure in Iraqi universities during the crisis. The electronic development is firstly connected with the availability of physical equipment in order to work and stimulate any production capacity.
5. There is a direct positive impact of electronic performance on the electronic development of human resources during that period. The human element is able to work through incentive frameworks and direct support for its work
6. There is no direct positive impact of electronic performance on the development of information technology during the pandemic. The development of technology is an accumulated cognitive matter that does not present or work in universities which depend on obtaining electronic work tools and performance through what is available and ready for them. Especially Iraq is still suffering from the consequences of war and

the deteriorating economic situation that is incompatible with the local development of information technology, accompanied by the quarantine imposed by the pandemic and disrupted the progress of development.

7. There is a direct positive impact of the electronic infrastructure on developing the organizational structure during the quarantine period.
8. There is a direct positive impact of electronic infrastructure on the electronic development of human resources
9. There is no direct positive impact of electronic infrastructure on the development of information technology in Iraqi universities

Recommendations:

1. The need to activate the role of risk management in facing crises, and to seek the help of experts specialized in risk management, who are able to assist the university administration in reducing the risks of any healthy or security crisis facing in the future.
2. Increasing interest in e-work, adopting e-leadership concepts, and training various administrative levels about effective working with electronic methods.
3. The necessity of the electronic infrastructure development in terms of equipment, software ... etc., by providing its necessary financial credits.
4. Activating the role of training on the use of modern electronic technologies and the full or part transformation towards electronic education according to the existing conditions. Here, it is necessary to provide the necessary funds for creative trainers to transfer the experience correctly and quickly to the university cadres.

Developing the university's organizational structure in accordance with the technical developments and changes. Here, it is necessary to open specialized departments in each

college and in the university presidency that organize the work of electronic leadership and supervise the creation of the appropriate infrastructure, which provide an electronic link between the various departments and the students.

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