# Presenting a model of the effects of e-governance with the mediating role of e-government management on e-government organizations (case study: Iran Health Insurance Organization in City of Isfahan)

***Maryam sadat Ghazi Asgar***
*Master of Management - Information Systems, Isfahan Azad University (Khorasgan), Isfahan, Iran. Email:ghaziasgarms@gmail.com*

***Mansoure Pourmiri***
*Assistant Professor, Department of Communication Sciences and Business Management, Isfahan Islamic Azad University (Khorasgan), Isfahan, Iran. Email: Pourmiri@khuisf.ac.ir*

## ABSTRACT:
The growing and extraordinary trend of digital technologies such as artificial intelligence and on the other hand the expansion and importance of information technology in all dimensions has made the digitization of human societies the first and strategic priority of all governments, especially developed governments, and with any economic, political and cultural conditions In order to grow and develop itself, it is inevitable to follow the digital path. Considering this issue, the aim of this study is to achieve the electronic government management model affected by electronic governance. The statistical sample of this research includes 25 health insurance managers and presidents who were selected and interviewed from among 130 people using the snowball sampling method until reaching theoretical saturation according to the size of the population and through Morgan's table. A questionnaire created by the researcher also contains 56 questions according to the topic of the data collection tool, and the collected data has been measured and evaluated using SPSS and Eviews software and the structural equation method. The findings indicate the positive and meaningful role of e-government in e-governance and indicate indicators such as planning and coordination (PC), monitoring and control (MC), electronic culture (EC), electronic partners (EP) and electronic leadership (EL). ) as electronic governance indicators. In order to strengthen e-goverment management in e-governance, laying the groundwork for infrastructures, gaining the trust of employees, partners and people, strong leadership and creating a culture and choosing organizations with similar characteristics in this field are among the things that need to be considered by e-governments.

## ARTICLE HISTORY
**Received:** 29/03/2023
**Accepted:** 13/06/2023

## KEY WORDS:
*Electronic government management*
*Electronic governance*
*Electronic government organization.*

## 1. Introduction

Since public administration is considered the vital artery of governance (Jerry Sat, 2010), transformation in public administration in order to improve administrative capacities to implement policies and provide public services is necessary and necessary (Abolmaali et al., 2019). In fact, with proper government management and as a result of the full realization of the government's role in the administrative transformation of Iran and moving in line with the goals of the vision document and the third principle of the constitution, which is to establish a correct administrative order and eliminate unnecessary organizations in the government, comprehensive development in all dimensions can be achieved. took a step (Asghari and Mohseni, 2013).

In this regard, one of the most important challenges that governments have always faced is responding to the changing demands and expectations of citizens who derive their legitimacy from them. In line with the response to these demands, the government should search for new methods that bring continuous innovation in providing public services to citizens. The use of information and communication technology to provide government services to the society is a new initiative that aims to provide citizens with access to public services through electronic media and establish the relationship between the government and citizens in a new way.

Today, information technology in the sector A government with the aim of establishing electronic government is actually a new way of providing public services, which has been on the agenda of public administration since the last decade of the 20th century and the beginning of the third millennium, and governments are trying to take an important step in the direction of answering by replacing this model. meet the expectations of citizens. This new model tries to take advantage of the unique capabilities of information technology in the administration of public affairs (public administration) and provide public services in a new style with a fundamental transformation in government-citizen interactions and other government interactions (Sarafizadeh and Mokhtari, 1388).

Therefore, the way of governance in the digital age is the beginning of a new phase in the life of relations between the government and citizens, which has been able to open its place well among the reform program of public sector management and reform of the administrative system. So that in this period due to the emergence of the Covid-19 disease, the importance of virtual space has become doubly obvious and requires the strengthening of electronic government at the national level (Motafker and Bagheri, 1400). Although through adequate deployment of information technology, organizations can effectively meet their training needs, however, for successful integration of information technology, employees who will use the system must have a positive attitude toward it (Alkali and Mansor, 2017).

Meanwhile, electronic developments have changed business methods in many ways, so that traditional organizational structures can no longer adapt to these developments. The ever-increasing speed of globalization and drastic changes have made the need for a new business structure that can best utilize these conditions vital (Hassan et al, 2019).

An issue that has caused an increase in the number of organizations without borders and the expansion of organizations with high geographical dispersion. Therefore, in order to adapt to the recent changes in the business field, organizations have decided to apply fundamental changes in their structure, including shrinking other organizations and expanding network connections among them for their success in today's competitive markets. In other words, he mentioned the development of electronic organizations. So that the introduction and widespread use of information and communication network technology in public administration has led to the creation of complex types of new electronic government organization forms inside and outside the government sector, and electronic government has become an important driver for the emergence of electronic organizations in the public sector. (Bekkers, 2003).

E-organizations are organizations that have united with those organizations to use the relative advantages of other organizations in order to achieve greater benefits. These organizations are created based on different patterns and by using information technology, fast, cheap and easy communication is created between them. E-organizations employ effectiveness strategies to keep pace with the rapid and fundamental changes of the new world. Information technology is a facilitator that has made it possible to create electronic organizations (Ghorbani and Maleki, 2014).

Finally, it is time to really open up real opportunities by facing realistic challenges for e-government. The pressure for governmental innovations, such as algorithmic bureaucracy and participatory value creation, is increasing, and attention should be paid to how the roles and activities of management change, how the nature of work in government fundamentally changes, and how decision-making processes are re-institutionalized (Kim et al. , 2023).

Therefore, since in today's era, management and governance in countries is moving towards electronic administration and digitization of processes, electronic government management, as a model of the effects of electronic governance on electronic government organizations, has been the main subject of this study.

## 2.Theoretical

### *2-1. Electronic governance*

Electronic governance means an organizational structure for the development and allocation of organizational resources in the field of digital transformation. The purpose of this mechanism is to advance the organization's digital actions as best as possible. Electronic governance also originates from the macro concept of governance. Every organization is governed by a governing body (an individual or a group of individuals who are responsible for its most important actions). One of the activities that every organization with every mission and vision does continuously is governance.

A team of top managers or a senior manager can be the ruler of the organization. Organizational governance is a mechanism for managing and controlling the organization's performance in the era of digital transformation (Westerman et al., 2014). Based on this, e-governance plays an important role in controlling the process of this fundamental change in the organization by determining the duties of individuals in line with advancing the goals of digital transformation (Indiasari et al., 2020).

## 3.The structure of E-government in E-governance

### *3-1.Electronic government with electronic government organizations*

Citizens are one of the most important components of the government in the digital age. Electronic government improves the living standards of citizens in all areas. In this regard, the focus of this component is on citizen-centered and preparing organized packages in order to provide government services electronically. According to this plan, citizens will not deal with government organizations separately. Rather, they will have access to all kinds of government services and information needed through a single window (Yagoubi, 2012).

### *3-2.Electronic government with electronic businesses*

Now international, national and local business managers can use the services and business information provided by the government in an organized and integrated manner. In order to provide services and information to businesses, the electronic government conducts its electronic governance and supervision electronically with minimum cost and time and maximum efficiency (Motafkar and Bagheri, 1400).

### *3-3. Electronic government with employees*

This factor tries to optimize the communication process of the government with the employees of various government organizations. Government employees should be able to do their work with minimum time and cost. For example, they should be able to apply for loans, leave or pension electronically and even be able to do their administrative duties at home (teleworking). It should be noted that if this factor is well designed and implemented, it will play an effective role in the optimization and effectiveness of communication between citizens and government organizations and will help the e-government to achieve the citizen-centered goal (Motafkar and Bagheri, 1400).

### *3-4. Electronic governments with each other*

This factor is related to the communication methods of governments with each other. Interactions and communications between governments, such as the exchange of documents and information, should be done electronically as much as possible (ibid., 1400).

### *3-5. Basic goals of governance in the era of electronic interactions*

The main goal of governance in the electronic age is to provide a "digital environment" to provide information, establish communication and provide services. Preparation and provision of complete and comprehensive information in the field of the processes of the implementation of documents and forms available on the Internet, in the field of providing information and facilities for registering and archiving electronic forms and official notifications provided through electronic mail, and holding roundtables on current issues and people's interest. , are examples of making connections. Carrying out complex tasks related to meeting the public and commercial needs of people (of course to the legal and legal limit), the demands and needs of customers of organizations and public and government offices are examples of providing services (Mughli and Pournazarian, 2014).

### *3-6. Characteristics of governance in the electronic age*

Managing and monitoring the electronic and digital developments of an organization requires new management methods, new capabilities and competencies to lead the organization. An electronic government organization can successfully establish electronic governance and various dimensions at the organization level if it can create these characteristics in the organization (Delon et al., 2018):

Foresight: The speed of changes in the digital age is very high and the structure that is designed for E-governance should not be an obstacle on their way instead of facilitating things.

Comprehensiveness and inclusiveness: The governance structure must consider all dimensions of digital transformation (which includes all dimensions of the organization) and have an inter-unit approach.

Innovation capability: The electronic ruler of the organization must ensure that users (internal/external) are attracted during the process of becoming electronic and can use the innovation capacity of different stakeholders.

A digital transformation ruler, according to the duties and competencies needed to influence this responsibility, determines, directs and monitors the organization's digital transformation actions and aligns the direction of activities with the organization's overall goals. The existence of electronic governance will prevent the wastage of resources and increase the effect of digital transformation measures.

Organizations that have been able to establish electronic governance at the organization level will have many advantages over other organizations in the challenging journey of digital transformation. Some of these advantages are (Delon et al., 2018):

* Creating a horizontal and flat structure in the organization

* Democratic culture

* Mutual understanding of information technology and business

Organizations should move towards having only one governing structure in the organization. Currently, most organizations have two types of governance: 1- organizational governance and 2- governance of information technology (digital technologies).

Although many IT governance frameworks emphasize the alignment of business and technology in the organization's processes, the reality is the separation of these two mechanisms from each other. In order to truly blend different governments, an organization should move towards turning these two structures into one mechanism. Electronic governance is a concept beyond both of them and the final step will be to prepare organizational governance to face the digital age and its challenges.

### *3-7. Electronic government organization (virtual)*

The concept of electronic (virtual) organization was proposed since 1993. Abton and McAfee consider the electronic (virtual) organization to be a set of different parts of the organization, each of which is focused on its own expertise, and with the help of electronic networks, regardless of location, they can work together flexibly.

The main reasons for forming electronic (virtual) organizations are:

1- Maximum flexibility against environmental changes

2- Focusing on the organization's competitive advantage

3- Changing the size of the organization according to market changes

4- Logical development of the supply chain of the organization

And according to the opinion of Jagers et al. (1998), the general characteristics of electronic (virtual) organizations are:

1- Being without limits

2- Completing each other's competitive advantages/sharing resources

3- Knowledge sharing

4- Geographical distribution

5- Change of partners

6- Equal participation

7- Momentary electronic communications

Also, cooperation in the electronic platform, temporary sharing of resources towards common goals and effective and quick response to the needs of customers and geographical dispersion are other common features of electronic (virtual) organizations. The life cycle of the electronic organization has four stages, which are: foundation and creation, exploitation and executive operations, gradual evolution and transformation, liquidation. In fact, electronic organizations are formed in order to benefit from business opportunities, and when this business opportunity ends, the electronic organization will also disappear (Abdi et al., 2019), which of course will be a little different in the case of electronic government organizations.

## 4. Research Methodology

In this study, the research method is of a mixed type and the research design is also an exploratory mixed research. From the point of view that in this study the researcher aims to provide a model for electronic governance in electronic (virtual) government organizations, he tries to play a new role in this field by conducting this study while reducing the theoretical gap in the society. It is considered developmental research. But since the results of the analysis of the findings of this study can be helpful in the field of practice, this research can be considered a practical research.

Also, in terms of method, this research is a descriptive-exploratory research. The statistical population of the research includes managers and heads of Iran Health Insurance Organization, whose number is about 130 people. Among these, using the snowball sampling method, 25 people

were selected as a sample and interviewed until reaching theoretical saturation according to the size of the population and through Morgan's table. The desired characteristics for people to be experts include mastery of the e-government approach, mastery of network governance, and mastery of public administration topics and the conditions and characteristics of electronic (virtual) organizations.

The data collection tool is also a researcher-made questionnaire based on 56 questions designed on a Likert scale. The indicators used in the questionnaire are presented in Table No. 1. The test and quantification of the identified model was also done by surveying statistical samples and using structural equations (SEM) in the Lisrel software environment.

It should be noted that first, 108 indicators in the field of electronic governance and 25 indicators in the field of public administration were identified through the study of available sources in the field of electronic governance and public administration, which were examined by 12 expert experts and after assessing validity and reliability, Some indicators have been removed and finally 40 governance indicators and 16 management indicators have been used to compile the final questionnaire.

**Table (1). Conceptual indicators of public administration under the title of modeling in electronic organizations in the public sector**

| Electronic governance indicators in electronic (virtual) organizations | |
|---|---|
| Planning and coordination | 1- Definition of roles and responsibilities to realize the electronic vision |
| | 2- Determining specific, clear and measurable goals and results |
| | 3- Determining the priority of electronic measures |
| | 4- Choosing the optimal electronic governance mechanism |
| | 5-Planning based on organizational agility |
| | 6- Planning the growth and succession of electronic leaders |
| Electronic leadership | 1- Strengthening change management skills |
| | 2- Development of digital vision by senior manager |
| | 3- Strengthening the skill of developing a digital vision |
| | 4- Establishing cultural changes needed for digital transformation |
| | 5- Paying attention to the individual development of employees. |
| | 6- Strengthening decision-making power in conditions of uncertainty |
| | 7- Strengthening risk-taking and financial intelligence |
| | 8- Customer-oriented development |
| | 9- Compilation and implementation of digital strategy |

| Electronic governance indicators in electronic (virtual) organizations | |
|---|---|
| | 10- Celebrating digital successes by the senior manager |
| | 11- Learning from successful examples |
| | 12- The participation of senior managers in digital transformation plans and the mobilization of personnel in this regard |
| | 13- Increasing the speed of decision-making |
| | 14- Strengthening the spirit of responsibility |
| | 15- Commitment to digital technology |
| | 16- Development of leadership skills |
| | 17- Strengthening the spirit of cooperation and participation |
| | 18- Strengthening the spirit of entrepreneurship, innovation and creativity |
| | 19- Strengthening opportunities to participate in digital transformation projects in electronic (virtual) organizations |
| | 20- Decentralized leadership |
| Monitoring and control | 1- Determining key performance indicators to measure the digital nitiative |
| | 2- Monitor digital actions and take corrective actions |
| | 3- Creating a mechanism to ensure the allocation of resources and the realization of optimal benefits in the digital transformation of electronic (virtual) organizations. |
| | 5- Creating a mechanism to create transparency and gain trust from key stakeholders in digital transformation |
| Electronic partners | 1- Partnership with innovative organizations to implement a new business model |
| | 2- Relations with government management consultants in the management of electronic (virtual) organizations. |
| | 3- Partnership with organizations that have the required talents in electronic (virtual) organizations. |
| | 4- Partnering with similar organizations and benefiting from change management experiences |
| | 5- Partnership with organizations in the field of research and development |
| | 6- Relations with software and information technology suppliers |
| | 7- Crowdsourcing to partners in order to provide digital solutions |
| | 8-Relations with suppliers and customers |

| Electronic governance indicators in electronic (virtual) organizations | |
|---|---|
| Electronic culture | 1- Taking advantage of the approach of testing and learning personnel<br>2- Promoting customer-centricity<br>3- Encouraging employees to identify problems and provide solutions<br>4- Promotion of meritocracy<br>5- Promotion of continuous learning and acceptance of e-government<br>6- Promoting teamwork<br>7- Promoting digital and strategic thinking<br>8- Promoting a culture that encourages change<br>9- Modeling by relying on believers and digital heroes<br>10- Promoting result orientation<br>11- Promoting the culture of respect for privacy<br>12- Strengthening the entrepreneurial attitude |
| Effective indicators of electronic government management in electronic (virtual) organizations | 1- Challenges and inadequacies of government administration in electronic (virtual) organizations<br>2- Issues and problems of electronic government management in electronic (virtual) organizations<br>3- Electronic (virtual) government organizations independent of society and people<br>4- Understanding problems and helping people in electronic (virtual) government organizations<br>5- Organization of government services in the form of electronic (virtual) government organizations<br>6- Institutional and political complexity in electronic (virtual) government organizations<br>7- Institutional factors in electronic (virtual) government organizations<br>8- The culture of accountability and responsibility in electronic (virtual) government organizations<br>9- Unity of approach in dealing with different strata of citizens in electronic (virtual) government organizations<br>10- Challenges and inadequacies of government administration in electronic (virtual) government organizations |

| Electronic governance indicators in electronic (virtual) organizations |
| --- |
| 11- Relationships between institutions, organizational factors, technologies and socio-economic fields in electronic (virtual) government organizations<br>12- Decentralization and flexibility in electronic (virtual) government organizations<br>13- Communicating with citizens through electronic (virtual) government organizations<br>14- Removing political restrictions from the management actions of electronic (virtual) government organizations<br>15- active participation and cooperation of citizens in various fields of electronic (virtual) government organizations<br>16- Development and deployment of performance evaluation support system in electronic (virtual) government organizations<br>17-Management coordination and management system in electronic (virtual) government organizations |

## 5. Research findings

Based on what has been done in this study and the results of descriptive statistics, 133 respondents (more than 88.5%) are men and 17 (about 12%) are women. Among these people, 14% (21 people) were single and 86% (129 people) were married. Most of the respondents (38.5%) were in the age group of 40-50 years and more than 70% of them had master's and doctorate degrees. Also, more than 70% of respondents have experience between 15-20 years. In order to start the inferential analysis, first the face validity of the questionnaire was checked through a survey of experts in this field and the necessary corrections were made. In order to measure the content validity, the content validity coefficient (CVR) and the content validity index (CVI) were calculated for all items of the questionnaire. and has been approved by a group of 12 experts. The reliability of the questionnaire was confirmed based on Cronbach's alpha test, and the Kolmogorov-Sminrov test was used to check the normality. Finally, the collected statistics have been measured and analyzed in SPSS and Lisrel software. The results of the analysis of the confirmation factor of e-governance in electronic (virtual) government organizations are presented in Figure 1 and its significance in Figure 2. These results indicate that e-governance is affected by planning and coordination (PC), monitoring and control (MC), e-partners (EP), e-culture (EC) and

e-leadership (EL) and the significance of all items related to these indicators. is also confirmed. In addition to estimating the model's coefficients and errors, there are also a series of fit indices that can be used to test the overall fit of the model. One of the important indices in structural equations is the RMSEA index. Based on the general point of view, if the value of this index is less than 0.1, the model's suitability is excellent. If it is between 0.1 and 0.5, the fit of the model is good, and if it is between 0.5 and 0.8, the fit of the model is average. Based on the output of Lisrel software (Figures 1 and 2), the RMSEA index is equal to 0.097, which means that the model can be considered to have a good and excellent fit. Also, one of the general indices to take into account the free parameters in the calculation of fit indices is the normal chi-square index, which is calculated by simply dividing the chi-square by the degree of freedom of the model. If this value is between 1 and 5, it is desirable. Based on the output results of the software, this index is 2.92, which is also suitable.

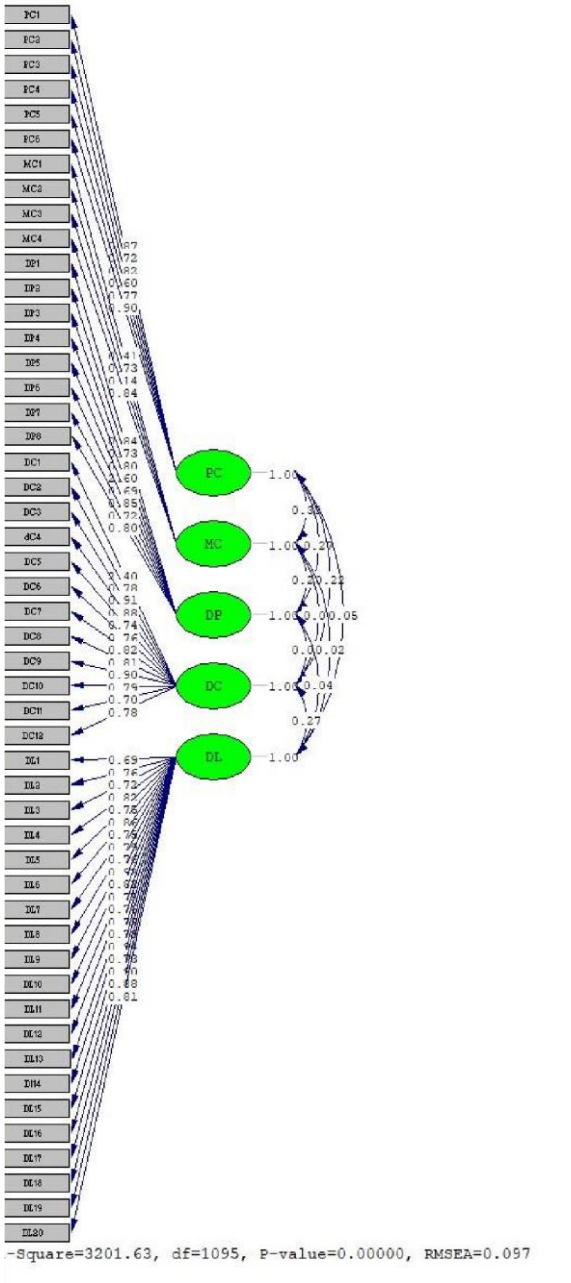


**Figure 1: Analysis of the confirmation factor of e-governance in electronic (virtual) government organizations**

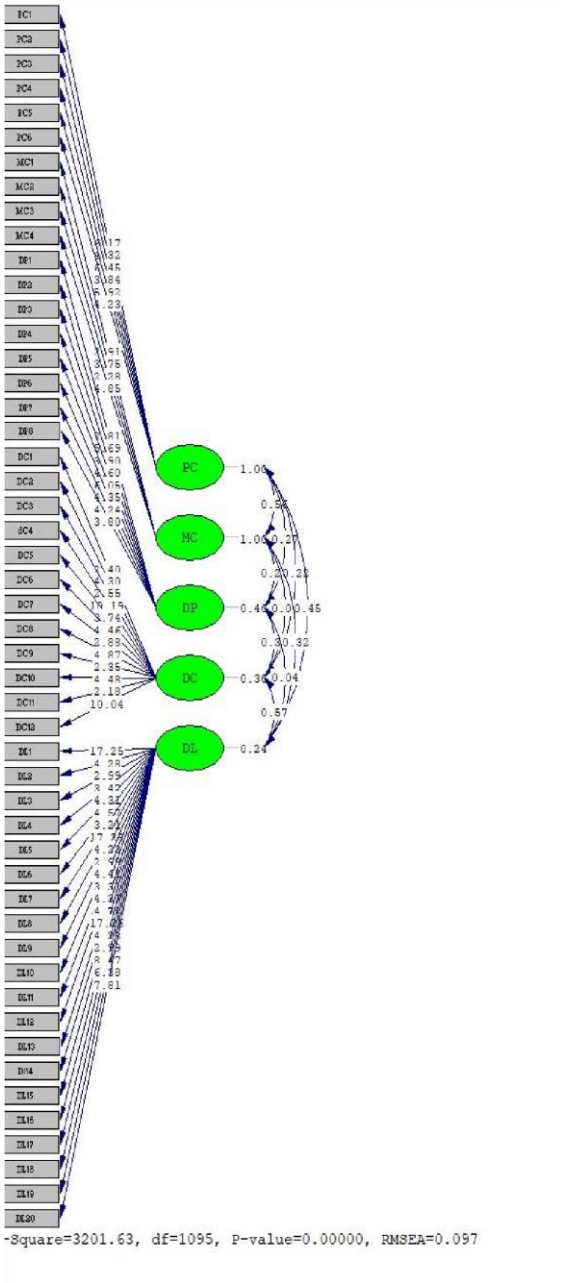


**Figure 2: The significance of the analysis of the confirmation factor of electronic governance in electronic (virtual) government organizations**

The results of the analysis of the confirmation factor of electronic government management are presented in Figure 3 and its significance in Figure 4. The obtained coefficients for all indicators have assigned values above 0.6, which are statistically significant, and their significant coefficients are shown in Figure 4. The RMSEA index obtained for the electronic government management variable is equal to 0.089. So it can be said that the model has a very good fit. According to the results, the chi-square index is equal to 2.79, which is also suitable.

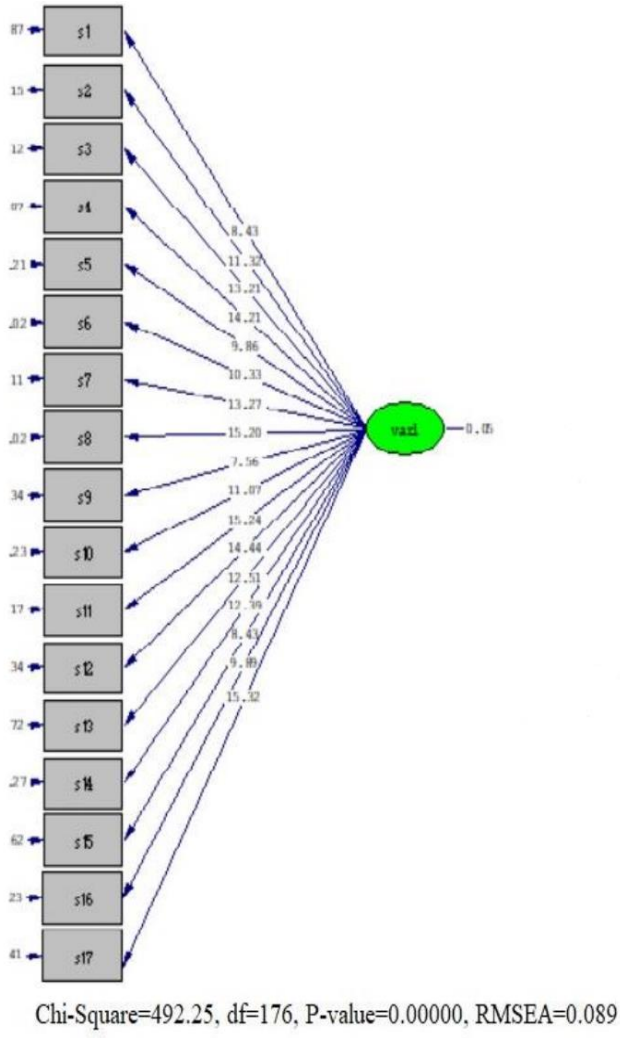


**Figure 3: Analysis of the confirmatory factor of electronic government management**

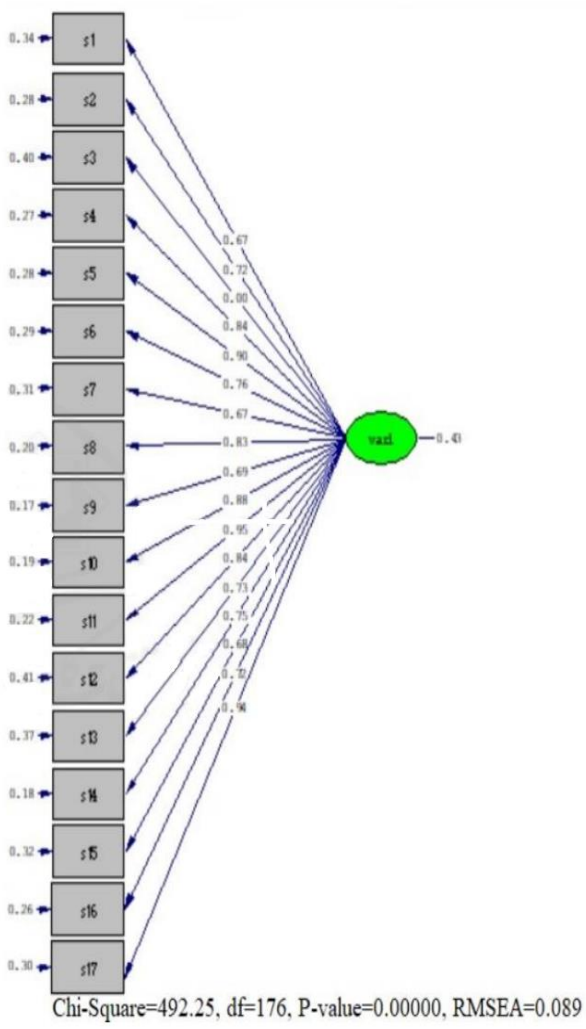


**Figure 4: Significance of the confirmatory factor analysis of electronic government management**

**Table No. 2- The values of the indicators of the verification factor analysis of electronic government management and electronic governance in electronic (virtual) organizations**

| Indicator | Electronic governance indicators The amount of | Electronic government management indicators The amount of |
|---|---|---|
| (The square of the degree of freedom) | 2/92 | 2/79 |
| RMSEA (Root mean square error of estimation) | 0/097 | 0/089 |
| CFI (Adjusted Fit) | 0/84 | 0/91 |
| IFI (Incremental fitness) | 0/85 | 0/90 |
| GFI (Goodness of Fit) | 0/94 | 0/85 |
| AGFI (Adjusted Goodness of Fit) | 0/92 | 0/87 |
| NFI (Softened fitness) | 0/87 | 0/91 |
| NNFI (Unsmoothed Fit) | 0/94 | 0/89 |

The results of the final fitting of the model are presented in Figure 5 and the results of its significance are also presented in Figure 6. The index of planning and coordination (PC) is considered constant in fitting the model and the coefficient obtained for it is equal to 0.84, the

coefficient of the index of monitoring and control (MC) is equal to 0.90, the coefficient of the index of electronic partners (EP) is equal to 0.88, the electronic culture index coefficient (EC) is equal to 0.85 and the electronic leadership index coefficient (EL) is equal to 0.75, the significance of each of which has been confirmed (Table No. 3). Based on the results, the coefficient obtained for electronic government management in electronic (virtual) organizations is equal to 0.39 and its significance is equal to 2.46. The obtained RMSEA index is also equal to 0.0562 and the chi-square index is also equal to 2.59 based on the results, which is also appropriate and it can be said that the model has a very good fit. Therefore, electronic government management has a positive and significant effect on electronic governance in government organizations in the public sector. Other indicators obtained are also shown in Table 4 and indicate the appropriateness of the estimated model.

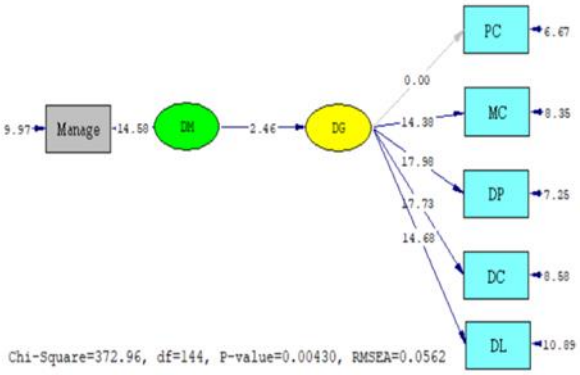


**Figure 6: The significance of the conceptual model based on electronic government management in modeling electronic governance in electronic organizations**

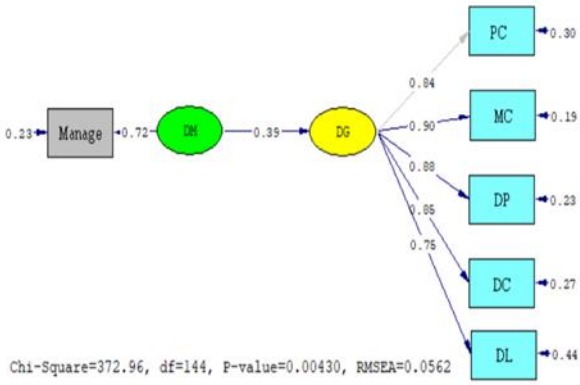


**Figure 5: The fitting of the conceptual model based on electronic government management in the modeling of electronic governance in electronic organizations**

**Table No. 3- Coefficients and significance of electronic governance indicators**

| Variable name | Coefficient | Meaningful | Result |
|---|---|---|---|
| Planning and Coordination | 0/84 | --- | Accepted |
| Monitoring and control index | 0/90 | 14/38 | Accepted |
| Electronic Culture | 0/88 | 17/98 | Accepted |
| Electronic Partners | 0/85 | 17/73 | Accepted |
| Electronic leadership | 0/75 | 14/68 | Accepted |

**Table No. 4- The values of the fit indices of the final model of electronic government management in the modeling of electronic governance in electronic organizations in the public sector**

| Indicator | The amount of |
|---|---|
| (The square of the degree of freedom) | 2/59 |
| RMSEA (Root mean square error of estimation) | 0/0562 |
| CFI (Adjusted Fit) | 0/89 |
| IFI (Incremental fitness) | 0/93 |
| GFI (Goodness of Fit) | 0/88 |
| AGFI (Adjusted Goodness of Fit) | 0/90 |
| NFI (Softened fitness) | 0/89 |
| NNFI (Unsmoothed Fit) | 0/87 |

## 6. Conclusion

Based on the results, planning and coordination index (PC), monitoring and control index (MC), electronic culture index (EC), electronic partners index (EP) and electronic leadership index (EL) are electronic governance indicators based on the obtained results. The coefficients of each index are respectively equal to 0.84, 0.90, 0.88, 0.85 and the electronic leadership (EL) index coefficient is equal to 0.75. Also, based on the results, electronic government management has a positive and significant effect on electronic governance. A result that is in line with the results of the study by Ahmad and his colleagues in 2021 and Alkali and his colleagues in 2017.

Regarding the examined items as indicators that are considered for electronic governance, in the monitoring and control index, the item of planning the growth and succession of electronic leaders, in the monitoring and control index (MC), the item of creating a mechanism to create transparency and Gaining trust from key stakeholders in digital transformation, in the Electronic Culture (EC) index, encouraging employees to identify problems and providing solutions, in the Electronic Partners (EP) index, partnering with similar organizations and benefiting from change management experiences, and in the Electronic Leadership Index ( EL), the issue of e-strategy development and implementation are the issues that have been assigned the highest rank.

As a result, it can be said that despite the rapid changes in technology around the world, the role of governments in coordinating with these changes is increasing day by day, and it is these governments that should improve their infrastructure in order to keep up with the world's technologies for their people. to try An issue that has become more important in recent years with the emergence of the Covid-19 disease. Among the obtained results, the highest ranking of the e-governance index is assigned to the monitoring and control index.

Therefore, it can be said that what can strengthen the field of government management in electronic governance in electronic (virtual) government organizations are indicators related to monitoring and control. As a result, it is suggested that key performance indicators to measure the

digital initiative, create a mechanism to ensure the allocation of resources and realize optimal benefits in the digital transformation, and create a mechanism to create transparency and gain trust from the key stakeholders in the digital transformation. be placed

On the other hand, the acceptance of the e-government process in the public sector depends on the acceptance of the employees and gaining their trust and the people's trust in the effectiveness of this management method, especially in electronic (virtual) organizations in the public sector. Therefore, creating a culture in the field of e-government acceptance, along with strengthening the infrastructure and leadership of the existing systems in line with the set goals, as well as choosing aligned and strong partners with the necessary talents are among the things that are necessary for the governments in their planning towards The expansion of electronic (virtual) organizations should pay attention to it.

The proposed design model in the field of public administration in electronic governance in electronic (virtual) organizations in the public sector can be used both in the public sector and in the private sector. Regarding the results of this study, limitations can also be mentioned. Among other things, this scientific work was limited by the fact that the data collected and analyzed are from employees who mostly have a master's degree, and this issue could be influenced by the attitude of this group and affect the result of this study. Therefore, caution is necessary in generalizing the findings of this study.

Also, due to the limitations of the research time, it was not possible to include all possible factors affecting electronic government management and electronic governance in the development of indicators for the researcher, and a comprehensive review of the factors in this regard still needs more study and investigation. Also, to collect some data, it was faced with restrictions such as confidentiality, which made the results inefficient in some aspects. The present study used cross-sectional data for its analysis, which inherently has limitations such as providing only a snapshot, inability to measure some variables and discover the meaning behind the data or the causes and effects of the variables. Future Research The limitations of this study provide a framework for future research.

## References

A. Botta W. de Donato V. Persico, A, 2016. Pescape Integration of cloud computing and Internet of Things: A survey, *Future Generation Computing Systems*, vol. 56, pp. 684–700,.

Ackoff, R.L. (1971): Towards a system of systems concepts. *Manag.* Sci. 17, 661–671.

Alavi, Amir. H. Jiao, Pengchen. Buttlar, William. Lajnef, Nizar. (2018). Internet of Things-Enabled Smart Cities: State-of-the-Art and Future Trends. *Measurement*. Vol. 129. 589-606.

Anastasius. (2014). Enabling Reliable and Secure IoT-based Smart City Applications. *IEEE International Conference on Pervasive Computing and Communication Workshops.*

Arasteh,Hamidreza. Hosseinnezhad,Vahi. Loia,Vincenzo. Tommasetti, Aurelio. Troisi.Orlando, Shafie-khah,Miadreza. Siano, Pierluigi. (2016). Iot-based Smart Cities: a Survey. *The 16th IEEE International Conference on Environment and Electrical*.

Atzori, L., Iera, A., Morabito, G. (2010): The Internet of things: *A survey. Comput*. Netw. 54, 2787–2805.

Bagui, S., Das, A., Bapanapalli, C(2013).: Controlling vehicle overloading in BOT projects. *Procedia- Soc. Behav*. Sci. 104, 962–971.

Bekkers, V.J.J.M, E-government and the emergence of virtual organizations in the public sector, *in: Information Polity*, vol. 8, 2003, nr. (3/4), pp. 89-102.

Boulos, M.N.K., Al-Shorbaji, N.M. (2014): On the Internet of Things, smart cities and the WHO Healthy Cities. Int. J. Health Geogr. 13, 10.

C. Xiaojun, L. Xianpeng and X. Peng, "IoT- based air pollution monitoring and forecasting system", *IEEE International Conference on Computer and Computational Sciences*, pp. 257–260, 27–29 January 2015.

Chen, X.-Y., Jin, Z.-G.: Research on key technology and applications for Internet of Things. Phys. *Procedia*. 33, 561–566 (2012).

Chui, M., Loffler, M., Roberts, R. (2010). The Internet of Things. McKinsey Q. 2, 1–9.

Coetzee, L., Eksteen, J. (2011): The Internet of Things—promise for the future? An introduction. *ISTAfrica Conference Proceedings*(2011), Gaborone, Botswana. pp. 1–9.

Columbus, Louis. 2012, "Roundup of Big Data Forecasts and Market Estimates." Forbes. www. forbes.com/sites/louiscolumbus/2012/08/16/roundup-of-big-data-forecasts-and-marketestimates-2012/#645c73ed3cdf.

Dean, Jeffrey and Sanjay Ghemawat. 2004. "MapReduce: Simplified data processing on large clusters." *In The Proceedings of the Symposium on Operating Systems Design and Implementation*, 137–49.

DeLone, W., Migliorati, D., & Vaia, G. (2018). Digital IT governance. In CIOs and the Digital Transformation (pp. 205-230). *Springer*, Cham.

Dheena, Fathima. S. Raj, Greema. Dutt, Gopika. Jinny, Vinila. (2017).IOT Based Smart Street Light Management System. *IEEE International Conference on Circuits and Systems* (ICCS). 368-370.

Dimiduk, Nick, Amandeep Khurana, Mark Henry Ryan, 2013. HBase in Action. Manning: Shelter Island, NY.

E. Alpaydin and B. Francis, Introduction to Machine Learning, *3rd ed, MIT Press, Massachusetts, United States.*

Engineering. Balo, Figen. (2016). Internet of Things: A Survey. *International Journal of Applied Fleisch*, E. (2010): What is the Internet of things? An economic perspective. Econ. Manag. Financ. Mark.5, 125–157.

European Research Cluster on The Internet of Things, "Internet of things.2015.: IoT Governance, privacy and security issues", *European Research Cluster on the Internet of Things, Click here to enter text*.

G. Hancke, B. Silva, and G. Hancke, Jr., The role of advanced sensing in smart cities, *Sensors*, vol. 13, no. 1, pp. 393–425, 2012.

Ganchev, Ivan. Ji, Zhanlin. O'Droma, Máirtín. (2014). A Generic IoT Architecture for Smart Cities. *ISSC 2014*/CIICT 2014.

Gates, Alan and Daniel Dai. 2016. Programming Pig: Dataflow Scripting with Hadoop. O'Reilly Media: *Sebastopol, CA*.

Gubbi, J., Buyya, R., Marusic, S., Palaniswami, M. (2013): Internet of Things (IoT): A vision, architectural elements, and future directions. *Future Gener*. Comput. Syst. 29, 1645–1660.

Gubbi,Jayavardhana. Buyya,Rajkumar. Marusic,Slaven. Palaniswami,Marimuthu. (2013). Internet of Things (IoT): A Vision, *Architectural Elements, and Future Directions. Future Generation Computer Systems*. Vol. 29. No.7. 1645–1660.

Gurani,Prateek. Sharma,Mohit. Nigam,Shreya. Soni,Nitasha. Kumar,Krishan.(2019). IOT Smart City: Introduction and Challenges. *International Journal of Recent Technology and Engineering (IJRTE).* Vol. 8. No. 3. 3484-3487.

Haller, S., Karnouskos, S., Schroth, C. (2009): The Internet of Things in an Enterprise Context. *Springer Berlin, Heidelberg*.

Harrison, Colin. Eckman, Barbara. Hamilton, R. Hartswick, P. Kalagnanam, Jayant.

Hassan, S., Madad, A., Das, N., Akhtar, S., Jehan, N. J. B., & Research, E. (2019). Important dimensions of the digital divide: A case study of NADRA Portal Pakistan. *Business and Economic Research*, 9(1), 148–163.

Hoffman, Steve. 2013. Apache Flume: Distributed Log Collection for Hadoop. Packt Publishing Ltd:*Birmingham, UK*.

Holmes, Alex. 2012. Hadoop in Practice. Manning: Shelter Island, NY.

Hounsell, N.B., Shrestha, B.P., Piao, J., McDonald, M. (2009): Review of urban traffic management and the impacts of new vehicle technologies. *IET Intell. Transp. Syst*. 3, 419–428.

Husain, Mohd Shahid and Neha Khan. 2017. "Big data on E-government." *In Securing Government Information and Data in Developing* Countries, 27–36.

Indriasari, E., Supangkat, S., & Kosala, R., (2023). Digital Transformation: IT governance in the agile environment. *International Journal of Scientific & Technology Research*, 9(4), 45-55.https://www.ijstr.org/paper-references.php?ref=IJSTR-042033813

Ivanov, D.: An adaptive framework for aligning (re)planning decisions on supply chain strategy, design, tactics, and operations. *Int. J. Prod. Res*. 48, 3999–4017.

Jeong,Young-Sik. And Park,Jong.Hyuk. (2019). IoT and Smart City Technology: Challenges, Opportunities, and Solutions. *J Inf Process Syst*, Vol.15. No.2. 233-238.

João, Belmiro do Nascimento. Souza, Crisomar Lobo. Serralvo, Francisco. Antoni. (2020). A systematic review of smart cities and the internet of things as a research topic. *Cadernos EBAPE.BR.* vol.17. no.4. 1078-1093.

Jreisat, J. (2010). Comparative public administration and Africa. *International Review of Administrative Sciences*, 76(4), 612-631.

Karambelkar, Hrishikesh Vijay. 2015. Scaling Big Data with Hadoop and Solr. Packt Publishing Ltd:*Birmingham, UK*.

Kim, Soonhee; Kim Normann Andersen and Jungwoo Lee (2020), *Platform Government in the Era of Smart Technology*.

Kreps, Jay, Neha Narkhede, Jun Rao, 2011. "Kafka: A distributed messaging system for log processing." *In Proceedings of the NetDB*, 1–7, Athens, Greece.

Paraszczak, J. Williams, P. (2010). Foundations for smarter cities. *IEEE IBM Journal Research Development*. Vol. 54. No.4. 1–16.