

# **Digital Government as an Approach to Improve Governmental Public Services**

## **A Field Study on the Egyptian Postal Authority in Giza Governorate**

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### **Abstract**

The current research aimed to identify the role and impact of digital government in its various dimensions, represented in (providing administrative support, providing an integrated system for digital infrastructure, developing human cadres, and developing government content) on improving the level of government public services provided within the offices of the Egyptian Postal Authority.

The researcher relied on the descriptive analytical method in studying the relationship between the variables. A survey questionnaire was distributed to the sample, and the number of valid forms for statistical analysis reached (289) forms.

The results of the field study showed that there is a strong positive correlation between the dimensions of the digital government variable

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as a whole and the variable of improving the level of government public services within the offices of the Egyptian Postal Authority under study, where the value of the correlation coefficient reached (85.3%), which confirmed the strength of the influential relationship between the study variables.

At the end of the research, it was recommended that a complete set of digital services should be provided within the postal offices through developing an integrated electronic platform while ensuring data security and privacy. The research also recommended the importance of qualifying human cadres in line with the digital government processes by identifying training needs, designing specialized training programs, and ensuring the enhancement of employees' technological skills, in addition to enhancing communication and customer service skills.

### **Keywords:**

Digital Government, Government Public Services, Egyptian Postal Authority Offices

## الحكومة الرقمية مدخل لتحسين الخدمات العامة الحكومية

### دراسة ميدانية على هيئة البريد المصري بمحافظة الجيزة

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#### ملخص البحث

هدف البحث الحالي إلى التعرف على دور وتأثير الحكومة الرقمية بأبعادها المختلفة والمتمثلة في (توفير الدعم الإداري، توفير منظومة متكاملة للبنية التحتية الرقمية، تنمية الكوادر البشرية، تطوير المحتوى الحكومي) على تحسين مستوى الخدمات العامة الحكومية المقدمة داخل مكاتب هيئة البريد المصري.

اعتمد الباحث على المنهج الوصفي التحليلي في دراسة العلاقة بين المتغيرات، وتم توزيع استمارة الاستقصاء على مفردات العينة، وبلغ حجم الاستمارات الصالحة للتحليل الإحصائي (٢٨٩) استمارة.

تبين من خلال نتائج الدراسة الميدانية إن هناك وجود علاقة ارتباط طردية قوية بين أبعاد متغير الحكومة الرقمية إجمالاً وبين متغير تحسين مستوى الخدمات العامة الحكومية داخل

مكاتب هيئة البريد المصري محل البحث، حيث بلغت قيمة معامل الارتباط (٨٥.٣%) وهو ما يؤكد قوة العلاقة التأثيرية بين متغيرات الدراسة،

كما أوصى البحث في نهايته إلى ضرورة توفير مجموعة متكاملة من الخدمات الرقمية داخل المكاتب البريدية من خلال؛ تطوير منصة إلكترونية متكاملة مع الحرص على تأمين البيانات والخصوصية، كما أوصى البحث على أهمية تأهيل الكوادر البشرية بما يتوافق مع عمليات الحكومة الرقمية من خلال تحديد الاحتياجات التدريبية مع تصميم برامج تدريبية متخصصة بالإضافة إلى الحرص على تعزيز المهارات التكنولوجية للعاملين، بالإضافة إلى تعزيز مهارات التواصل وخدمة العملاء.

### الكلمات المفتاحية:

الحكومة الرقمية، الخدمات العامة الحكومية، مكاتب هيئة البريد المصري.

## **(1) Introduction**

The technological revolution, information openness, the era of globalization, and the rapid global developments in information and communication systems, technology, and internet networks are factors that have become imperative for conducting the transformation processes from the real world to the virtual digital world (*Moulay, 2021: 17*). All countries in the world have realized the importance and necessity of adopting programs based on well-studied strategies and plans for digital transformation processes in the era of digitization. All vital functions, procedures, and processes have been affected by technological advancement within the digital society. Digitization has currently become a common feature in all aspects of daily life. The digital economy, digital education, digital health, and digital commerce are the most prominent sectors influenced by digitization processes. It can be said that digital transformation programs and achieving their requirements have become vital within countries worldwide, as they help enhance education, improve health services, facilitate business, and promote transparency (*Shazly, 2022: 19*).

The Fourth Industrial Revolution, which the world is witnessing in our current time, imposes rapid changes that affect all aspects of life. This impact affects both individuals and institutions, including government institutions and their way of working. These institutions are no longer able to provide their services to citizens in the required manner as they were accustomed to in previous decades. The reason for this is that these services need to be more effective and efficient in a way that keeps pace with the requirements of the new era (*Waer, 2020: 23*).

Since the early 1990s, governments around the world have moved to adopt new models in building public administration policies. Although the depth of transformation and the degree of change differ from one country to another, the initiatives included in these policies reflect a governmental interest in keeping pace with the rapid economic, social, and technological changes. Among the most important initiatives in these policies is the one associated with the concept of digital government, which is fundamentally based on citizen-centricity (Citizen Centric Government). Through this initiative, governments aim to transition from traditional systems to relying on modern and smart digital systems that help them provide services with greater ease and simplicity to keep pace with the changing needs of citizens within local communities. This is with the aim of reaching a government model based on the requirements of citizens, which enables access to government services and communication with administrative units at any time and from anywhere (*Abbas, 2014: 56*).

Governments have focused on directing strategic investment in the field of digital technology, seeking to provide the necessary support in developing effective governance that primarily focuses on quality, performance improvement, mechanization, and reliability in government procedures and processes. However, considering the rapid and enormous technological progress witnessed by all countries worldwide, along with the rising ceiling of citizens' requirements and expectations, the role of government in the global concept is no longer limited to merely interacting with this development. Instead, it has become necessary for governments to enhance their competitive

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capabilities to adopt flexible and interactive work models that face the available traditional systems (Al-Qahtani, 2020).

Governments around the world have transitioned to align with a more interconnected governance model. This interconnectedness is between members of organizations, bodies, and individuals in all sectors of society, including the public government sector, non-profit sectors, and the private sector through greater attention to the citizen's aspect. The United Nations e-Government Survey 2008 addressed the idea of interconnected governance to highlight e-participation to strengthen the links between government and citizens through various digital channels (*Al-Khamayseh, 2013: 18*).

Moreover, the general conclusion of the United Nations e-Government Survey 2012 highlights the need for the importance of public sector governance through information and communication technologies to enhance constructive interaction and cooperation between layers and units of governance structures to achieve sustainable and inclusive development. These results direct attention in the public sector towards the required cooperation and communication during the interaction between business organizations, the non-profit sector, and citizens (*Al-Aboud, 2014: 12*).

Given that the size of the government sector constitutes a large proportion of the total political and social sectors in most countries of the world, and the fact that dealing with the government sector is not limited to one group over others, but rather includes all local citizens, and the fact that this dealing is multiple in its type, method, means, and models, varying in its procedures and implementation steps

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among the corridors of government sectors, the concept of digital government has emerged as an optimal means for governments to assist them in caring for the interests of citizens and administrative sectors electronically, by using advanced technology without the need for the service requester to travel to government agencies. This is driven by the desire to alleviate bureaucratic obstacles, allow citizens to participate in decision-making, and aim to reduce financial burdens in exchange for providing services electronically while maintaining their quality (*Al-Rabghi, 2022: 14*).

The applications of digital government are considered among the important transformations that the world has witnessed in the last two decades. This importance has increased due to the COVID-19 pandemic that emerged in most countries of the world at the beginning of 2020, which has affected, and continues to affect, all sectors of life. This pandemic has resulted in the transformation of most regular activities and events into cyberspace. These unforeseen circumstances have encouraged governments to accelerate the implementation of digital transformation programs and provide government services electronically (*Bin Atef, 2023: 28*).

Providing services to citizens through digital governments has become an alternative and an essential element that must be put under study. This is due to the wonderful potential expected to be applied to solve many of the problems existing in society. The government should take advantage of this phenomenon, taking into consideration that one of the government's visions is to achieve the idea of a society based on information and knowledge. The goal is to provide a government that



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is characterized by clarity, transparency, integrity, speed of interaction and response, and responsibility (*Mansour, 2022: 113*).

The Egyptian Postal Authority is one of the main government agencies that provide important services to citizens, including postal, financial, and banking services. It is considered one of the most important entities that citizens interact with daily. Therefore, the application of digital transformations comes as a crucial step to improve the quality of services and increase work efficiency within post offices. The implementation of digital processes and procedures within the Egyptian Postal Authority is extremely important in enhancing postal services and improving the user experience for citizens by leveraging modern technology and developing digital infrastructure. The transition to a digital system also provides opportunities for improvement and development in all aspects of postal work, which is positively reflected in achieving a comprehensive transformation in the provision of postal services, achieving user satisfaction, and supporting the Egyptian economy.

## **(2) Exploratory Study**

Conducting an exploratory study on the application of the digital government approach within the offices of the Egyptian Postal Authority is of utmost importance, as this type of study contributes to providing a realistic view of the application of digital services and their acceptance by citizens. The results of this study are expected to contribute to identifying strengths and weaknesses in the application of digital transformations within post offices and guiding efforts to

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improve the application to better meet the needs of users. This study will also provide clear insights to the relevant authorities in the Egyptian government on how to enhance the use of digital technology in providing government services more efficiently and effectively.

The objectives of the exploratory study, its implementation procedures, and its most important results are addressed as follows:

### **(2/1) Objectives of the Exploratory Study**

The objectives of the exploratory study were to identify the reality and nature of the relationship between the orientation towards digital government and improving the level of public government services. The aim was to identify the extent to which public services provided to citizens within the Egyptian society can be improved through reliance on digitization and digital transformation within government institutions considering the expected relationship between them. In addition, it aimed to identify the general characteristics of the research community and form an initial picture of the extent to which the Egyptian Postal Authority, through its offices spread throughout the country, has relied on digitization in providing its services and the reflection of this on the level of service provided to citizens.

### **(2/2) Procedures for Conducting the Exploratory Study**

Several personal interviews were conducted by directing questions included in the framework of the exploratory study to a sample of employees and officials within the offices of the Egyptian Postal Authority in Giza Governorate (30 individuals) in the period from 6/4/2023 to 6/21/2023. The aim was to survey their opinions on the

extent of the Egyptian government's interest in technological and digital development in performing the required functional and administrative tasks, and to ask employees about the possibility of improving public government services through reliance on the government's orientation towards digitization and digital transformation.

### **(2/3) Results of the Exploratory Study**

According to the data obtained from the exploratory study at the Egyptian post offices in Giza Governorate, which are the subject of research, and the researcher's personal observation during the interview with the sample individuals at their workplace during the study, the study revealed a set of phenomena that represent preliminary results, which were:

- 69% of the sample indicated that the Egyptian government has been striving in recent times to improve its digital performance level.
- 59% of the sample individuals clarified that most of the public government services that are provided electronically need further simplification and reformulation due to the different cultural, social, and educational levels.
- 83% of the exploratory study sample disclosed that the Egyptian Postal Authority seeks to diversify the services it provides to citizens and link the Egyptian post offices with other government departments and agencies.

- Many employees, representing 91% of the surveyed individuals during the exploratory study, indicated that the offices of the Egyptian Postal Authority seek to reduce the time taken to provide services to citizens, in addition to the ease of providing the service around the clock throughout the week.
- 89% of the sample individuals believe that the Egyptian post offices spread throughout the country aim to reach citizens anywhere through digital electronic services, in addition to the presence of mobile offices.
- 47% of the sample individuals highlighted the keenness of the Egyptian Postal Authority, as a government institution, to use advanced digital technology in improving the level of performance of services provided to citizens.

With these results, it becomes clear that the exploratory study on the application of digital procedures within the offices of the Egyptian Postal Authority has contributed to identifying the benefits and determining the strengths and weaknesses in providing government services. These observations will assist the researcher in preparing for the current study on addressing aspects of improving services and developing digital government in Egypt to better meet the needs of citizens.

### **(3) Previous Research Studies**

#### **(3/1) Previous Research Studies that Addressed the Digital Government Variable (The Independent Variable)**

Some researchers have been interested in addressing the impact of digital government as an independent variable on enhancing financial services and transactions within the local economy. The study of (*Al-Rabghi, 2022*) aimed to address the relationship between digital government in its various dimensions, represented in digital transformation programs, infrastructure, and automation of work within government sectors, and enhancing financial transactions, on improving the services provided by government agencies to citizens. The study reached a set of results, the most important of which are: digital government has become an inevitable necessity and not an end, but rather it is the means that can be relied upon to improve the level of public services provided to citizens. The study also recommended the need to pay attention to building a digital government by drawing up plans, policies, and strategies that regulate the digital transformation processes to build a digital government, in partnership with the private sector and expanding the circle of citizen participation in drawing up those policies. Other researchers have also been interested in studying the relationship between digital e-government and achieving sustainable development. The study of (*Bin Atef, 2023*) aimed to determine the influential relationship of the role of electronic services in achieving sustainable development and improving public services. The most important results of this study can be summarized in the existence of a strong positive correlation between electronic

services and achieving comprehensive development, and that reliance on electronic services helps provide faster and more efficient public services. This study recommended the necessity of encouraging partnerships between the private and government sectors in developing and providing electronic government services, in addition to designing those services to be inclusive of all citizens, regardless of their social cultures and economic levels. As (*Al-Awaji, 2022*) sees, it is necessary to understand the concept of e-government while setting an analytical framework that clarifies the nature of the relationship between e-government, knowledge management, and the efficiency of government performance, while monitoring the reality of the experience of implementing the e-government program in Egypt. The study recommended the importance of having the desire and political will of the political leadership and the leaders of government and local units in the country, as well as among various civil society organizations and the general public, to formulate and implement effective e-government programs to support knowledge management and raise the efficiency of government performance, which contributes to achieving good community governance. (*Ahmed, 2021*) indicates through his study to show the concept of digital government, the stages of its development, and the obstacles to its application through Egypt's experience in digital transformation; by explaining the steps as well as the obstacles facing the government. The study reached a set of results, the most important of which is the existence of some obstacles facing the Egyptian government in order to achieve digital transformation, the most important of which is the existence of routine administrative procedures, in addition to the weak financial resources

allocated to digital administration projects. At the end, the study recommended the necessity of bridging the digital divide to reach what the developed world has reached to achieve the sustainable development goals by 2030. (*Zaher, 2021*) was keen to identify the extent of the application of e-government within public service organizations by applying it to government banks to identify the impact of e-government applications currently prevalent in the banks under study on improving the dimensions of service quality related to reliability, responsiveness, security, empathy, and physical aspects. The results of the study indicated that there are fundamental differences between the dimensions of service quality currently available in the banks under study and the dimensions of service quality that must be available according to e-government. The study recommended the necessity for banks to provide the service correctly from the first time, every time, and at the appropriate time, simplify the procedures for obtaining the service while providing information security related to all bank operations, and work on transitioning to the interactive website stage of the electronic bank. (*Zlikha, 2020*) was keen to answer the question of to what extent e-government plays a role in improving job performance by improving public services, reducing public spending, attracting investments, combating corruption, promoting democracy, citizen participation, and increasing citizens' confidence in the government. The study reached a set of results, the most important of which is that the implementation of the e-government project requires the provision of basic infrastructure such as the communications network, computer, specialized legislation in this field, and the human element. At the end, the study recommended

the necessity of developing the necessary plans to qualify and train employees in line with the use of modern technologies and the application of the e-government method. The study of (*Qadouri, 2019*) was keen to build a comprehensive framing of e-government, and this framing will be the starting point towards researching the possibility of employing information and communication technology tools in public institutions. Through addressing its results, the study concluded that there are many factors that must be considered when developing e-government strategies, including that bringing about change in government differs from institutional change, and political will and the support provided by government leaders are also considered an important factor in managing the change process. The study recommended the necessity of developing the infrastructure for the government's success in performing its work, and this is done by providing effective communication systems to transfer data and information and its flow from and to government institutions to citizens, business institutions, civil society organizations, and vice versa. The study of (*Al-Atwan, 2019*) clarified the relationship between digital government and combating administrative corruption by developing mechanisms that help in planning the use of e-government as an effective tool to combat administrative corruption. This study relied on the descriptive approach in addressing the relationship between the study variables, and the study concluded that linking the different dimensions of e-government systems with strategies to combat administrative corruption can help the decision-maker in planning processes to combat administrative corruption.



### **(3-2) Previous Research Studies that dealt with the variable of improving public services (the dependent variable)**

The researcher (*Mahmoud, 2015*) addressed through his study the localization of public services in Egyptian cities within the framework of preparing general and detailed strategic plans within Egyptian cities, as they contribute to meeting the needs of society and the sustainability of urban areas. At the end of his study, the researcher concluded by proposing the localization of a system of policies and mechanisms as an approach to organizing the localization of public services through four main pillars: legislation, financing, service requirements, and the human element, provided that these pillars help in cooperation with the central government and exercise its decentralized powers, then ensure that the community and the citizen benefit from the returns of development. (*Al-Zoghbi, 2021*) clarified the implications of the transition from New Public Management (NPM) to New Public Service (NPS) on the performance of public services, by identifying the most important reasons for changing the traditional pattern in providing public services, in addition to examining the impact of adopting the sayings of the new management for government business on the mechanisms of providing public services, while clarifying and understanding the most important justifications for the shift from the new management of government business to the new public service as a general regulatory framework for providing public services. This study concluded that the transition from the traditional model of public administration to the new management in government business may be a shift in both the value and operational aspects related to the provision of public services towards more

competitiveness and participation. The study recommended the necessity of developing public services by analyzing the nature of the public service to be provided and the broader environmental framework in which the provision takes place before determining and adopting the most compatible administrative practices. As for (*Abdel Latif, 2018*), he linked the relationship between achieving sustainable development through relying on digital services, where this study aimed to reveal some facts related to the application of information technology services, digital services, and communications and their impact on the returns on companies and institutions located within developed and developing countries. At the end of his study, the researcher recommended the importance of assisting governments and countries in enhancing research and development activities to enhance and increase the volume of new materials technology and biotechnology, while adopting sustainable mechanisms. The study of (*Al-Awadi, 2015*) was keen on the importance of evaluating the level of quality of electronic services; where this study aimed to evaluate the level of quality of electronic services provided by the University of Jordan Library. The study reached several results, the most important of which are: The response dimension ranked first in terms of the dimensions of the quality of electronic services, followed by the ease-of-use dimension, and the empathy dimension came in third place, and in the fourth place was the additional features dimension, and finally the keeping up dimension. The study recommended the necessity of working on updating electronic services and websites continuously and keeping pace with the development taking place in the digitization of libraries in the world. As for the study of (*Hamdan, 2022*), it aimed to

measure the impact of the development of electronic banking services on economic growth. The study reached a set of results, the most important of which is the existence of an impact of the development of many electronic banking tools represented in (the number of ATMs, the number of debit and withdrawal cards) on economic growth. This study recommended the necessity of increasing the electronic financial services provided by banks and reaching the marginalized groups considering financial inclusion with the aim of developing society through the development of financial services and products.

### **(3/3) Previous Research Studies linked the both variables:**

Where the researcher (*Shazly, 2022*) studied the influential relationship of digital transformation as a mediating variable in studying the relationship between knowledge management processes and the quality of educational services, where the results found that there is an impact of knowledge management processes on the level of quality of educational service in the institutes under study, and that the total impact of digital transformation on the relationship between knowledge management processes and the quality of educational service in the institutes under study had a positive significant impact. The study recommended the necessity of adopting the senior management in the institutes under study to develop a strategy for knowledge management processes and digital transformation technology and its reflection on the quality of educational services; through the support of senior management for digital transformation programs, identifying the educational gap in the institution under study, drawing up a digital transformation policy, defining

responsibilities, managing, monitoring and reviewing the system. The study of (*Mansour, 2022*) clarified during his study the relationship between the availability of digital transformation requirements and their impact on the quality of hotel services. The study reached results, the most important of which is the existence of a statistically significant impact of digital transformation requirements on the quality of hotel services. One of the most important recommendations presented by the study is the necessity of expanding the circle of hotel services, as well as embarking on the privatization of hotel management to improve the reality of the quality of its work and raise its performance levels. As (*Shadid, 2021*) aimed through his study and linking the relationship between digitization, digital transformation, and service quality to identify the role of the digital transformation process with its various application requirements on improving the level of quality of service provided within public government organizations. The study found a statistically significant relationship between the requirements of applying digital transformation in its various dimensions and improving the level of performance of the service provided within the public organizations under study. The study recommended the necessity of paying attention to the dimensions of digital transformation represented in strategy, organizational culture, transformational leadership, and human resources in improving the level of performance and quality of public government services. The study of (*Salwa, 2022*) was keen to highlight the role of electronic management in improving public services within the state of Algeria; by presenting the experiences of some public sectors that applied electronic management, with the aim of achieving

performance effectiveness and speed of completion. The study concluded with a set of results, the most important of which are: Despite the tangible improvement in the level of public services for the local citizen, these services still suffer from weak electronic readiness due to their lack of an equipped electronic environment. The study of (*Obaid, 2021*) clarified the role of electronic management in improving the quality of services provided within public bodies in Palestine. The study aimed to identify the role of electronic management in improving the quality of service in the Palestinian Pension Authority through electronic knowledge management, electronic planning management, electronic document management, and electronic services management. The study reached a set of results, the most important of which are: the existence of a positive significant statistical impact for both electronic knowledge management and electronic document management in improving the quality of service provided, while neither electronic meeting management, electronic planning management, nor electronic services management had any significant impact on improving the quality of services provided. The study recommended the necessity of focusing on developing electronic services management as one of the most important axes towards the trend of applying electronic management in an integrated manner. The study of (*Al-Darabea, 2021*) also dealt with the relationship between e-government and its relationship to improving the level of quality of services provided from the point of view of government employees within Ramallah Governorate. This study aimed to identify the reality of government implementation and its impact on improving the level of quality of services provided from

the point of view of workers within the governorate under study. The study found a correlation between the application of e-government in its dimensions (infrastructure, legislative structure, e-government systems) on the quality of services provided in its various dimensions (tangibility, responsiveness, reliability, credibility). At the end, the study recommended the necessity of working on building a comprehensive database to link government ministries in a way that makes it easier for citizens to benefit from its services faster and easier, and to work on creating an electronic government system that ensures the verification of the identity of citizens and the provision of electronic services. The study of (*Saida, 2022*) also aimed to clarify the concept of e-government and the requirements for achieving it, while clarifying the concept of public service quality and its standards in light of the application of e-government. The study recommended increasing interest in electronic qualification of the human element, especially public institution employees, through conducting training courses on how to use and exploit networks, with the need to benefit from the experiences of others in the field of applying the concept of e-government by collecting sufficient information about these experiences, the results of their applications, and the obstacles they faced. (*Wasila, 2020*) identified the extent of application of total quality management in the government sector by identifying the role of e-government in improving the quality of government services in the Ministry of Interior and Local Communities of Algeria. The study concluded that e-government plays an important role in improving the quality of government services provided by facilitating individual transactions and reducing pressure on service delivery outlets, in

addition to reducing crowding and the number of times of frequenting government agencies.

### **(3/4) Comments on the previous research studies:**

Many studies have examined both digital government and improving public services, and each variable was studied from the perspective of its impact and being influenced by other variables.

### **The researcher concluded the following aspects of benefits:**

- There is a positive correlation and impact between digital government and its applications and each of the following variables: (enhancing financial transactions, improving public services provided by government agencies, achieving sustainable development, knowledge management and government performance efficiency, improving job performance, combating administrative corruption) as concluded by each of the studies of *(Al-Alwan, 2019)*, *(Ahmed, 2021)*, *(Al-Awaji, 2022)*, *(Bin Atef, 2023)*, *(Al-Rabghi, 2022)*.
- Public government services are positively affected by both the economic and technological growth that the local community is witnessing, in addition to the level of progress of government visions about the transition from new business management to new public services. These services are also affected by legislation, financing, service requirements, and the human element. This was evident during the discussion of the following studies: *(Al-Zoghbi, 2021)*, *(Mahmoud, 2015)*, *(Abdel-Latif, 2018)*, *(Al-Awadi, 2015)*.

- Most of the previous studies dealt with digital government and improving public government services separately, and the current study was like many previous studies in the approach used, which is the descriptive analytical approach.
- Considering the foregoing, the researcher concludes the importance of studying the role of digital government in improving public government services, due to the positive role of digital government in many administrative and service fields, and the importance of improving public services in the work environment, as it is one of the most important relationships that must be highlighted.

**The current research differs from previous research studies in the following:**

- Scope of application: The current research is applied to the offices of the Egyptian Postal Authority in Giza Governorate.
- Addressing the direct relationship between the dimensions of digital government, represented in (providing administrative support, providing an integrated system for digital infrastructure, developing human cadres, developing government content), and public government services, where some studies dealt with the relationship between them indirectly.
- The bases of difference were addressed according to each of (gender, educational qualification, administrative level) to study the extent of the difference in the impact of the dimensions of digital government and the level of improvement of public



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government services within the offices of the Egyptian Postal Authority.

#### **(4) The research problem**

Many previous studies have shown that the traditional government work system, administrative and financial sustainability are among the most important challenges that pose great risks to the ability of governments to adapt to the surrounding variables. These challenges also represent a test for governments for their effectiveness and continuity in performing the functions expected of them. Most political and economic systems are still suffering recently from the brunt of the enormous pressures all over the world, in light of the decline in growth rates and the deterioration of social and economic conditions around the world, driven by successive political and economic crises, especially the health crises that all countries of the world have witnessed recently (Covid-19).

The major changes that the world is going through, such as the Covid-19 pandemic, have put great pressure on the government to develop services, simplify their procedures, facilitate access to them, and adopt digital service as a basis for providing public services. It also raised the expectations of citizens receiving services from individuals and institutions to obtain fast-responding, flexible, effective and innovative services to meet their needs, in addition to enabling them to obtain those services from one comprehensive place that is easily accessible to all segments of society, and from a comprehensive employee regardless of the processes of different offices and the

parties involved in providing those services, all of which are subject to accountability. It has become imperative for government agencies to respond to these requirements, by developing their services by interacting with their users and managing their data effectively and efficiently without duplication while removing the impact of organizational boundaries between them at the level of the services provided (*Hamdan, 2022: 43*). The need has emerged to open opportunities to provide services in partnership with the private sector and business institutions in accordance with new business models and to complete digital transformation plans. It was necessary to create the legislative and regulatory environments, adopt strategic plans to sustain and encourage digital transformation, and the need became urgent to upgrade the skills and knowledge of public sector employees and citizens in general, especially the skills and digital knowledge supporting the digital transformation process. Accordingly, distinguished governments are turning to digital innovations, with the aim of providing public services to their citizens at the appropriate time and place, which would raise the levels of their participation and satisfaction with local government services.

The role played by digital government services today in increasing the efficiency and effectiveness of government work, reducing waste and corruption, while enhancing transparency, enabling accountability, and achieving economic and social growth, cannot be overstated. In fact, digital government enhances the state of equality in providing services with different circumstances. The expansion of digital transformation applications also contributes to increasing the provision of services and opportunities for interactive participation between citizens and

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government service providers. The impact of digital government is not limited to service delivery only, but also effectively contributes to achieving several sustainable development goals. (*Al-Awaji, 2022: 17*)

This makes it clear that policymakers, in their plans to transition to digital government, should not limit their vision to merely improving services, raising operational efficiency, and reducing costs only. Rather, they should seek to enable and develop new business models in all sectors (education, infrastructure, health, etc.). It should provide more opportunities for citizens to participate in policymaking, in addition to its vital role in proactively providing services at the level of quality expected by citizens and the local community.

The Egyptian government - considering the volatile economic conditions that the world is constantly witnessing - is trying to fulfill its promises related to achieving social progress, economic growth, national security, and safety, with the need to focus on raising the productivity of the public sector (*Abdel Latif, 2018: 8*). The Egyptian society has undergone multiple changes related to the management of government services, in terms of change in visions or strategies related to public sector management, and those related to the clarity of accountability and transparency standards and principles, which led to a decrease in the level of citizen confidence in government agencies (*Zaher, 2021: 15*). Over the past years, the Egyptian government has endeavored to rebuild the relationship between the citizen and the state and raise confidence in government services through a number of initiatives to improve government services and facilitate access to them. One of the most important of these initiatives was the

development and digitization of government services in a way that suits the lives of citizens. However, the lack of sustainability of these initiatives has affected the quality and effectiveness of service delivery. Egypt's Vision 2030, in the axis of transparency and efficiency of government institutions, included several strategic goals, the most important of which are: providing distinguished services of better quality using advanced technological methods. However, the Egyptian government still faces many challenges in advancing digital transformation, fighting corruption, and improving public services. Among these challenges are those related to the readiness of national institutions and their ability to use communications and information technology in providing public services. Egypt is considered in a medium rank in the United Nations Digital E-Government Survey compared to countries such as South Africa, Morocco, and Tunisia in 2020. Morocco ranked 106, Tunisia 91, compared to Egypt, which ranked 111 globally. In the 2022 survey, Egypt advanced and ranked 103 globally, but it is still in a medium rank. In addition to the challenge of implementing plans to develop the administrative apparatus, develop the process of providing government services, the modest number of services provided to the public that have been mechanized compared to the total services provided to citizens, the lack of adoption of an integrated system for exchanging information between smart government agencies, and relying on bilateral cooperation protocols, as well as the incomplete creation and linking of websites for all government agencies, and adding the services they provide to citizens on them, how citizens obtain the service, its duration, and the prescribed fee for that service, and the weak funding

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needed to prepare media awareness campaigns about the dangers of corruption.

The results of the exploratory study showed that (69%) of the sample confirm that the Egyptian government has been striving recently to improve its digital performance level. (47%) of the sample members also see the keenness of the Egyptian Post Authority, as a government institution, to use advanced digital technology in improving the level of performance of services provided to citizens. (83%) of the exploratory study sample indicated that the Egyptian Post Authority seeks to diversify the services it provides to citizens, and link the Egyptian post offices with other government departments and agencies, which was confirmed by (89%) of the sample members that the Egyptian post offices spread throughout the republic aim to reach citizens anywhere, through digital electronic services, in addition to the presence of mobile offices. However, there is a percentage that represents (59%) of the sample members showing that most of the public government services that are provided electronically need more simplification and reformulation due to the diverse cultural, social and educational levels. The exploratory study also showed that government agencies suffer from a discrepancy in the procedures and methodologies applied to the same task, weak and multiple work models used in managing their programs and projects, methods of managing and evaluating their performance, with the multiplicity of agencies entrusted with managing government projects, in addition to the difference in the level of digital maturity of government agencies and the competencies working in these agencies, besides the disparity in the level of digital skills among the government leadership team,

with the absence of accountability for the progress in digitization or digital transformation of services.

It was also found that there is weakness in what is called "digital trust" in government procedures in terms of internal procedures for dealing with citizens' personal data in terms of exchange, sharing, preservation, storage, and the government's ability to achieve cybersecurity requirements for the government's digital infrastructure, in addition to the government's ability to protect and manage digital payment channels, which will contribute to providing integrated, interconnected, fast, secure and easy government services to citizens with high-level performance.

Among the most important main challenges facing public government organizations in providing services in line with the requirements of citizens are three main elements: First, processes, and the associated complex procedures and conflicting requirements (sometimes) to obtain services, as government agencies work in isolation in providing their services with weak interconnection and integration in procedures between government agencies, lack of sharing of data necessary to provide services between them, lack of comprehensive geographical coverage of service delivery locations, limited delivery channels or electronic payment channels, in addition to not involving the citizen in the development of services or benefiting from his opinions. Second, individuals, as some results indicated that there is weak accountability at the institutional and individual level for the quality of services and their reliance on reactions, in addition to the multiplicity and dispersion of mechanisms for monitoring the performance of services,

and the lack of sufficient tools for empowerment and delegation of authority. Third, technology, as there is weakness in priority management, disparity in readiness among institutions and integration between them, with an update in legislation supporting digital transformation and slow development of digital infrastructure.

To deal with these challenges, it is necessary to develop a systematic and clear plan for change at the environmental level of government agencies and with partners related to building an operational business model that achieves important principles that are among the basics of digitization for the government sector and updating the public sector, namely: one government, requesting information once, relying on data and information, openness, governance and ethics, which requires raising the digital efficiency of employees, improving the level of digital maturity and its harmony among government agencies, preparing digitally enabled leaders, having comprehensive service cards, and developing an integrated governance system for managing the performance of digital transformation.

Based on the foregoing, the research problem lies in identifying the mechanism through which the level of public government services provided within the offices of the Egyptian Postal Authority in Giza Governorate can be improved, and to what extent the role of digital government with its various dimensions can be relied upon in improving the level of those services provided within the postal offices under study. The research problem can be formulated in the following main question:

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**What is the impact of digital government on improving the public government services provided within the offices of the Egyptian Postal Authority under study?**

**This main question can be addressed by answering the following sub-questions:**

- Can the level of public government services provided within the offices of the Egyptian Postal Authority in Giza Governorate be improved by focusing on the dimensions of digital government?
- To what extent does the impact of digital government dimensions on improving the level of public government services differ among employees in the offices of the Egyptian Postal Authority in Giza Governorate based on their personal characteristics (gender, educational qualification, administrative level)?
- To what extent does the level of availability of both digital government dimensions and the improvement of public government services provided within the offices of the Egyptian Postal Authority in Giza Governorate vary according to (gender, educational qualification, administrative level)?

## **(5) Research Objectives**

The researcher aims to address the research questions and answer each of them to achieve several objectives, which are:

(5/1) Identifying the possibility of improving the level of public government services provided within the Egyptian Postal Authority in



Giza Governorate under study by relying on the role of digital government and its various dimensions.

(5/2) Demonstrating the extent to which the dimensions of digital government influence the improvement of the level of public government services provided within the offices of the Egyptian Postal Authority in Giza Governorate, differing according to each of the personal characteristics of employees (gender, educational qualification, administrative level).

(5/3) Determining the level of availability of digital government dimensions and the axis of improving the level of public government services provided within the offices of the Egyptian Postal Authority in Giza Governorate, and the extent to which there are differences in the offices of the Egyptian Postal Authority in Giza Governorate towards the availability of digital government dimensions and improving the level of public government services according to (gender, educational qualification, administrative level).

## **(6) Research Variables**

With the significant changes that the world is going through and their repercussions on countries, such as the changes resulting from the effects of the COVID-19 pandemic and the subsequent government strategies to rationalize expenditures, achieve citizen and employee satisfaction, and meet their needs, it has become necessary to conduct research and analysis to develop government services and the associated internal supporting procedures and processes. As part of the public sector modernization plan, the government aims to achieve

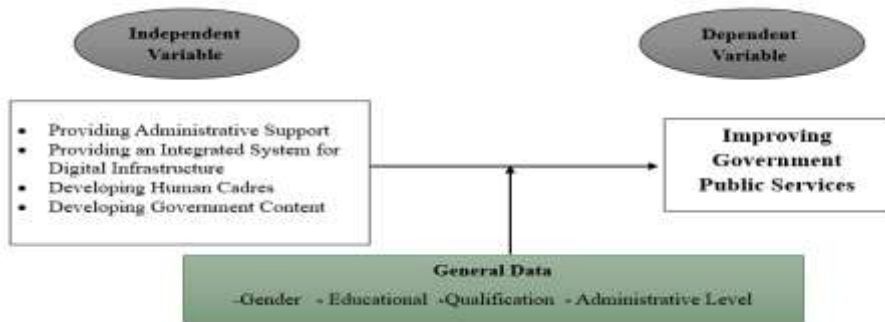
streamlined and coherent government procedures that achieve integration and spending efficiency to raise the efficiency of operations and services and reduce their associated costs.

The emergence of digital government was through the support of modern capabilities of information and communication technologies, such as smart devices and phones, social networking platforms, big data, and artificial intelligence. Citizens and governments around the world are witnessing an unprecedented level of interconnectedness. The combination of increasing citizen demand for interacting with the government through a growing set of digital channels on one hand, and the government's efforts to provide citizen-centric services on the other hand, has led to challenges for 21st-century governments in delivering services within the public sector.

Today, with the increasing opportunities for digital transformation, citizens within the local community expect government services to be available throughout the day and week, through a system called the Single Service Window, with the importance of providing interactive systems to achieve instant response to citizens requesting the service.

## **(7) The descriptive model for the research**

The proposed descriptive model for the research was also reached, which is represented in the following figure:



**Figure (1): The Proposed Descriptive Model for the Research**

**Source:** Prepared by the researcher based on the previous research studies.

## **(8) Research Hypotheses**

**(8/1) First research hypothesis (H1):** There is a statistically significant relationship between the level of availability of digital government dimensions and the improvement of the level of public government services provided within the Egyptian Postal Authority in Giza Governorate.

**This hypothesis is divided into the following sub-hypotheses:**

**(8/1/1) First sub-hypothesis:** There is a statistically significant relationship between providing administrative support as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate.

**(8/1/2) Second sub-hypothesis:** There is a statistically significant relationship between providing an integrated system of digital

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infrastructure as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate.

(8/1/3) Third sub-hypothesis: There is a statistically significant relationship between human resource development as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate.

(8/1/4) Fourth sub-hypothesis: There is a statistically significant relationship between developing government content as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate.

**(8/2) Second research hypothesis (H2):** The impact of digital government dimensions on improving the level of public government services in the offices of the Egyptian Postal Authority in Giza Governorate differs according to personal characteristics (gender, educational qualification, administrative level).

**(8/3) Third research hypothesis (H3):** There is a significant difference in the offices of the Egyptian Postal Authority in Giza Governorate according to the personal characteristics of employees (gender, educational qualification, administrative level) regarding the availability of both digital government dimensions and improving the level of public government services.

## **(9) Research Significance**

The importance of this research revolves around the significance of its topic, which has become an urgent necessity for digital societies today considering the Fourth Industrial Revolution that all countries of the world are witnessing. Digital government has imposed its presence in the digital transformation programs of most countries that seek to occupy a place in the digital age to reduce the digital divide by providing government services digitally, which helps achieve accuracy, speed, accountability, fairness, ease, and accessibility to reach all citizens and residents at any time and place.

Despite several researchers addressing the issue of improving public government services, there is a relative lack - to the best of the researcher's knowledge - in Arab libraries regarding the study of the direct impact of digital government with its various dimensions and its role in improving the level of public government services. Hence, the importance of the research mainly stems from the general objective that the research seeks to achieve, which is:

**Identifying the role of digital government with its various dimensions in improving the level of public government services provided within the offices of the Egyptian Postal Authority in Giza Governorate.**

In more detail, among the most important aspects that reflect the significance of the research are the following:

(9/1) Contributing to demonstrating the importance of government orientations towards digitizing public government services provided

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within the offices of the Egyptian Postal Authority in Giza Governorate.

(9/2) The research is considered an attempt to discover the importance of digital government dimensions in their early stages and work on continuously supporting and developing them.

(9/3) Creating added value to characterize the nature of the relationship between digital government with its various dimensions and improving the level of public government services, as well as the degree of strength of that relationship.

(9/4) Providing mechanisms to improve the level of public government services in the offices of the Egyptian Postal Authority in Giza Governorate.

(9/5) It is expected that the results reached by the researcher at the end of the research may be useful for those in charge of managing the offices of the Egyptian Postal Authority under study. They may benefit decision-makers in the government sector in general and work to provide valuable information that helps support strategic decisions related to the future. They can also enhance the appropriate measures to achieve the dimensions of digital government to improve the level of public government services.

## **(10) Main Research Concepts:**

### **(10/1) Digital Government**

#### **(10/1/1) The Emergence of Digital Government**

The term "digital government" has become widely used as an alternative to the term "e-government" in technical and scientific circles. Digital government is considered an extension of e-government and represents a new era in the historical development of government electronic transactions. It refers to the provision of electronic services and various informatics applications on smart devices, such as mobile phones, tablets, and personal digital assistant (PDA) devices connected to the Internet, so that digital government services can be provided from anywhere, around the clock, with extreme speed and accuracy, and through digital platforms that offer smart government services. (*Ben Atef, 2023: 34*).

Abo El Nasr (2000, 27) defined it as the use of information and communication technologies (ICTs) to deliver government services, information, and interact with citizens, businesses, and other government agencies. Digital government applications have taken various forms and methods in the last three decades of the past century. These applications were limited to the use of computer programs for statistical purposes, while others assisted in displaying different results in state budgets and the method of distributing their items. This was the first use of technology in government activities. (*Abdel Hafeez, 2021: 17*)

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Hence, digital government programs have become a top priority on the agendas of governments worldwide, as they not only provide public services to citizens but also play a major role in boosting the local economy and driving development, increasing domestic output, and opening new investment channels for citizens in the private and public sectors. All these logical justifications have led to the transition to e-government and subsequently to digital government, with the aim of obtaining the optimal and providing the best. (*Abdel Hafeez, 2021, 24*)

Digital government is considered the natural evolution of the e-government model, which means "direct and simultaneous interaction with information disseminated in society and its social, economic, and political components." It brings the government closer to the citizen, enabling individuals to obtain the services they want through portable electronic devices. The following table illustrates the difference between classical government, e-government, and digital government.

**Table (1): The Difference Between Classical, Electronic, and Digital Governments**

Criterion	Classical Government	E-Government	Digital Government
Work Principles	Bureaucratic processes, telephone, and fax	Use of information technology, computers, and the Internet	Use of mobile devices and interconnected WIFI devices
Service Hours	8 hours a day, 5 days a week	24 hours a day, 7 days a week	24 hours a day, 365 days a year without interruption
Service Location	Upon citizen's visit	At home, at work, or anywhere with Internet access	Wherever the person is located
Service Model	Multiple visits to offices	Multiple clicks on website portals	Single sign-on for the required service

**Source:** Table prepared by the researcher.



### **(10/1/2) The Concept of Digital Government**

Defines (*Al-Rabghi, 2022: 23*) digital government as the provision of electronic services and various informatics applications on smart mobile devices such as mobile phones and tablets, so that smart government services can be provided from anywhere, at any time, with extreme speed and accuracy, and through a single platform for mobile applications. (*Ben Atef, 2023: 34*) also defines digital government as the use of communication and information technologies to support public value through initiatives undertaken by the government within the public sector, as well as through external collaboration among key stakeholders, including citizens. Through the previous definitions, it can be clarified that digital government is represented in its capabilities to activate the role of electronic channels for participation and communication with the aim of improving local citizens' satisfaction with the service provided, enhancing economic competitiveness, raising the productivity of public services, while creating new levels of participation and trust.

### **(10/1/3) Objectives of Digital Government**

- Transitioning to a knowledge economy and society, through the contribution of digital government in the transition to an information society, which is a fundamental pillar of a knowledge society, and transforming ideas and services into goods with economic returns.
- Enhancing the competitiveness of the state through the digital government project, whether in the economic field or various work fields.

- Raising the efficiency of work within the public and private sectors, which contributes to reducing human errors that are usually caused by the human element and raising the level of work performance. (*Albinson, 2019:48*)
- Reducing material costs, operating costs, time, and effort by unifying automated systems and work procedures, cooperation and coordination between different government agencies, and strengthening cooperation between them. (*Layne, 2001: 123*)
- Building a strong partnership between the public and private sectors, benefiting from the exchange of information between them, and establishing databases that serve all fields.
- Reinforcing the concept of electronic transactions between government entities, to be a slogan applied to everyone, and transforming it into a lifestyle, with the integration of these electronic services and their provision through a single electronic platform.
- Supporting innovation in the field of information technology to provide the optimal and best for beneficiaries and business sectors.
- Increasing community participation in all social, economic, and other activities and events, and contributing to the transformation into a knowledge and information society. (*Al-Razzi, 2012: 18*)

#### **(10/1/4) Dimensions of Digital Government**

- **Providing Administrative Support:** Administrative support is a necessary and important requirement in applying the concept of digital government in public organizations and institutions. The conviction of

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senior management of the necessity to adopt digital government contributes to accomplishing work quickly, honoring innovators, and encouraging employees to present new ideas while focusing on providing financial support to those interested in training employees, in order to prepare them psychologically and morally by influencing their thoughts and feelings, making them accept guidance and direction, and pushing them to mobilize their efforts to achieve the goals required of them. (*Abdul Hafiz, 2021: 19*)

- **Providing an Integrated System for Digital Infrastructure:** The key to managing digital content lies in creating a digital environment governed by standards and rules that regulate the workflow from building digital repositories, coordinating the uses of digital content, clarifying how to access and preserve it, to the standards of electronic archiving and digital deposit. To achieve this, the foundations of the infrastructure for building digital content are established in accordance with the policies and procedures set by digital governments in order to improve public government services. (*Karari, 2021: 21*)
- **Developing Human Resources:** The essence of knowledge is creativity, renewal, and innovation, and this will only be achieved through a system and strategy for science and knowledge whose key is capacity building and consolidating the idea of learning in order to acquire the skills and values necessary to build a knowledge society and ensure creativity and innovation in the field of improving public government services. (*Ben Atef, 2023: 27*)
- **Developing Government Content:** Public Sector Information is defined as all information related to services that were created,

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collected, processed, preserved, maintained, and disseminated by the public sector. Hence, the economic and social benefits derived from utilizing this data must be increased through its optimal use in a way that brings economic, social, and political benefits to the citizen and society in general. (*Waer, 2020: 29*)

### **(10/1/5) Benefits Resulting from the Transition to Digital Government**

- Wider Coverage: The spread of smart devices helps expand the scope of work and reach citizens who are often difficult to reach, such as the elderly, people with special needs, and citizens living in remote areas. (*Al-Khoury, 2013: 86*)
- Portability and Spread: Citizens can access government information and services at any time and from anywhere through smart devices. Government employees can perform work tasks using smart devices regardless of spatial distance, time, location, and different natural conditions. The importance of this is particularly evident in emergency management. (*Al-Alwan, 2019: 16*)
- Lower Cost: The results of cost savings include organizing mobile government transactions, as well as sharing and organizing access to data, electronic processes, communications, and business transactions. Enabling field workers and ensuring interaction between agencies can contribute to reducing time, travel, and employment-related requirements and costs, as well as eliminating unnecessary data entry. (*Al-Khoury, 2014: 34*)
- Faster Information Flow: Implementing processes in real-time leads to easy and fast access to data, communication, information

consistency, quick response in case follow-up, and continuity of information exchange. Information and procedures can be coordinated anywhere and with other government agencies, contributing to improved cooperation between government bodies.

*(Al-Refaie, 2019: 41)*

- **Better Management:** Modern technical devices have the ability to assist government officials in better managing allocated human and financial resources. Through offices of government agencies spread in different regions, needs and cases can be reported as soon as they occur. Accurate data helps improve knowledge-based decision-making and response speed. *(Gartner, 2003:26)*
- **Enhancing Transparency:** Government officials can stay fully informed about public opinion and priorities for a larger group of citizens. Expanding the coverage of digital government services helps extend the scope of government responsibility and transparency towards more citizens. This also enables more citizen participation in policy development. *(Karari, 2021: 31)*

### **(10/1/6) Challenges of Transitioning to Digital Government**

The process of transitioning to digital government practices affects all aspects of work and institutional structures, requiring attention to a comprehensive reform of the government strategy and its objectives. While transformation projects lead to tremendous positive and fundamental shifts, they may also involve numerous and complex challenges that can emerge at every stage of the transition. **The following table illustrates the most significant challenges associated with the stages of developing government services:**

**Table 2: Challenges Associated with the Stages of Developing Digital Government Services**

Stage	Description	Challenge
<b>1-Stage Service Innovation</b>	This stage is driven by the desires and needs of the citizen-clients, where government institutions identify the required services and develop them to serve the targeted groups	<ul style="list-style-type: none"> <li>- How to develop innovative services by leveraging the new capabilities resulting from technological advancements</li> <li>- How to provide integrated services through government institutions to achieve the concept of a "one-stop-shop"</li> </ul>
<b>2- Stage Service Delivery</b>	In this stage, the service is made available to the targeted groups, considering the characteristics of this group and the factors affecting it. The element of service inclusiveness is one of the core values that should be considered in this stage. This stage also includes creating a Citizen Charter, which clarifies the duties and rights of both the government agencies and the clients.	<ul style="list-style-type: none"> <li>- How to improve and develop services in all places (Ubiquitous Services), and through different delivery channels</li> <li>- How to provide services to all citizens without exception</li> </ul>
<b>3- Stage Receiving the Service</b>	This stage includes achieving the main goal of the innovative service, which is the beneficiaries' access to and receipt of the service	<ul style="list-style-type: none"> <li>- How to raise the level of trust in digital transactions between citizens and service providers</li> <li>- How to ensure the provision of digital services in line with citizens' rights</li> <li>- How to record digital transactions and ensure their compliance with regulations and laws</li> </ul>
<b>4- Stage Analysis and Reporting on Services</b>	This stage involves the ability to collect and analyze service data, prepare reports, and use them in developing the service system. This stage also includes solving all types of problems that may arise between the service provider and the clients	<ul style="list-style-type: none"> <li>- How to provide and exchange the necessary data, by managing and analyzing that data to identify behavioral patterns for developing services and forward-looking reports for the future</li> </ul>

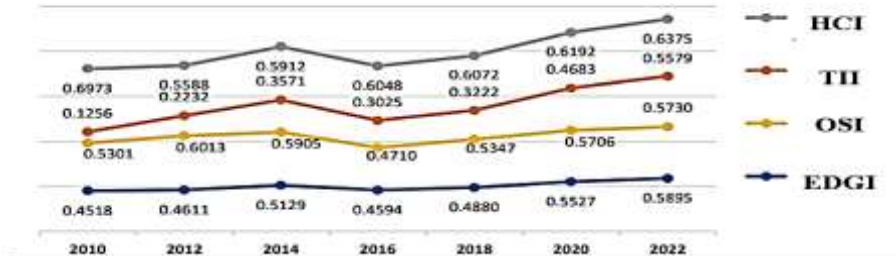
**Source:** Table prepared by the researcher.

### **(10/1/7) E-Government Development Index (EGDI)**

The E-Government Development Index (EGDI) study was issued by the United Nations Department of Economic and Social Affairs (UN DESA). Twelve editions of this report have been released, approximately one every two years, to assess the digital growth in 193 countries around the world. This index is a composite measure based on the average of three benchmarking indicators:

- **Online Service Index (OSI):** Data for this index is obtained through surveys conducted by the UN DESA.
- **Telecommunication Infrastructure Index (TII):** Data for this index is released by the International Telecommunication Union (ITU).
- **Human Capital Index (HCI):** Data for this index is published by the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- **E-Government Development Index (EGDI):** This is the overall index, which represents the average of the three sub-indices mentioned above. Egypt's position on this index falls between the medium-value and high-value categories.

**The following figure illustrates Egypt's ranking on the E-Government Development Index:**

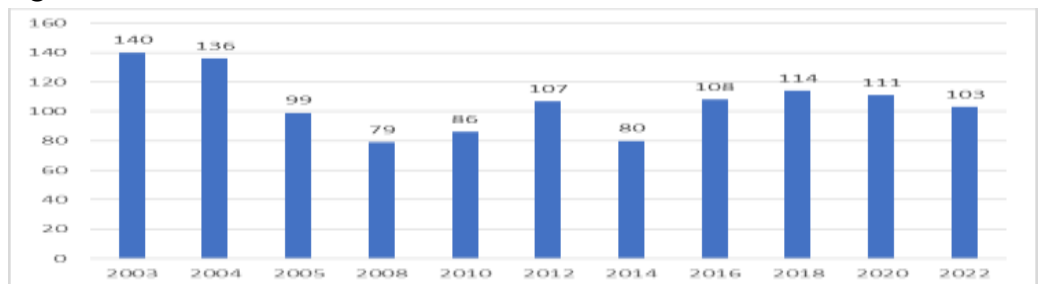


**Figure (2): Evolution of Egypt's Ranking on the E-Government Development Index and its Sub-indices.**

**Source:** Prepared by the researcher, based on the United Nations E-Government Development Surveys (2010-2022).

### The Evolution of Egypt's Position on the E-Government Development Index

Egypt has achieved remarkable progress in the race for the E-Government Development Index, as demonstrated by the following figure:



**Figure (3): Evolution of Egypt's Position on the E-Government Development Index during the Period (2003-2022)**

**Source:** Figure prepared by the researcher based on data issued by the United Nations

The previous figure illustrates that Egypt has achieved remarkable progress on the E-Government Development Index over the past two



years, as Egypt advanced 8 positions between 2020 and 2022. The figure also shows that Egypt obtained its highest ranking in history in 2008, achieving the 79th position globally. This is attributed to its high assessment in the Human Capital Index and the Online Service Index.

## **(10/2) Public Government Services**

### **(10/2/1) The Concept of Public Government Services**

Public government services are a set of services provided by the government to citizens, regardless of the social or economic categories of the beneficiaries. These services are considered essential to meet the needs of society and improve the quality of life. Public government services include a wide range of sectors, such as education, health, transportation, electricity and energy, housing, water and sanitation, security and defense, justice and law, social affairs, environment, and conservation of natural resources. These services aim to provide the necessary environment to achieve sustainable development and public welfare for society. *(Zaher, 2021: 39)*

### **(10/2/2) The Importance of Public Government Services within the Local Community**

The importance of public government services lies in providing equal opportunities for citizens to access the services and benefits provided by the government, which contributes to achieving social solidarity and promoting social justice. Public government services work to improve the standard of living for all and promote comprehensive development in society. Public government services are also of significant importance in maintaining the stability of society and achieving sustainable development. There are some key aspects of the importance of public government services:

- **Improving Quality of Life:** Public government services provide basic services such as education, health, water, and sanitation, which significantly contribute to improving citizens' quality of life. *(Cronin, 1992:29)*
- **Social Justice:** By providing services to all regardless of their income or place of residence, public services can contribute to reducing social gaps and achieving greater social justice.
- **Promoting Economic Development:** Providing good services such as reliable infrastructure and effective transportation enhances economic growth, attracts investments, and improves the business environment.
- **Security and Stability:** Providing public services such as security and defense contributes to maintaining political and economic stability, thereby enhancing safety and confidence among citizens and the international community. *(Shazly, 2022: 21)*
- **Enhancing Education and Awareness:** Public services contribute to providing education and awareness for all, which helps build an enlightened and educated society capable of effective participation in the development of society.
- **Social Protection:** Public services provide support and care for vulnerable and needy groups, enhancing social protection and helping to improve the lives of these groups.
- **Environment and Sustainability:** Public government services play a role in developing policies and programs to protect the environment and preserve natural resources for current and future generations.

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### **(10/2/3) Obstacles to Providing Public Government Services**

Providing public government services can face many obstacles and challenges that may affect the quality and effectiveness of those services. Some of these obstacles include: (*Abu-Shanab, E, 2018, 56*)

- **Bureaucracy and Complexity:** Excessive bureaucratic processes and complex procedures can make service delivery more difficult and costly, leading to delays in implementation.
- **Lack of Competencies and Training:** Lack of qualified human resources and ongoing training can affect the quality and effectiveness of the services provided.
- **Corruption:** Corruption can affect the allocation of resources and lead to unfair or ineffective service delivery, negatively impacting the desired outcomes. (Albinson, 2019: 63)
- **Lack of Planning and Strategy:** The absence of appropriate strategies and planning for service delivery can lead to wasted resources and failure to achieve desired results.
- **Technology and Infrastructure Challenges:** There may be a lack of the required technological infrastructure to efficiently deliver some services, posing a challenge.
- **Poor Communication with Citizens:** Ineffective communication with citizens may lead to an incomplete understanding of them.

### **(10/3) Digitization of Public Government Services**

Digitization of public government services is the process of transforming and improving service delivery processes using digital technology, cloud computing, and other technical solutions. The digitization of public services aims to improve the efficiency and

effectiveness of service delivery and facilitate citizens' access to these services faster and easier.

### **(10/3/1) Methods of Digitizing Public Government Services**

There are several ways through which the digitization of public services can be achieved:

- **Launching Electronic Platforms and Mobile Applications:** Developing electronic platforms and mobile applications that enable citizens to access services and perform procedures online, such as applying for services, tracking the status of requests, and electronic payment. (Bartone, 2009:19)
- **Electronic Signature and Digital Authentication:** Enabling users to sign documents and perform verification procedures electronically facilitates and speeds up processes and reduces the need for physical presence in government agencies.
- **Electronic Improvement of Internal Processes:** Using content management systems and automating administrative processes simplifies internal government processes and reduces bureaucratic procedures. (Aquaro, 2019: 47)
- **Artificial Intelligence and Data Analytics:** Using artificial intelligence techniques and data analytics to analyze user behavior, identify their needs, and improve their experience.
- **Social Media and Interaction with Citizens:** Using social media to interact with citizens and listen to their feedback and suggestions.
- **Technical Training and Awareness:** Providing training and awareness to employees and citizens on how to use digital technology and online government services. (Wolfe, 2019:25)

- **Expanding Network Coverage:** Providing the necessary technical infrastructure to ensure the availability of digital services to all citizens regardless of their geographic location.

The digitization of public services contributes to improving the citizen experience, achieving greater efficiency in service delivery, reducing costs, and increasing transparency in government operations.

### **(10/3/2) The Importance of Digitization in Providing Public Government Services**

Digitization plays a significant role in developing and improving public government services. There are several aspects that highlight the importance of digitization in this context:

- **Increasing Efficiency and Effectiveness:** Through digitization, government and administrative processes can be simplified, leading to increased efficiency and effectiveness in service delivery. Digitization also allows for reducing human errors and improving work accuracy. *(Abu Shanab, 2016: 43)*
- **Saving Time and Effort:** Digitization reduces the need for personal visits, lengthy procedures, and time spent in obtaining services. Citizens can now perform procedures and transactions online easily and in a short time. *(Yahya, 2004: 27)*
- **Increasing Transparency:** Through digitization, governments can publish data and information on a wider scale and more transparently, which helps build citizens' trust and provide information more broadly and quickly.
- **Improving User Experience:** Providing digital government services helps improve the user experience. Citizens can access

services and perform procedures anytime and anywhere, making their lives easier and saving them effort and time.

- **Enhancing Citizen Participation:** Digitization helps empower citizens to effectively participate in government processes and decision-making by providing electronic platforms for communication and participation. (*Al-Awaji, 2022: 39*)
- **Saving Financial Resources:** Digitization can lead to significant cost savings for governments, as it can reduce paper consumption and the need for dedicated spaces for physical presence and manual procedures.
- **Improving Planning and Decision-Making:** The data available through digitization can be used to analyze patterns and trends and make better decisions based on accurate evidence.
- **Fostering Innovation and Development:** Digitization paves the way for new innovations and technical solutions that can permanently improve and transform government services.
- **Improving Monitoring Processes:** Digitization allows for better monitoring and tracking of service performance and measuring the extent to which they meet citizens' needs, contributing to their continuous improvement.

Overall, digitization contributes to improving the citizen experience, achieving greater efficiency, enhancing process transparency, enabling citizen participation, and improving planning and decision-making.

Hence, the availability of digital public services has become an urgent necessity after the private sector has contributed to raising the level of customer experience, and governments are expected to

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keep pace with this development. However, this issue is often linked to individuals' trust in their governments. It has been shown that citizens who are satisfied with public services are 9 times more likely to trust the overall performance of governments compared to others. Regarding other benefits that we can realize their importance, as shown in Figure No. (4)



Figure (4): The Tremendous Potential of Digital Public Services

## (11) Research Design

(11/1) **Research Type:** The researcher relied on the descriptive analytical method in studying the relationship between the research variables.

### (11/2) Research Data

To obtain the necessary data to achieve the previously mentioned research objectives, two types of data were relied upon: **secondary data**, through reviewing references and books in Arabic and foreign languages, and **primary data**, through the use of a survey questionnaire to gather opinions of respondents regarding the topic of

e-government in its subsidiary dimensions to improve the level of public government services provided within the Egyptian Postal Authority offices in Giza Governorate.

### **(11/3) Research Variables and the Nature of the Relationship Between Them**

- **Independent Variable:** The independent variable in this research is represented by e-government, which was measured through the following dimensions: (providing administrative support, providing a comprehensive system for digital infrastructure, developing human resources, and developing government content).
- **Dependent Variable: Improving the level of public government services, where public government services refer to the various digital services provided within the Egyptian Postal Authority in Giza Governorate.**

### **(11/4) Data Collection Tool**

The data collection tool is represented by the survey questionnaire, which the researcher relied upon to obtain primary data related to the study of the relationship between the research variables. The questionnaire was prepared based on the main and subsidiary variables of the research, and it was able to provide the required primary data.

### **(11/5) Measurement**

The researcher relied on the e-government measurement scale to measure the independent variable, where the e-government variable was measured through the following dimensions: (providing administrative support, providing a comprehensive system for digital



infrastructure, developing human resources, and developing government content), based on the scale agreed upon by several researchers (*Alwan, 2019*), (*Ahmed, 2021*), (*Alawaji, 2022*), (*Bin Atif, 2023*), (*Alrabghi, 2022*), which contains a total of (27) statements represented in the following dimensions: (dimension of providing administrative support: it was measured using (6) statements, dimension of providing a comprehensive system for digital infrastructure: it was measured using (8) statements, dimension of human resource development: it was measured using (8) statements, dimension of government content development: it was measured using (5) statements), while improving public government services was measured to measure the dependent variable, where the researcher relied on a group of researchers: (*Alzghby, 2021*), (*Mahmoud, 2015*), (*Abdul Latif, 2018*), (*Alawdi, 2015*) and (22) statements were prepared to measure this variable.

### **(11/6) Validity of Data Collection Tool (Survey Questionnaire):**

To ensure the content validity and the ability of the survey questionnaire to provide the required data, the main study variables were defined based on what was discussed in the previous research studies and the exploratory study, then those variables were discussed with specialists and experts related to the research variables, to ensure the degree of understanding of the statements and the degree of agreement between the content of the statement and the dimension being measured and studied through each statement. Furthermore, confirmatory factor analysis was relied upon to ensure the extent of consistency between the dimensions of the theoretical model of e-government and the data obtained from the research sample, to study

the nature of the relationship between the dimensions of e-government and the paragraphs expressed about them. Thus, the confirmatory factor analysis is considered an interpretation of the data and the answer to the question that revolves around why and how a set of variables and their dimensions are related in the research community? The researcher is keen to reach a model that simulates reality and can be described with efficiency and simplicity. Therefore, through this transformation, the degree of consistency between the data of the e-government measurement model, which was previously defined based on most of the previous studies, will be ensured.

#### **(11/7) Reliability of Data Collection Tool (Survey Questionnaire):**

The researcher used Cronbach's Alpha Coefficient to test the degree of Reliability in the measures used in the research, as Cronbach's Alpha Coefficient is one of the most reliable statistical methods that can be used to analyze reliability and assess the degree of internal consistency between the contents of the scale being tested. The following table shows the results of the reliability analysis to determine the values of the Cronbach's Alpha Coefficient for each of the dimensions of the role of e-government and improving public government services:

**Table (3): Cronbach's Alpha Coefficient Values for Research Variable Dimensions**

Variables	Number of Statements	Cronbach's Alpha Coefficient
<b>Independent Variable: E-Government</b>	27	0.884
Dimension of Providing Administrative Support	6	0.718
Dimension of Providing a Comprehensive System for Digital Infrastructure	8	0.864
Dimension of Human Resource Development	8	0.776
Dimension of Government Content Development	5	0.803
<b>Dependent Variable: Improving Public Government Services</b>	22	0.841

**Source:** The table was prepared by the researcher based on the results of the statistical analysis.

**It is clear from table no.3 that** the results of the Cronbach's alpha coefficients for the dimensions of the research variables ranged between (0.864) and (0.718). It was found that the Cronbach's alpha coefficient for the independent variable "e-government" was high, with a value of (0.884). Similarly, the Cronbach's alpha coefficient for the dependent variable represented by "improving public government services" was also high, with a value of (0.841). These values are considered high and acceptable, indicating the reliability of the research questionnaire.

### **Confirmatory Factor Analysis of Digital Government and its Dimensions:**

To verify the extent to which the dimensions of the measurement model for the role of digital government and its dimensions match the data collected from the study sample individuals about the role of digital government, and the statements expressing it, and the ability of the statements to express each dimension, and filtering each

dimension from measurement errors, the digital government variable included four dimensions that include (27) statements. The first dimension is "providing administrative support" and consists of (6 statements), while the second dimension expresses "providing an integrated system for digital infrastructure" and consists of (8 statements), and the third dimension measures the extent of "developing human cadres" and consists of (8 statements), while the fourth and final dimension measures the extent of "developing government content" and consists of (5 statements). It became clear by obtaining the standard loading coefficients for the statements that make up the role of digital government and its dimensions that they exceeded (50%), which is the minimum acceptable in research, as these coefficients ranged in the dimension of providing administrative support between (0.689) and (0.817), while they ranged within the dimension of providing an integrated system for digital infrastructure between (0.714) and (0.887), and the coefficients for the dimension of developing human cadres ranged between (0.747) and (0.901), while those coefficients for the dimension of developing government content ranged between (0.667) and (0.784). The following table shows the indicators related to the special fit of the independent variable "the role of digital government and its dimensions".

**Table (4): Fit Indicators for the Measure of the Role of Digital Government and its Dimensions**

Indicator	Goodness of Fit (First Dimension)	Goodness of Fit (Second Dimension)	Goodness of Fit (Third Dimension)	Goodness of Fit (Fourth Dimension)
Chi-Square Value	926.28	745.1	784.8	1124.3
Degrees of Freedom (DF)	279	268.02	260.73	289.02
Ratio between Chi-Square Value and Degrees of Freedom	3.32	2.78	3.01	3.89
P-Value	0.000	0.000	0.000	0.000
Comparative Fit Index (CFI)	0.749	0.887	0.873	0.784
Normed Fit Index (NFI)	0.708	0.787	0.801	0.712
Tucker-Lewis Index (TLI)	0.719	0.807	0.842	0.811
Goodness of Fit Index (GFI)	0.645	0.714	0.817	0.700
Root Mean Square Error of Approximation (RMSEA)	0.014	0.021	0.019	0.031

**Source:** Table prepared by the researcher, according to the outputs of the statistical analysis.

**It is clear from table no.4** that the values of the Goodness of Fit Index (GFI) for the model of relationships between the different dimensions in the model achieve the best values for all indicators, and that all the model values are statistically significant at a significance level of (1%), and it became clear that the values of (Chi-Square) are not statistically significant at a significance level of (1%) and (5%), and that all the values of (Chi-Square) were less than (5) for all dimensions of the model, which also indicates the goodness of fit. Also, the value of the Tucker-Lewis Index (TLI) reached (0.719),

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(0.807), (0.842), (0.811) for all dimensions, respectively, which indicates a good fit of the data to the model. In addition, the value of the Root Mean Square Error of Approximation (RMSEA) index reached (0.014), (0.021), (0.019), (0.031) for all dimensions, respectively, and that all the values of all indicators are close to zero, which confirms the goodness of fit for the model. Thus, the validity coefficients for all the statements that make up the dimension of improving public government services can be accepted.

### Confirmatory Factor Analysis for Improving the Level of Public Government Services

The measure of improving public services included (22) statements, and Table No. (5) shows the fit indicators for the measurement model.

**Table (5): Fit Indicators for the Measure of Improving Public Government Services**

Indicator	Goodness of Fit
Chi-Square Value	325.78
Degrees of Freedom (DF)	179
Ratio between Chi-Square Value and Degrees of Freedom	1.82
P-Value	0.000
Comparative Fit Index (CFI)	0.817
Normed Fit Index (NFI)	0.758
Tucker-Lewis Index (TLI)	0.747
Goodness of Fit Index (GFI)	0.723
Root Mean Square Error of Approximation (RMSEA)	0.0241

**Source:** Table prepared by the researcher, according to the outputs of the statistical analysis.

**It is clear from table no.5** that the normed index is the ratio between (Chi-Square) and degrees of freedom (df), and that the acceptable limit for this index should be less than the value (5) to indicate the possibility of matching the actual model to the measurement model. If

the value of this index is less than the value (2), it indicates that this model perfectly fits the observed data. The significance level associated with the test can be relied upon as evidence of the goodness of fit based on whether the significance level is greater than (0.05) and is not statistically significant. It is noted that the value of (Chi-Square) is not statistically significant at either the significance level of (1%) or (5%) (Eid, 2023: 240), where the value of (P-value) reached (0.000), and its loss of statistical significance supports the likelihood of goodness of fit for the model. This indicates the acceptance of the null hypothesis, which shows that the actual model fits the data of the estimated model. Additionally, the value of (Chi-Square) reached (1.82), which is less than (2), also indicating goodness of fit.

Because the fit test varies according to the sample size that was determined, the researcher used other tests to ensure the goodness of auditing. As shown in the previous table, the value of the Goodness of Fit index reaches (0.748), which is statistically significant at the significance level ( $\alpha = 0.01$ ). The value of the Tucker-Lewis Index (TLI) is (0.723), indicating that the data fits the model well. Regarding the Root Mean Square Error of Approximation (RMSEA) index, its value reached (0.0241), which is an acceptable value approaching zero, indicating a perfect fit. The previous table also shows the value of the Comparative Fit Index (CFI), which is (0.817), and the Normed Fit Index (NFI), which is (0.758). Since all the indices have good and acceptable values for fit, the validity coefficients for all the statements that make up the dimension of improving public government services can be accepted.

## (12) Research Boundaries

The research boundaries can be clarified as follows:

- **Spatial boundaries:** The research focused on the offices of the Egyptian Postal Authority in Giza Governorate, which total 331 post offices, including (postal offices, proxy offices, and postal agencies). Giza Governorate was considered one of the largest governorates and includes several types of post offices.
- **Time boundaries:** Regarding the field study and the distribution and collection of questionnaires, the period was limited from the beginning of February 2023 to the end of May 2023.
- **Subject boundaries:** The research focused on clarifying the role of digital government in its various dimensions, represented in (providing administrative support, providing an integrated system for digital infrastructure, developing human cadres, developing government content) through studying (Alwan, 2019), (Ahmed, 2021), (Al-Awaji, 2022), (Bin Atef, 2023), (Al-Rabghi, 2022) in improving the level of public government services provided within the offices of the Egyptian Postal Authority in Giza Governorate.
- **Human boundaries (Research Population and Sample):** The research was applied to the offices of the Egyptian Postal Authority in Giza Governorate. The research population consists of all employees within these offices, numbering approximately (3972) employees at various administrative levels, according to a report issued by the Central Agency for Public Mobilization and Statistics for the year 2022. The researcher relied on a confidence level of (95%) and an average availability of digital government's



role of (60.89%) considering the average availability rates of digital government dimensions according to the results obtained through the exploratory study. The sample size was calculated based on the electronic website, and the sample size reached (336 individuals) from the employees of the Egyptian Postal Authority offices under study, according to the result of the indicated electronic website. The sampling unit consisted of employees of the Egyptian Postal Authority offices in Giza Governorate, regardless of gender, educational qualification, and academic qualification. A total of 336 questionnaires were distributed through personal interviews with the sample individuals, and 303 questionnaires were retrieved with a response rate of (90.78%). After examination and review, it was found that the number of valid questionnaires for statistical analysis was 289, representing (95.38%) of the retrieved questionnaires.

**The statistical description of the sample individuals according to the demographic variables (gender, educational qualification, administrative level) can be presented as shown in the following table:**

**Table (6): Description of the research sample according to demographic variables**

Variable	Category	Frequency	Percentage %
<b>Gender/sex</b>	Male	233	80.9
	Female	56	19.1
<b>Total</b>		289	100
<b>Educational Level</b>	Postgraduate	19	6.57
	University	180	62.28
	Above Intermediate	52	18
	Intermediate	25	8.65
	Below Intermediate	13	4.49
<b>Total</b>		289	100
<b>Administrative Level</b>	General Manager	19	6.57
	Department Manager	28	9.69
	Head of Section	43	14.88
	Specialist	127	43.94
	Employee	72	24.91
<b>Total</b>		289	100

**Source:** Table prepared by the researcher.

**From table no.6, we can conclude that:**

- **Regarding gender/ sex composition:** In terms of the demographic composition of the sample, it shows that males constitute a larger percentage within the postal authority offices under study, with the percentage of males within the study sample reaching 80.90% compared to females who represent 19.10%. This trend can potentially be explained by the traditional distribution of women and men in certain sectors, which may show differences in work orientations and opportunities.
- **Educational attainment:** Regarding educational qualifications, individuals who obtained university degrees constitute 62.28% of the sample, while the total percentage of individuals who obtained

postgraduate degrees is 6.57%. On the other hand, 18% of the sample hold an above-intermediate certificate, 8.65% hold an intermediate certificate, while those who obtained a below-intermediate certificate represent 4.49%. This educational distribution provides insight into the level of educational attainment of employees within the Egyptian Postal Authority, which can be an important determinant for future human resource development and enhancing scientific and technical capabilities within the authority's offices under study.

- **Job diversity:** Regarding the job distribution, it appears that 43.94% of the sample work in the position of "specialist," a percentage that reflects diversity in areas of expertise and specializations within the postal authority offices. They are followed in the job distribution by "head of section" at 14.88%, "department manager" at 9.69%, "general manager" at 6.57%, and finally "employee" at 24.91%. This distribution reflects a diversity of roles and responsibilities within the authority's offices and reinforces the importance of each category in achieving the authority's strategic objectives.
- **Organizational structure:** Regarding the job distribution of the sample, specialists constitute the largest percentage at 43.94%, followed by employees at 24.91%, then heads of sections at 14.88%. They are followed by department managers at 9.69%, and finally, general managers at 6.57%. This distribution reflects structural and functional diversity within the offices of the Egyptian Postal Authority, where work varies between different levels of experience and responsibilities.

**(13) Summary of Research Structure and Methodology**

**Table (7): Summary of Research Structure and Methodology**

Ni	Research Questions	Research Objectives	Research Hypotheses	Variables	Measurement	Analysis Methods	Statistical Tests
1	Can the level of public government services provided within the Egyptian Postal Authority offices in Giza Governorate be improved by focusing on the dimensions of digital government?	Identifying the possibility of improving the level of public government services by relying on the role of digital government and its dimensions within the Egyptian Postal Authority offices in Giza Governorate.	<b>First Research Hypothesis (H1):</b> There is a statistically significant relationship between the level of availability of digital government dimensions and the improvement of the level of public government services provided within the Egyptian Postal Authority in Giza Governorate. This hypothesis is divided into a set of sub-hypotheses as shown in the research hypotheses.	Digital Government  Improving the level of public government services	Dimensions of Digital Government  Measurement of improving the level of public government services	Mean and Standard Deviation  Regression Analysis	Beta  (F)
2	To what extent does the impact of digital government dimensions among employees of the Egyptian Postal Authority offices in Giza Governorate on improving the level of public government services differ according to the personal characteristics of employees (gender, educational qualification, administrative level)?	Demonstrating the extent of the impact of digital government dimensions on improving the level of public government services provided within the Egyptian Postal Authority offices in Giza Governorate, differing according to each of the personal characteristics of employees (gender, educational qualification, administrative level).	<b>Second Research Hypothesis (H2):</b> The impact of digital government dimensions on improving the level of public government services in the Egyptian Postal Authority offices in Giza Governorate differs according to personal characteristics (gender, educational qualification, administrative level).	Digital Government  Improving the level of public government services  Gender, educational qualification, administrative level	Dimensions of Digital Government  Measurement of improving the level of public government services	Analysis of Covariance (ANCOVA)	(F)
3	To what extent does the level of availability of each of the dimensions of digital	Determining the level of availability of digital government dimensions and	<b>Third Research Hypothesis (H3):</b> There is a significant difference in the Egyptian Postal Authority offices in	Digital Government  Improving the level of	Dimensions of Digital Government	Mean and Standard Deviation	Kruskal-Wallis

N:	Research Questions	Research Objectives	Research Hypotheses	Variables	Measurement	Analysis Methods	Statistical Tests
	government and the improvement of public government services provided within the Egyptian Postal Authority offices in Giza Governorate differ according to (gender, educational qualification, administrative level)?	the axis of improving the level of public government services provided within the Egyptian Postal Authority offices in Giza Governorate, and the extent of differences in the Egyptian Postal Authority offices in Giza Governorate towards the availability of digital government dimensions and improving the level of public government services according to (gender, educational qualification, administrative level).	Giza Governorate according to the personal characteristics of employees (gender, educational qualification, administrative level) regarding the availability of each of the dimensions of digital government and the improvement of the level of public government services.	public government services  Gender, educational qualification, administrative level	Measurement of improving the level of public government services	Mann-Whitney	

Source: Table prepared by the researcher

## **(14) Hypothesis Testing and Analysis of Field Study Results**

**(14/1) Testing the nature of the relationship between the role of digital government and its dimensions and improving the level of public government services provided within the Egyptian Postal Authority offices in Giza Governorate.** This was done through the following statistical tests:

### Correlation matrix between study variables

**Table (8): Correlation Matrix between the dimensions of digital government (independent variable) and improving the level of public government services (dependent variable)**

Variable	Improving the Level of Public Government Services
<b>Dimensions of Digital Government</b>	
Providing Administrative Support	0.748**
Providing an Integrated System for Digital Infrastructure	0.881**
Human Resource Development	0.793**
Developing Electronic Content	0.647**
<b>Digital Government</b>	<b>0.853**</b>

**Source:** Table prepared by the researcher, according to the outputs of statistical analysis.

\*\* indicates statistical significance at (0.01)

**Table no.8 shows** that the Correlation Matrix between the dimensions of the independent variable (digital government) and the dependent variable (improving the level of public government services) demonstrates a strong, positive, and significant correlation between digital government as a whole and improving the level of public government services, with a correlation value of (0.853). By analyzing the correlational relationship between each dimension of digital government separately, it was found that there is a strong correlation between providing administrative support and improving the level of public government services, with a correlation coefficient value of (0.748). It was also found that there is a strong positive correlation between providing an integrated system for digital infrastructure and improving the level of public government services, with a correlation coefficient value of (0.881). Similarly, there is a strong positive

correlation between human resource development and improving public government services, with a correlation coefficient value of (0.793). Additionally, there is a strong positive correlation between developing electronic content and improving the level of public government services, with a correlation coefficient value of (0.647).

**From the above**, it is evident that there is a strong positive correlation between each dimension of digital government, both individually and collectively, and improving the level of public government services provided by the Egyptian Postal Authority offices in Giza Governorate. This confirms that as the dimensions of digital government improve and receive more attention, the level of these services improves accordingly.

#### **(14/2) Testing the First Hypothesis of the Research**

To demonstrate the nature of the relationship between the application of digital government dimensions and improving the level of public government services, and to test the first main hypothesis of the research (H1), which states, "There is a statistically significant relationship between the level of availability of digital government dimensions and improving the level of public government services provided within the Egyptian Postal Authority in Giza Governorate," regression analysis was used at a significance level of 5%. This is to answer the first research question, which states, "Can an improvement be made in the level of public government services provided within the offices of the Egyptian Postal Authority in Giza Governorate by focusing on the dimensions of digital government?" This is shown in the following table:

**Table (9): Regression Analysis to Clarify the Main Dimensions of Digital Government and Their Role in Improving the Level of Public Government Services**

Dimensions of Digital Government	Beta	R	R <sup>2</sup>	T	Significance Level
Dimension of Providing Administrative Support	0.647	0.748*	0.865	7.45	0.000
Dimension of Providing an Integrated System for Digital Infrastructure	0.703	0.881*	0.939	6.44	0.001
Dimension of Human Resource Development	0.618	0.793*	0.891	7.19	0.000
Dimension of Developing Government Content	0.559	0.647*	0.804	5.89	0.000
Correlation Coefficient in the Model (R)	0.853				
Coefficient of Determination in the Model R <sup>2</sup>	0.92				
Calculated F-test Value	47.45				
Degrees of Freedom	267-4				
Level of Statistical Significance	0.000				

**Source:** Table prepared by the researcher, according to the outputs of statistical analysis. \*\* indicates statistical significance at (0.01)

**The sub-hypotheses of the first main hypothesis of the research are tested as follows:**

**The first sub-hypothesis (X1-1):** Which states, "There is a statistically significant relationship between providing administrative support as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate."

- It is evident from the previous table No. (9) that the value of (T=7.45) at a significance level of (0.000), which is less than (0.05), confirms the existence of a statistically significant



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relationship between the variable of providing administrative support and improving the level of public government services provided within the Egyptian Postal Authority offices under study.

- The correlation coefficient ( $R=0.748$ ) clarifies that there is a positive (strong) correlation between the variables of providing administrative support and improving the level of public government services, which confirms the strength of the relationship between the two variables, and this is positively reflected in improving the services provided within the Egyptian Postal Authority offices under study.
- The value of ( $R^2=0.865$ ) means that (86.5%) of the change that occurs in the dependent variable (improving the quality of public government services) occurs because of the change that occurs in the sub-independent variable (providing administrative support), and that the remaining percentage (13.5%) is due to other factors outside the scope of the research.
- The value of ( $Beta=0.647$ ), where the positive sign of the regression coefficient indicates that the relationship between providing administrative support and improving the level of public government services provided within the Egyptian Postal Authority offices under study is a positive (direct) influential relationship, which is illustrated by the following equation:
- Improving the level of public government services within the Egyptian Postal Authority offices under study =  $0.647$  Providing administrative support +  $0.538$
- This means that each change in providing administrative support by one unit is met by the same change in improving the level of

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public government services provided within the Egyptian Postal Authority offices under study by (0.647) units.

**Based on the above**, the first sub-hypothesis of the research, which studies the relationship between providing administrative support and improving the level of public government services provided within the Egyptian Postal Authority offices under study, can be accepted.

### **Testing the second sub-hypothesis**

**The second sub-hypothesis (X1-2):** Which states, "There is a statistically significant relationship between providing an integrated system for digital infrastructure as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate."

- It is evident from the previous table No. (9) that the value of ( $T=6.44$ ) at a significance level of (0.000), which is less than (0.05), confirms the existence of a statistically significant relationship between the variable of providing an integrated system for digital infrastructure and improving the level of public government services provided within the Egyptian Postal Authority offices under study.
- The correlation coefficient ( $R=0.881$ ) clarifies that there is a positive (strong) correlation between the variables of providing an integrated system for digital infrastructure and improving the level of public government services, which confirms the strength of the relationship between the two variables, and this is positively reflected in improving the services provided within the Egyptian Postal Authority offices under study.
- The value of ( $R^2=0.939$ ) means that (93.9%) of the change that occurs in the dependent variable (improving the quality of public government

services) occurs as a result of the change that occurs in the sub-independent variable (providing an integrated system for digital infrastructure), and that the remaining percentage (6.1%) is due to other factors outside the scope of the research.

- The value of (Beta=0.703), where the positive sign of the regression coefficient indicates that the relationship between providing an integrated system for digital infrastructure and improving the level of public government services provided within the Egyptian Postal Authority offices under study is a positive (direct) influential relationship, which is illustrated by the following equation:
- Improving the level of public government services within the Egyptian Postal Authority offices under study = 0.703 Providing an integrated system for digital infrastructure + 0.457
- This means that each change in providing an integrated system for digital infrastructure by one unit is met by the same change in improving the level of public government services provided within the Egyptian Postal Authority offices under study by (0.703) units.

**Based on the above**, the second sub-hypothesis of the research, which studies the relationship between providing an integrated system for digital infrastructure and improving the level of public government services provided within the Egyptian Postal Authority offices under study, can be accepted.

### **Testing the third sub-hypothesis**

**The third sub-hypothesis (X1-3):** Which states, "There is a statistically significant relationship between the development of

human cadres as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate."

- It is evident from the previous table No. (9) that the value of ( $T=7.19$ ) at a significance level of (0.000), which is less than (0.05), confirms the existence of a statistically significant relationship between the variable of human cadres' development and improving the level of public government services provided within the Egyptian Postal Authority offices under study.
- The correlation coefficient ( $R=0.793$ ) clarifies that there is a positive (strong) correlation between the variables of human cadres' development and improving the level of public government services, which confirms the strength of the relationship between the two variables, and this is positively reflected in improving the services provided within the Egyptian Postal Authority offices under study.
- The value of ( $R^2=0.891$ ) means that (89.1%) of the change that occurs in the dependent variable (improving the quality of public government services) occurs because of the change that occurs in the sub-independent variable (human cadres' development), and that the remaining percentage (10.9%) is due to other factors outside the scope of the research.
- The value of ( $Beta=0.618$ ), where the positive sign of the regression coefficient indicates that the relationship between human cadres' development and improving the level of public government services provided within the Egyptian Postal

Authority offices under study is a positive (direct) influential relationship, which is illustrated by the following equation:

- Improving the level of public government services within the Egyptian Postal Authority offices under study = 0.618 Human cadres' development + 0.178
- This means that each change in human cadres' development by one unit is met by the same change in improving the level of public government services provided within the Egyptian Postal Authority offices under study by (0.618) units.

**Based on the above**, the third sub-hypothesis of the research, which studies the relationship between providing administrative support and improving the level of public government services provided within the Egyptian Postal Authority offices under study, can be accepted.

#### **Testing the fourth sub-hypothesis**

**The fourth sub-hypothesis (X1-4):** Which states, "There is a statistically significant relationship between the development of government content as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate."

- It is evident from the previous table No. (9) that the value of (T=5.89) at a significance level of (0.000), which is less than (0.05), confirms the existence of a statistically significant relationship between the variable of government content development and improving the level of public government services provided within the Egyptian Postal Authority offices under study.

- The correlation coefficient ( $R=0.647$ ) clarifies that there is a positive (strong) correlation between the variables of government content development and improving the level of public government services, which confirms the strength of the relationship between the two variables, and this is positively reflected in improving the services provided within the Egyptian Postal Authority offices under study.
- The value of ( $R^2=0.804$ ) means that (80.4%) of the change that occurs in the dependent variable (improving the quality of public government services) occurs as a result of the change that occurs in the sub-independent variable (government content development), and that the remaining percentage (19.6%) is due to other factors outside the scope of the research.
- The value of ( $Beta=0.559$ ), where the positive sign of the regression coefficient indicates that the relationship between government content development and improving the level of public government services provided within the Egyptian Postal Authority offices under study is a positive (direct) influential relationship, which is illustrated by the following equation:
- Improving the level of public government services within the Egyptian Postal Authority offices under study =  $0.559$  Government content development +  $0.207$
- This means that each change in government content development is met by the same change in improving the level of public government services provided within the Egyptian Postal Authority offices under study by (0.559) units.

**Based on the above**, the fourth sub-hypothesis of the research, which studies the relationship between government content development and improving the level of public government services provided within the Egyptian Postal Authority offices under study, can be accepted.

**As shown in the previous table:**

- The model used to test the impact of digital government on improving the level of public government services provided within the Egyptian Postal Authority offices in Giza Governorate can be accepted, as the calculated (F) value reached (47.45) with a significance level of (0.000), which is less than (0.05), meaning that the model is valid for predicting the values of the dependent variable and confirms the significant impact of digital government on improving the level of public government services in the Egyptian Postal Authority offices under study.
- The value of the coefficient of determination (R<sup>2</sup>) reached (0.92), indicating that every change in improving the level of public government services is due to the role of digital government with its various dimensions, equivalent to (92%), meaning that (92%) of the change in the level of public government services overall depends on the role of digital government and its various dimensions.
- About presenting the parameters of the regression model, it is evident that providing administrative support, providing an integrated system for digital infrastructure, developing human cadres, and developing government content all have an impact on improving the level of public government services. According to the value of (Beta), which determines the relative importance of

the variable's impact, it was found that the order of impact of the four variables is providing an integrated system for digital infrastructure (0.703), providing administrative support (0.647), the dimension of human cadre's development (0.618), and the dimension of government content (0.559).

- Considering this, it was found that there is a statistically significant relationship between the role of digital government with its various dimensions and improving the level of government services provided within the Egyptian Postal Authority offices in Giza Governorate, which indicates the acceptance of the first hypothesis in its entirety.

### **(14/3) Testing the second hypothesis of the research.**

The second hypothesis of the research tests the extent to which there is a difference in the impact of the role of digital government with its various dimensions on improving the level of public government services provided within the Egyptian Postal Authority offices in Giza Governorate according to the demographic characteristics of the study sample individuals regarding (gender, educational qualification, administrative level). To help test the second hypothesis, analysis of covariance (ANCOVA) was used, which is a type of statistical control to measure the extent of the impact of the independent variable on the dependent variable in the presence of one or more variables. The most important conditions for applying covariance analysis are (that the sample under comparison is independent, that the samples are drawn from populations with normal distributions, and this condition can be ignored in the case of samples that exceed 30 individuals, in addition to the relationship between the independent variable and the



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dependent variable being linear). It was found that the results of the impact of the role of digital government on improving the level of public government services in terms of human gender (male, female) were as follows:

**Table (10): The arithmetic means and standard deviation of the dependent variable, improving the level of public government services, according to gender.**

Gender	Mean	Standard Deviation	Frequency
Male	4.03	0.661	233
Female	3.91	0.478	56
Total	3.96	0.579	289

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

It is clear from table No. (10) that the general trend of the opinions of the study sample individuals regarding improving the level of public government services tends towards acceptance at a rate of (79.2%). It was also found that there is a slight difference in the opinions of males (80.6%) and females (78.4%) regarding improving the level of these services under study, and that the difference is not significant.

**Table (11): Levene's test for homogeneity of variances, degrees of freedom, and p-value according to gender**

Levene's Test of Equality of Error Variances			
Dependent Variable			
F	DF1	DF2	Sig
47.23	1	288	0.001

Tests the null hypothesis that the error variance of the dependent variable is equal across groups

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

It is clear from table No. (11) that there is homogeneity between the sample of males and females at the level of the impact of digital government on improving the level of public government services, which is illustrated by the calculated value of (F), which reached (47.23) and is significant at the level of significance (0.001), thus confirming that there is no variance between the sample of females and males.

**Table (12): Analysis of covariance at the gender level**

Tests of Between – Subjects Effects					
Source	Type III Sum of squares	Df	Mean Square	F	Sig.
Corrected Model	98.486	4	24.62	947.551	0.000
Intercept	56.87	1	56.87	1621.8	0.000
Gender	0.147	1	0.147	3.12	0.057
Com_1	54.18	1	54.18	1527.49	0.000
Gender * com_1	0.219	1	0.219	5.78	0.002
Error	10.52	284	0.037		
Total	351.86	289			
Corrected Total	97.34	288			

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

It is clear from table No. (12) that the impact of digital government on improving the level of public government services through gender (male, female) is statistically significant, as the value of (F) is (5.78) at a significance level of (0.002), which shows an interaction between digital government and improving the level of public government services. **Thus, the first part of the second hypothesis related to gender is accepted**, and the existence of a difference in the impact of digital government on improving the level of public government services according to gender is accepted.

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The following table shows the results of the impact of digital government on improving the level of public government services through the influence of educational qualification, and they were as follows:

**Table (13): The arithmetic means and standard deviation of the digital government variable according to educational qualification.**

Educational Qualification	Mean	Standard Deviation	Frequency
Postgraduate	4.02	0.57	19
University	3.87	0.51	180
Above Intermediate Education Certificate	3.69	0.49	52
Intermediate Education Certificate	3.78	0.67	25
Below Intermediate Education Certificate	3.93	0.82	13
<b>Total</b>	<b>3.85</b>	<b>0.602</b>	<b>289</b>

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

It is clear from table No. (13) that the general trend of the sample's opinions about digital government tends towards agreement at a rate of (77%). It was also found that there is a slight difference in the opinions of the sample individuals according to their educational qualifications. Those with postgraduate degrees were (80.4%), university degrees (77.4%), and above intermediate education (73.8%). As for the intermediate and lower qualifications, they were (75.6%) and (78.6%), respectively, which indicates that the difference has an insignificant effect.

**Table (14): Levene's test for homogeneity of variances, degrees of freedom, and p-value according to educational qualification**

Levene's Test of Equality of Error Variances			
Dependent Variable			
F	DF1	DF2	Sig
39.27	3	286	0.027

Tests the null hypothesis that the error variance of the dependent variable is equal across groups

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

It is clear from table No. (14) that there is homogeneity between the sample individuals according to the educational qualification and the role of digital government in improving the level of public government services. This is illustrated by the calculated (F) values, which amounted to (39.27) and are significant at the level of significance (0.027). Thus, it is confirmed that there is no difference between the sample individuals according to the educational qualification.

**Table (15): Analysis of covariance on educational qualification categories**

Tests of Between – Subjects Effects					
Source	Type III Sum of squares	Df	Mean Square	F	Sig.
Corrected Model	94.83	5	18.97	547.17	0.000
Intercept	54.74	2	27.37	1664.32	0.000
Gender	0.037	2	0.0185	0.472	0.541
Com_1	78.55	2	39.275	2234.87	0.001
Gender * com_1	0.074	2	0.037	3.046	0.051
Error	10.78	284	0.0379		
Total	4479.2	289			
Corrected Total	106.71	288			

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

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it is clear from table No. (15) that the impact of digital government on improving the level of public government services through educational qualification (postgraduate, university, above intermediate education, intermediate education, below intermediate education) is statistically significant, as the value of (F) is (3.046) at a significance level of (0.051), which shows an interaction between digital government and improving the level of public government services. **Thus, the second part of the second hypothesis related to educational qualification is accepted, and the existence of a difference in the impact of digital government on improving the level of public government services according to educational qualification is accepted.**

The following table shows the results of the impact of digital government on improving the level of public government services through the influence of the administrative level, and they were as follows:

**Table (16): The arithmetic means and standard deviation of the digital government variable according to the administrative level.**

Educational Qualification	Mean	Standard Deviation	Frequency
Postgraduate	3.84	0.87	19
University	3.79	1.01	28
Above Intermediate Education Certificate	3.86	1.11	43
Intermediate Education Certificate	4.01	0.65	127
Below Intermediate Education Certificate	3.88	0.72	72
<b>Total</b>	<b>3.96</b>	<b>0.83</b>	<b>289</b>

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

It is clear from table No. (16) that the general trend of the sample's opinions about digital government tends towards agreement at a rate of (79.2%). It was also found that there is a slight difference in the opinions of the sample individuals according to the administrative level, where the general managers were (76.8%), department managers (75.8%), heads of departments (77.2%), specialists (80.2%), and employees (77.6%), which indicates that the difference has an insignificant effect.

**Table (17): Levene's test for homogeneity of variances, degrees of freedom, and p-value according to the administrative level**

Levene's Test of Equality of Error Variances			
Dependent Variable			
F	DF1	DF2	Sig
38.05	4	285	0.018

Tests the null hypothesis that the error variance of the dependent variable is equal across groups

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

Table No. (17) demonstrates the existence of homogeneity among the sample individuals according to the administrative level and the role of digital government in improving the level of public government services. This is illustrated by the calculated (F) values, which amounted to (38.05) and are statistically significant at the level of significance (0.018). Consequently, it is confirmed that there is no significant difference between the sample individuals based on their administrative level.

**Table (18): Analysis of covariance on administrative level categories**

Source	Tests of Between – Subjects Effects				
	Type III Sum of squares	Df	Mean Square	F	Sig.
Corrected Model	95.79	5	19.16	532.74	0.000
Intercept	67.84	2	33.92	1629.21	0.000
Gender	0.087	2	0.0435	1.09	0.317
Com_1	93.43	2	46.72	2547.3	0.000
Gender * com_1	0.06	2	0.03	6.87	0.0217
Error	10.88	284	0.0383		
Total	3472.71	289			
Corrected Total	106.8	288			

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

It is clear from table No. (18) that the impact of digital government on improving the level of public government services through the administrative level is statistically significant, as the value of (F) is (6.87) at a significance level of (0.0217). This indicates an interaction between digital government and the improvement of public government services. **Thus, the third part of the second hypothesis, which is related to the administrative level, is accepted, and the existence of a difference in the impact of digital government on improving the level of public government services according to the administrative level is accepted.**

Considering the above, **the second hypothesis is accepted overall, confirming that the impact of the role of digital government with its various dimensions on improving the level of public government services varies according to gender, educational qualification, and administrative level.**

**(14/3) Testing the third hypothesis of the research.**

To measure the extent of a significant difference in the offices of the Egyptian Postal Authority in Giza Governorate according to the personal characteristics of employees (gender, educational qualification, administrative level) regarding the availability of digital government dimensions and its role, and improving the level of public government services, **each of them is addressed as follows:**

The extent of a difference in the offices of the Egyptian Postal Authority in Giza Governorate according to the personal characteristics of employees (gender, educational qualification, administrative level) regarding the role of digital government with its various dimensions and indicating the significance of that difference (if any):

Reliance was placed on the arithmetic mean, Mann-Whitney analysis, Kruskal-Walli's test, and it was possible to reach through the following tables:

**Table (19): Differences between employees regarding the availability of digital government dimensions according to gender**

Dimensions	Arithmetic Mean		Mann-Whitney Test Results			Statistical Significance
	Male	Female	Mann-Whitney Value	Degrees of Freedom	Significance Level	
Providing Administrative Support	4.12	4.01	4273.8	289	0.352	Not significant
Providing an Integrated System for Digital Infrastructure	3.87	3.83	4247.98	289	0.472	Not significant
Developing Human Resources	3.99	3.81	4304.82	289	0.022	Not significant
Developing Government Content	3.75	3.72	3982.4	289	0.572	Not significant
Total	3.92	3.86	4317.11	289	0.227	Not significant

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.



**Table (20): Differences between employees regarding the availability of digital government dimensions according to educational qualification**

Dimensions	Arithmetic Mean					Mann-Whitney Test Results			Statistical Significance
	Postgraduate	University	Above Intermediate Education	Intermediate Education	Below Intermediate Education	Kruskal-Wallis Test Results	Degrees of Freedom	Significance Level	
Providing Administrative Support	4.01	4.01	4.2	4.06	3.95	4.02	289	0.421	Not significant
Providing an Integrated System for Digital Infrastructure	4.07	4.06	4.01	3.99	3.79	3.24	289	0.409	Not significant
Developing Human Resources	3.98	3.94	3.91	3.93	3.93	2.89	289	0.638	Not significant
Developing Government Content	3.87	3.81	3.86	3.97	3.71	3.57	289	0.473	Not significant
Total	3.99	3.98	4.01	3.88	3.98	4.01	289	0.327	Not significant

Source: The table is prepared by the researcher, according to the outputs of the statistical analysis.

**Table (21): Differences between employees regarding the availability of digital government dimensions according to educational qualification**

Dimensions	Arithmetic Mean					Mann-Whitney Test Results			Statistical Significance
	General Manager	Manager	Head of Department	Specialist	Employee	Kruskal-Wallis Test Results	Degrees of Freedom	Significance Level	
Providing Administrative Support	4.02	3.88	3.89	4.02	4.2	4.028	289	0.402	Not significant
Providing an Integrated System for Digital Infrastructure	3.99	3.67	3.96	4.01	4.01	3.689	289	0.355	Not significant
Developing Human Resources	3.87	3.49	4.01	4.02	3.98	2.33	289	0.248	Not significant
Developing Government Content	4.02	3.97	3.69	4.08	3.88	1.289	289	0.248	Not significant
Total	3.96	3.73	3.87	4.06	3.97	2.477	289	0.872	Not significant

Source: The table is prepared by the researcher, according to the outputs of the statistical analysis.

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It is evident from Tables No. (19), (20), and (21) that there is no significant difference regarding the role of digital government with its various dimensions (providing administrative support, providing an integrated system for digital infrastructure, developing human resources, developing government content) among employees within the offices of the Egyptian Postal Authority in Giza Governorate according to differences in gender, educational qualification, and administrative level. Therefore, the third hypothesis is rejected in relation to digital government.

To demonstrate the extent of a difference in the offices of the Egyptian Postal Authority in Giza Governorate according to the personal characteristics of employees (gender, educational qualification, administrative level) regarding improving the level of public government services and indicating the significance of that difference (if any), reliance was placed on the arithmetic mean, Mann-Whitney analysis, and Kruskal-Wallis test, through the following tables (22), (23), and (24).

**Table (22): Differences between employees regarding the availability of improved public government services according to gender**

Dimensions	Arithmetic Mean		Mann-Whitney Test Results			Statistical Significance
	Male	Female	Mann-Whitney Value	Degrees of Freedom	Significance Level	
Improving the Quality of Public Services	4.02	4.1	4775.3	289	0.639	Not significant

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

**Table (23): Differences between employees regarding the availability of digital government dimensions according to educational qualification**

Dimensions	Arithmetic Mean					Mann-Whitney Test Results			Statistical Significance
	Postgraduate	University	Above Intermediate Education	Intermediate Education	Below Intermediate Education	Kruskal-Wallis Test Results	Degrees of Freedom	Significance Level	
Improving the Quality of Public Services	3.99	4.01	3.87	3.69	3.87	4.332	289	0.421	Not significant

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

**Table (24): Differences between employees regarding the availability of digital government dimensions according to educational qualification**

Dimensions	Arithmetic Mean					Mann-Whitney Test Results			Statistical Significance
	General Manager	Manager	Head of Department	Specialist	Employee	Kruskal-Wallis Test Results	Degrees of Freedom	Significance Level	
Providing Administrative Support	4.1	3.93	4.02	3.88	3.98	3.689	289	0.402	Not significant

**Source:** The table is prepared by the researcher, according to the outputs of the statistical analysis.

The data shown reveals that there is no significant difference regarding the improvement of the level of public government services among employees in the offices of the Egyptian Postal Authority in Giza Governorate according to differences in gender, educational qualification, and administrative level. **Therefore, the third**

**hypothesis is rejected with respect to improving the level of public government services.**

**Based on the above**, it was decided to reject the third hypothesis of the research altogether, as it was found that the differences are generally not significant, and there is homogeneity in the sample. There should be no differentiation between employees regarding both the dimensions of digital government and improving the level of public government services separately. This is considered one of the conditions for using (ANCOVA) analysis. It should be noted that the results of the second hypothesis of the research revealed that the impact of digital government with its various dimensions on improving the level of public government services differs according to gender, educational qualification, and administrative level. This confirms that the three variables (gender, educational qualification, administrative level) clarify that digital government with its various dimensions has a significant impact on improving the level of public government services.

## **(15) Research Conclusion**

### **(15/1) Discussion of Research Results**

**Considering the discussion of the statistical analysis of the data of the three research hypotheses, the following was found:**

- There was a positive correlation between the sub-dimensions of digital government and the variable. It is observed that the dimension of "providing an integrated system for digital infrastructure" is the most correlated with the variable, with a correlation coefficient value of (88.1%), followed by the dimension of (developing human resources)

with a correlation coefficient value of (79.3%). The third rank is the dimension of (providing administrative support) with a correlation coefficient value of (74.8%), while the fourth and last rank is the dimension of (developing electronic content) with a correlation coefficient value of (64.7%). This is consistent with the study of both (Al-Alwan, 2019) and (Bin Atef, 2023).

- It was found that there is a strong positive correlation between the variable of the role of digital government and its impact with its various dimensions as a whole and the variable of improving the level of public government services. The research results indicated that (85.3%) of the ability of the offices of the Egyptian Postal Authority in Giza Governorate to improve the level of public government services provided within those offices under study is due to digital government with its various dimensions.
- There was a positive correlation between the dimensions of digital government and improving the level of public government services provided within the Egyptian Postal Authority in Giza Governorate. The dimension of providing an integrated system for digital infrastructure came first in terms of the strength of the relationship with a correlation coefficient of (88.1%), which highlights the necessity of readiness of public government organizations in terms of infrastructure and the establishment of information networks in a way that serves the interest of citizens and improves the level of services they receive. Accordingly, it can be confirmed that the second sub-hypothesis of the first research hypothesis is accepted. The dimension of developing human resources comes in the second place in terms of the

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strength of the relationship, with a correlation value of (79.3%), which confirms that the attention to the job cadres within public organizations is positively reflected in improving the level of services provided by those organizations in general and the offices of the Egyptian Postal Authority under study in particular, which confirms the validity of the third sub-hypothesis of the first research hypothesis. As for the relationship between providing administrative support and improving the level of public services provided, it comes in the third place in terms of the strength of the relationship with a correlation coefficient of (74.8%), which confirms the necessity of providing administrative support at the level of senior administrative leadership within countries in moving towards digitization as an approach to improving the level of public services. This is clear in the state's vision 2030 and its focus on government digitization and digital transformation in upgrading the levels of public services provided to the local citizen. Accordingly, the validity of the first sub-hypothesis of the first research hypothesis can be accepted. The relationship between the dimension of developing government content and improving the level of public services comes in the fourth and last place with a relationship strength of (64.7%), which confirms the need to increase focus and attention on the content of digital public services, developing and simplifying them to reach all intellectual levels within the local community. Thus, the fourth sub-hypothesis of the first research hypothesis can be accepted.

**Therefore, it can be concluded that the first hypothesis of the research, which deals with the relationship between the**

**dimensions of the digital government variable as a whole and the variable of improving the level of public government services within the offices of the Egyptian Postal Authority in Giza Governorate, is accepted. The value of the correlation coefficient according to the research model reached (85.3%), which indicates that the impact of digital government with its various dimensions on improving the level of public government services is a strong positive impact.**

- It was confirmed that gender, educational qualification, and administrative level each play a vital role in increasing the impact of digital government with its various dimensions on improving the level of public government services. On this basis, it can be said that the proposed model within the research is accepted.
- It was found that males are more interested in improving the level of public government services than females, with the strength of direction for males being (80.6%), while for females the strength of direction was (78.4%). Although these differences are not significant, they can be exploited to improve the level of those public services under study. This confirms the existence of a difference in the impact of digital government on improving the level of public government services according to gender. **Thus, the first part of the second research hypothesis is accepted.**
- The results of the study showed that higher qualifications above university education are more interested in exploiting the dimensions of digital government and working to improve the level of public government services with a direction strength of (80.4%), while holders of post-secondary education certificates

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were the least interested with a direction of (73.8%). This indicates that those with higher education are more aware of the importance of digital government as an approach to improving the level of public government services. The value of (F) reached (39.27) at a significant level of (0.027), which confirms the existence of a difference in the impact of digital government on improving the level of public government services according to educational qualification. **Thus, the second part of the second research hypothesis is accepted.**

- The results of the study showed that the job of specialist is the administrative level most aware of the importance of digital government with its various dimensions on improving the level of public government services by (80.2%). Despite the slight differences in interest in that according to different administrative levels, all administrative levels have great interest in the dimensions of digital government in improving the level of public services within the offices of the Egyptian Postal Authority. The value of the coefficient (F) reached (6.87) at a significance level of (0.0217), which confirms the existence of a difference in the impact of digital government on improving the level of public government services according to the administrative level. **Thus, the third part of the second research hypothesis is accepted.**
- It became clear through testing the third hypothesis of the research, which measures personal differences (gender, educational qualification, administrative level) and their impact on the extent of awareness of the role played by digital government with its various dimensions in improving the level of public



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government services within the offices of the Egyptian Postal Authority in Giza Governorate, that there is no difference between the individuals of the study sample, and there is almost complete homogeneity and agreement regardless of gender, educational qualifications, and administrative level on the importance of the role played by digital government as an approach to improving the level of public government services under study.

**The results of the research hypotheses tests can be summarized in the following table:**

**Table (25): Summary of Research Hypotheses Tests Results**

No.	Hypothesis	Variables	Relationship Value	Interpretation	Result
First Hypothesis (H1)	There is a statistically significant relationship between the level of availability of digital government dimensions and the improvement of the level of public government services provided within the Egyptian Postal Authority in Giza Governorate.	-Digital government overall -Improving the level of public government services	R = 85.3%	The more attention is paid to the dimensions of digital government, the more it leads to an improvement in the level of public government services under study.	Acceptance of the hypothesis
First Sub-Hypothesis	There is a statistically significant relationship between providing administrative support as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate.	-Providing administrative support (independent variable) -Improving the level of public government services (dependent variable)	R=74.8%	The more attention is paid to the dimension of administrative support provided by digital government, the greater the improvement in the public government services under study.	Acceptance of the hypothesis
Second Sub-Hypothesis	There is a statistically significant relationship between providing an integrated system for digital infrastructure as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza	-Providing the integrated system for digital infrastructure (independent variable) -Improving the level of public government services (dependent variable)	R = 88.1%	The more attention is paid to digital infrastructure and the establishment of information networks, the more it leads to an improvement in the level of public	Acceptance of the hypothesis

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No.	Hypothesis	Variables	Relationship Value	Interpretation	Result
	Governorate.			government services under study.	
<b>Third Sub-Hypothesis</b>	There is a statistically significant relationship between human resource development as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate.	- Human resource development (independent variable) -Improving the level of public government services (dependent variable)	<b>R = 79.3%</b>	The more attention is paid to developing digital skills and knowledge among human cadres within public organizations, the more the level of public government services under study improves.	Acceptance of the hypothesis
<b>Fourth Sub-Hypothesis</b>	There is a statistically significant relationship between developing government content as one of the dimensions of digital government and improving the level of quality of public government services provided within the Egyptian Postal Authority in Giza Governorate.	- Developing digital government content (independent variable) -Improving the level of public government services (dependent variable)	<b>R = 64.7%</b>	The more governments are keen to develop their digital content, the more it leads to an improvement in the level of public government services under study.	Acceptance of the hypothesis
<b>Second Hypothesis (H2)</b>	The impact of digital government dimensions on improving the level of public government services in the offices of the Egyptian Postal Authority in Sharkia Governorate differs according to personal characteristics (gender, educational qualification, administrative level).	-Digital government -Improving the level of public government services -Difference in personal characteristics (gender, educational qualification, administrative level)	<b>F-value is significant at a significance level of (0.005)</b>	The impact of digital government dimensions on improving the level of government services under study differs according to personal characteristics and attributes.	Acceptance of the hypothesis
<b>Third Hypothesis (H3)</b>	There is a significant difference in the offices of the Egyptian Postal Authority in Giza Governorate according to the personal characteristics of employees (gender, educational qualification, administrative level) regarding the availability of both digital government dimensions and improving the level of public government services.	-Personal attributes regarding the level of awareness of the role of digital government as an independent variable and its impact on the level of public government services as a dependent variable	<b>The results of the hypothesis are not significant at a level of (0.005)</b>	There are no significant differences or variances in personal attributes, and there is homogeneity in the sample.	Rejection of the hypothesis

Source: Table prepared by the researcher

## (15/2) Research Recommendations

In accordance with the research results that have been reached, the researcher proposes a set of recommendations that can be utilized to improve the level of public government services provided within the offices of the Egyptian Postal Authority in Giza Governorate. These recommendations have been formulated in the form of an implementation plan, the dimensions of which are represented in the contents of the following Table No. (26):

**Table (26): Research Recommendations Implementation Plan**

Recommendation	Implementation Mechanisms	Expected Return/Outcome
<b>The necessity of implementing appropriate modifications to the role of the Supreme Council for Digital Society, transforming it into the "National Authority for Digital Transformation."</b>	amending the law of the Supreme Council for Digital Society to change its name to the "National Authority for Digital Transformation," defining its executive powers, and converting advisory committees into executive committees. The Council is tasked with developing and managing plans and strategies related to information technology, digital transformation, and cybersecurity. It will work on establishing digital identities for citizens, residents, and visitors, and launching a digital identity application to eliminate paper transactions and achieve digital transformation.	Linking various government agencies to a single entity concerned with digital transformation leads to achieving governance, rationalizing state resources, and improving citizens' quality of life. It is also possible to manage platforms, systems, and digital innovation centers related to digital transformation within a unified and pioneering digital platform. Furthermore, starting to use digital identity cards is a means of digitizing access to government services.
<b>Accelerating the digitization of government services on the Digital Egypt platform, so that it becomes a platform for cooperation and joint work among government entities, with the aim of expediting the implementation of strategic programs and improving the delivery of digital government services.</b>	making electronic services more competitive by providing them at nominal prices and in less time and developing the concept of a chain of government services using artificial intelligence technologies and big data to process, store, and re-present citizens' data digitally, such as implementing a "one-time" policy. They also aim to eliminate bureaucracy through mechanisms for providing digital government services in cooperation with the proposed authority and using pioneering innovations.	Digital transformation contributes to the innovation and testing of creative solutions, overcoming routine work patterns, and utilizing human resources and leadership capabilities in government agencies to eliminate bureaucracy and combat corruption in the state's administrative apparatus. It will also facilitate obtaining comprehensive and detailed data for each citizen across all ministries, and the possibility of applying it to accelerate government services digitally.

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Recommendation	Implementation Mechanisms	Expected Return/Outcome
<b>Issuing a package of laws and regulations related to the digital transformation process, either by amending an existing law or issuing executive and regulatory bylaws for a law, with the aim of providing a comprehensive and precise legal framework for the digital transformation process and addressing all associated problems in implementation.</b>	The recommendations include issuing the executive regulations for the Personal Data Protection Law No. 151 of 2020 and making amendments to laws related to digital transformation, such as the executive regulations for Law No. 15 of 2004 on regulating electronic signatures.	A good legislative system contributes to better regulating and legalizing the digital transformation process and protecting the privacy of individuals' personal data. Moreover, introducing amendments to the law regulating electronic signatures will increase the rates of remote transactions in various government services, which reduces the pressure on government agencies to provide spaces for receiving citizens. Consequently, separating the service request from the service provider will become a reality.
<b>Analyzing digital needs and directing digital investment within the Egyptian Postal Authority by conducting analytical studies to identify sectors and areas that require improvement and development.</b>	developing digital government within the Egyptian Postal Authority includes assessing the current state of digital infrastructure and postal services, identifying goals and priorities, and analyzing technical and organizational needs and gaps. It also involves planning investments and dividing them into stages, preparing detailed implementation plans with timelines and responsibilities. Finally, measures are regularly assessed and evaluated to ensure the achievement of objectives and to assess their impact on user experience and process efficiency.	Needs analysis contributes to improving the efficiency and effectiveness of digital services by identifying processes that can be improved and developing electronic services that better meet users' needs. It also helps in reducing technical and skill gaps and enhancing training and skill development for the work team. Additionally, it aids in adapting to technological advancements and increasing interaction and partnership with users through improved communication and listening to their suggestions and feedback.
<b>Qualifying human resources in alignment with digital government processes within the Egyptian Postal Authority.</b>	qualifying human resources within the Egyptian Postal Authority includes analyzing the training needs of employees and designing customized training programs to develop the required digital and technical skills. It also involves enhancing modern technology skills such as artificial intelligence and computing and developing effective communication and customer service skills through digital means. Additionally, new digital talents are attracted and recruited.	Proper qualification of human resources in the Egyptian Postal Authority contributes to providing distinguished and high-quality digital services, developing the technical competencies of employees, and better understanding users' needs. It also leads to increased productivity and efficiency in task execution, and full utilization of available technology and digital tools.

### **(15/3) Proposals for Future Research Studies**

The importance of implementing digital government and improving the level of public services within government organizations is highlighted as two main challenges in the current era, characterized by rapid technological advancements and the growing use of the internet and social media. This challenge reflects the urgent need to develop more advanced government models to meet citizens' requirements and enhance their experience in interacting with the government. Researchers and those interested in public policy are exploring ways to improve the effectiveness of digital government by adopting modern technology and digital transformations in delivering government services efficiently and keeping pace with rapid technological developments. These efforts aim to modernize public services provided to citizens, improve their experience in accessing and using them, and fully utilize technology and innovation to deliver government services more easily and efficiently.

**A set of research proposals that could be of interest to researchers and those interested in this field can be reviewed:**

- Digital government and its role in improving the performance of public government organizations.
- The impact of digital government on human capital investment within public organizations.
- The role of digital government in activating governance within government institutions.
- The role of digital government in achieving sustainable development considering the state's future vision.
- Digital government and its impact on achieving institutional excellence within government organizations.

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