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E-Government in Egypt

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CHAPTER (1)
Introduction

E-government is the use of information and communication technologies (ICTs) to improve public service delivery and citizen participation, E-government reduces bureaucratic hurdles and fosters a participatory environment where citizens can engage directly with their government. This digital approach not only improves the quality of services but also promotes inclusivity, ensuring that even remote or marginalized communities have access to vital information and service Moreover, e-government initiatives contribute to economic growth by creating a more conducive environment for business and investment through simplified procedures and better regulatory compliance. In essence, e-government is indispensable for fostering good governance, driving innovation, and building trust between the government and its citizens, thereby playing a pivotal role in the development and progress of societies.

E-government considered as a key component of sustainable development and a strategic goal of Egypt's Vision 2030. However, despite the efforts and initiatives undertaken by the Egyptian government to promote e-governance, there are still many challenges and barriers that hinder its effective implementation and impact. These include the digital divide, the lack of trust and awareness, the legal and regulatory framework, the organizational and institutional capacity, the cybersecurity and privacy issues, and the socio-cultural factors.

It is clear from the above the importance of studying e-government in Egypt. So, the aim of this research paper is to explore the current state of e-governance in Egypt, identify the main challenges and opportunities, and propose some recommendations and best practices to enhance e-governance and achieve its desired outcomes. The paper adopts a mixed-methods approach, combining quantitative and qualitative data from secondary sources, such as international reports, academic literature, and official documents, as well as primary data from surveys and interviews with relevant stakeholders, such as government officials, private sector representatives, civil society organizations, and citizens. Moreover, the paper explores the available financing sources to the Egyptian government for electronic services.

In specific, the paper will illustrate the impact of electronic governance in modern applications on improving the quality of health services in Egypt. Also, it will discuss E-governance and digital transformation in the field of higher education and Study The impact of emerging technologies on the development of e-government. the e-governance and digital transformation program in Egypt and the impact of E-Governance on improving the governmental performance and achieving the sustainable development goals SDGs in Egypt will be evaluated. The paper will highlight the role of E-Governance during the Covid 19 pandemic. Explore obstacles influencing E-Governance implementation in Egypt and the sources for financing government digital services, other than budgetary and borrowing channels. Also, compare between these resources. It will explore the impact of emerging technologies on the Egyptian economy and the technology that the Egyptian government relies on to go through the digital transformation process.

To achieve the goals previously mentioned, we will introduce in chapter two the most important previous literature that has studied e-government in Egypt to find out the main factors affecting the implementation of e-government in Egypt, which we will then discuss in some detail in the third chapter, while providing a conceptual framework for those factors. Finally, we will formulate a questionnaire to measure those factors in the fourth and last chapter.

CHAPTER (2)
Literature Review

Introduction:

The literature review is one of the most important basic elements in scientific research, as previous studies and research that discuss e-government in Egypt have been collected and analysed. Below, the most important pieces of this literature will be presented in chronological order, from oldest to newest. Let us summarize and evaluate the most important studies that have shown the role of e-government in the educational aspect, economics, health, most important obstacles, and others.

In July 2014, Taha Kassem [15], Historical Analysis: Discusses the type of governance witnessed in Egypt during the rule of Mubarak and his predecessors, Impact Analysis: Clarifies the impact of governance in Egypt on various aspects of economic development, Examine the relationship between governance quality and economic development levels, Analyse the governance practices in Egypt under different regimes, Assess the effects of governance on Egypt's economic development.

In 2021, Beschel [3], the report details Egypt's nationwide lockdown and social distancing measures initiated in March 2020, coordinated by the prime minister's Higher Committee to Combat Coronavirus, comprehensive analysis included an analysis of government measures, health data, and economic indicators to assess the effectiveness of the response, assess the impact of the government's online portal and other digital tools in communicating COVID-19-related information to the public, understand the role of various state organizations, including the armed forces and state enterprises, in supporting the government's response, An online COVID-19 policy tracker was launched, providing details on the 432 COVID-19 policy response measures implemented by 77 government entities, Testing capacity was expanded to include 57 laboratories nationwide and mobile drive-through testing facilities.

In September 2021, Shibl etal [5], study aims to highlight the role of e-governance in the era when health organizations are managing and relying on information and communication to improve the quality of health services, using the analytical descriptive approach and questionnaire as a tool for data collection, e-governance is available in the hospitals studied with a high score of an arithmetical average (3.88), and in the health service with a high score of an arithmetical average (3.72).

In December 2021, O. Al Sayed and S. Esmat [12], introduced a study that tried to explore the most appropriate financing source for E-government services in Egypt from a citizen-centric approach and took the electricity meter as a case study. The study depended on a questionnaire to obtain citizen demand on the online application for electricity meter and discover if they are willing to pay extra fees for this new service or not. The questionnaire includes three sections. The first section shows the demographic and social characteristics of the sample. The second section includes questions that aim at disclosing the factors affecting the respondent's attitude towards online services. In the third section the respondent is asked whether he will use the new online service or not. They drew a sample from Greater Cario and calculated the sample size according to the following formula with confidence level 95%:

$$n_0 = \frac{z_\alpha^2 * P(1-P)}{e^2}$$

he refers to margin error and set to be 0.05.
P refers to percentage of specific phenomena and set to be 0.5

With the help of field researchers, a total of four hundred questionnaires were collected through face-to-face interviews held in July-august 2020. After hypothesis testing, the study results showed that just 45% of the sample are ready to pay extra fees to get E-Government service. So, the study recommended that the government should not depend on the private sector as a financing source. But it should either depend on the state budget or a partnership with the private sector.

In March 2022, wael omran [16], the study will use the descriptive analytical approach to determine the conceptual framework of the concept of e-government and management to develop a proposed framework to clarify the relationship between e-government, knowledge management and the efficiency of government performance. And also The inductive approach to characterizing and identifying the most important obstacles to the implementation of an effective e-government program in Egypt, The study analyzed the Egyptian situation regarding the application of an effective e-government program, which It is confronted with many social, political, economic, cultural, legislative, administrative and institutional challenges and obstacles In a manner that requires a package of legislative, institutional, organizational and administrative reforms and changes Social and financial infrastructure, whether administrative, human or technological, in order to achieve ambitious goals that, The program includes in activating knowledge management and raising the efficiency of government performance in a way that supports good community governance and leads to achieving sustainable community development.

In May 2022, Iyad Dhaoui [7], explores the role of e-government on economic and social development in the MENA region, using a panel data of 15 countries from 2003 to 2018, panel data analysis methodology, examine the effect of e-government on good governance, and the effect of good governance on sustainable development, assess the effect of e-government development on sustainable development, and provide some policy implications and recommendations.

In October 2022, Heikal [6], this research aims to develop proposals to activate e-governance at Banha University based on Egypt's Vision 2030, using a descriptive approach, and one of its most important tools is the questionnaire to collect data from faculty members. It was found that the reality of e-governance at Banha University from the point of view of faculty members came in at a moderate degree for the dimensions of the four aspects of government (transparency, responsibility, accountability, and social awareness).

In Nov. 2022, Abdella etal [1], this research examined the factors affecting e-health using comparative research and analysis by comparing other countries that preceded Egypt in this field. It was found that the service system has not undergone a complete digital transformation and still maintains patient records in paper form. Some information can be digitized, such as patient registration, appointments, and surveys, and transferred from the hospital to the Ministry of Health by digital.

In November 2022, Nahed Hamouda and Khaled Barakat [7], investigates the role of mechanisms bridging the digital divide, such as cybersecurity, e-services, e-participation, and e-learning, in order to improve e-governance and achieve the sustainable development goals in Egypt, qualitative methodology using an analytical descriptive and comparative approach, To compare the experiences of four countries: the UK, China, India, and the UAE, according to determined study standards, such as e- services, transparency, participation, and accountability to propose solutions for Egypt and other developing countries to enhance e-governance and achieve the sustainable development goals (SDGs).

In 2022, Nevine Henry and Ayat Abdel Kader [11], This study explores the role of e- government in improving the performance of the Egyptian Civil Status Office (ECSO) during the Covid-19 pandemic, descriptive analysis, determine the level of benefit from e-government in providing civil status services in Egypt, analyze the factors affecting the application of e-government in the Egyptian civil status office, evaluate the impact of e-government on improving the performance of the civil status office.

In December 2022 ,khashaba and salah eldeen [9], The research uses the descriptive-analytical approach as one of the main approaches to data compilation, And the relevant information contained in the International and national reports to evaluate the e-government program in Egypt, in addition to using a questionnaire form to survey the opinions of experts concerned with issues of e-government and digital transformation, and to draw learned experiences that contribute to determining the extent of the development of the program, The Egyptian e-government in the direction of transition to the digital state, and the requirements of this transformation. One of the most important findings of the study, The Egyptian government has been making great efforts on all axes to transform public services from the typical state to the digital state, since 1999 to support sustainable development and the knowledge economy, but Egypt has not achieved significant progress in that regard, nor has it been a leader in this field .Despite the availability of digital technologies, especially emerging technologies, Egypt could not Take advantage of them in the development of electronic services and turn them into digital or smart services.

In Winter 2023, R.Khamis [13], made the TAM model and used some variables like demographic characteristics and some external variables such as trust and social influence and she used them for the prediction of technology usage, the acceptance and success of e-government is still subject to the demand side, the Egyptian government needs to prioritize the promotion of mutual trust between the government and citizens, the-government shall realize the crucial role of trust in the adoption of e-government in Egypt

In August 2023 R. Hassan [14], introduced the first study that explores the obstacles of e-administration implementation in Egypt. The study identified 14 key barriers Based on a literature review and experts' opinions. The study developed structural relationships among the 14 barriers using interpretive structural modeling. The ISM method concludes with the ordering ranks of all identified variables and provides an interpretation of the embedded object, transforming unclear and poorly articulated mental models of systems into visible, well-defined models, thus aiding theory building. With the help of MICMAC analysis these barriers were classified into dependent, independent and linkage barriers according to dependence power and driving power. The study results showed that one of the most magnificent obstacles of e-administration implementation in Egypt is highly related to cultural factors which is managing resistance to change. Also, lack of HR specialized in information and communication technologies and lack of financial support were found to be among the most crucial driving barriers to implementing e-administration developments in Egypt.

Conclusion:

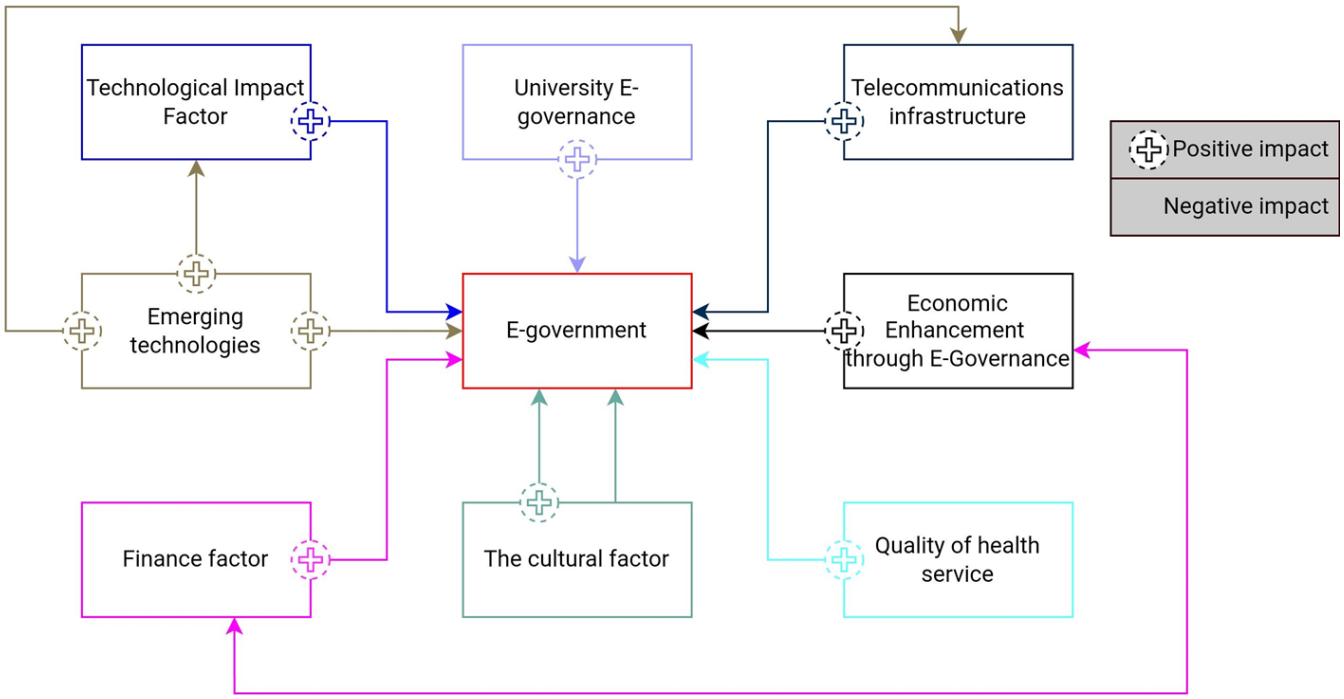
After we mentioned the most important literature that we found and analyzed, we concluded that when health organizations apply e-government and rely on information and communication, this leads to improving health service, as we saw during the spread of the Coronavirus (COVID-19). The application of e-government in universities achieved an average score in the four dimensions of governance (transparency, responsibility, accountability, and social awareness). It was also found that not all people have the ability to afford additional fees to obtain e-government services. It was found that the most important challenges facing the implementation of e-government in Egypt are the cultural factor and the lack of financial support. Also, despite the availability of digital technologies, especially emerging technologies, it has not been able to take full advantage of these technologies and transform public services into fully digital services. It is clear from the above that many factors affect and are affected by e-government, and we will explain how e-government affects or is affected by these factors in the next section.

CHAPTER (3)
Conceptual Framework

Introduction:

We will discuss in this chapter the most important factors that affect E-government, which is the focus of our research. When we mention the factors that affect that variable, we will find a lot of variables that affect it, whether they affect it positively or negatively, and when choosing those variables, we had to take into account the relationship that those variables affect the e-governance variable, whether negatively or positively, so we choose some variables that we believe are the most influential on the success of the E-government experiment, and our choice of those variables was based on our study of pervious literature that dealt with this topic, whether technological, economic, social, cultural, and financial. Before we address these variables in detail, we will present a form that shows all the variables, and how these variables will affect the e-governance variable.

Conceptual Framework:



E-Government:

E-government stands at the intersection of multiple critical factors, each playing a pivotal role in its successful implementation and impact. Emerging technologies are at the forefront, driving the transformation of public services into more advanced, smart systems. The telecommunications infrastructure underpins this technological revolution, providing the essential network that allows for the seamless operation of e-governance initiatives across urban and rural landscapes. Financial investment is the fuel that powers the e-governance engine, providing the necessary resources for technological procurement, human resource training, and system maintenance. The cultural factor plays a subtle yet significant role, influencing the public's readiness to adopt new technologies and adapt to digital governance. In healthcare, e-governance initiatives have been transformative, leading to better patient outcomes, reduced medical errors, and more efficient healthcare delivery systems. In the educational sphere, particularly in universities, e-governance has streamlined administrative processes, improved resource management, and facilitated communication, thereby enhancing the overall quality of education. Economic enhancement through e-governance is evident as it simplifies administrative procedures, reduces bureaucratic red tape, and makes the business environment more conducive to growth and investment. The technological impact factor quantifies the integration of emerging technologies into the economic fabric, marking a nation's progress towards modernization and innovation.

Emerging technologies:

Several emerging technologies have emerged, the most important of which are Internet of Things technologies (IOT), cloud computing and artificial intelligence AI, and the blockchain blocks associated with distributed records technology, and analyzes huge data, mobile applications, and others. These technologies can support the development of services, where can General and converting it from the electronic state to the digital or the most advanced smart condition Governments provide customer service for government services through automatic chat applications (Chatbot), To rationalize government employment, for example. Emerging technologies also help to convert cities into the case Smart and facilitate the provision of public services such as hygiene and managing facilities in a smart and more efficient manner, as it helps techniques such as the series of blocks in promoting public services related to documentation, land registration, real estate and other services.[9]

Telecommunications infrastructure:

The telecommunications infrastructure is one of the important components on which the e-government experience in Egypt is based, where the availability of a strong infrastructure and the availability of computers and advanced application programs allows the e-governance system to work efficiently and effectively in providing services to citizens, and the importance of infrastructure appeared in the sub-index (TII) of the United Nations, where it was explained that the weak level of telecommunications infrastructure was the reason for the decline in Egypt's ranking globally, which should mean that this problem requires interventions from Egyptian governments to solve this problem and reach the e-governance experience inside Egypt as efficiently as possible.[16]

Technological Impact Factor:

Driving Egypt’s future, digital transformation has been a prime priority for the government, so this variable Describes the extent to which emerging technologies are affecting the Egyptian economic framework in a quantifiable manner. Incorporating and influencing innovative technological advances into the nation’s market mechanisms, it encompasses changes in production methods, distribution channels, and consumer behavior. As a result of this factor, Egypt's technological development and economic development are integrating each other, interdependent and reciprocal.[8]

Quality of health service:

E-governance refers to using information and communication technology to provide information and services to individuals and society as a whole, facilitating decision-making processes, and increasing credibility and transparency. Applying this definition to the healthcare sector includes several elements, such as the use of electronic health information systems, the electronic exchange of information between healthcare institutions, and improving communication and interaction between patients and healthcare providers. It is evident that e-governance has a positive impact on the quality of healthcare services, with some of the effects being:[2] [5]

- Improving communication and providing better information: E-governance provides better and faster access to healthcare services, enabling patients to schedule appointments online and access medical records through the medical institution's electronic system.
- Overcoming geographical boundaries: E-governance provides access to healthcare services in remote and isolated areas.
- Increasing trust and reducing errors: E-governance improves patient safety by preventing medical errors related to drug diagnosis and providing accurate and timely information to doctors and nurses. It also improves drug tracking and management through electronic pharmacy systems.
- Enhancing efficiency and reducing costs and bureaucracy: E-governance enhances the efficiency of healthcare processes and reduces costs and bureaucratic procedures.

University E-governance:

After digital transformation became a necessity in all sectors of society, it was essential to implement e-governance in universities. The requirements for implementing e-governance in universities include technological and cultural requirements, where university staff must be aware of the importance of e-governance and how to deal with governance-supported applications. According to the Human Capital Index (HCI) indicator, Egypt falls into the high category in quadrant (H2), indicating acceptance of e-governance. E-governance represents a significant transformation in higher education and has several key impacts on higher education. For example, it improves access and communication quality by providing online communication channels and facilitating communication between administrative bodies, faculty members, and students. It also enhances administrative processes, increasing the efficiency of educational institution management by facilitating electronic systems for managing human, financial, and academic resources, leading to improved planning, organization, and control processes. Moreover, it promotes transparency and accountability by documenting processes and decisions, improving tracking, monitoring performance, and evaluating outcomes, thus enhancing transparency and accountability in educational institution management. In general, e-governance enhances digital transformation in higher education and improves the quality of higher education and university management.[6]

Economic Enhancement through E-Governance:

is a variable that quantifies the economic benefits derived from the implementation of electronic governance. This variable captures the fiscal returns realized through the digitization of public service delivery, which streamlines administrative procedures, reduces operational costs, and promotes transparency. The adoption of e-governance is posited to significantly contribute to economic fortification by optimizing governmental operations and enhancing the attractiveness of the business climate for potential investors, thereby facilitating economic expansion.[4]

Finance factor:

financial support is necessary to provide the necessary resources to support change management and training and education initiatives that aim to develop the necessary skills and expertise among public officials and technical staff to ensure the successful implementation and sustainability of E-government services. As we mentioned previously, if E-governance is implemented successfully in Egypt, this will have far more economic returns than the resources spent on it. So, there's a correlation between the level of government spending on electronic services and the quality of those services and the success of E-government implementation.[12]

The cultural factor:

This factor is one of the most important social factors affecting E-governance specially in Egypt as we can mention here two important sub-factors the fear of technology barrier and low illiteracy rate of citizens. If we explain the fear of technology barrier in specific, we will find that there is an inverse relationship between this sub-factor and development of E-government in Egypt as Employee resistance to change could lead to E-governance failure due to fear of change or losing their jobs. This is a fundamental factor hindering the development of E-government in Egypt. Addressing this factor can create a more receptive environment for E-governance initiatives and promote collaboration. Collaboration among employees can promote trust, best practice sharing and effective user support mechanisms to address concerns related to technology use. Addressing the fear of technology barrier, in turn, can make it easier to address other barriers, such as lack of policy support and training. Also, creating an environment where E-governance services are accepted and supported makes it easier to address technical issues and promote successful implementation. As we take the second sub-factor and analyze it. We can conclude that if citizen literacy increases the acceptance of E-government services increases. Also, when the number of users of E-government services increases it will be easy to identify technical problems through users' feedback and develop those services.[14]

Conclusion:

After discussing some of the variables that affect the e-governance variable, we have found that some variables positively affect the success of the e-governance experience, among those variables, Emerging technologies, Telecommunications infrastructure, Finance factor, which it is important to pay attention to developing them continuously to ensure the development of the digital transformation system and the entire e-governance, There are also some variables that will improve their level of efficiency when developing e-governance, and from those aspects: University E-governance and Quality of health service, We also conclude from our study of the cultural factor that the success of e-governance depends mainly on spreading cultural awareness within the community not to be afraid of digital transformation, in addition to raising the awareness of the community of the need to learn modern technologies and keep abreast of technological changes that occur in order to maintain their jobs and keenness to follow the work of government organizations more efficiently, we will move on in the next chapter to present some questions that measure these variables, through which we will reach the extent of the impact of each variable individually on the e-governance experience.

CHAPTER (4)
Questionnaire

Introduction:

In the Digital Gallery of Governance, the spotlight falls on surveys, it examines the complexities of E-government from a variety of perspectives and evaluates factors such as the cultural, economic, and technological aspects of the E-government in Egypt. In addition to exploring how E-government impacts these factors, we will also examine how health services are provided, the quality of technologies used, and the impact of emerging technologies on the higher education system. This questionnaire offers valuable insights into how the Egyptian government use technology to meet the demands of citizens and enhance their operations. With a focus on inclusion, because of this questionnaire, we gain a deeper understanding of global and regional trends in e-government development as well as the importance of ensuring that no one is left behind in the hybrid digital society.

Cultural Factor:

Questions aim to find out the cultural level of citizen's awareness of electronic services provided by a government and how this awareness differs between successive generations and the genders.

What is your gender?

□ Male □ Female

What is your age?

□ 14-20 □ 20-30 □ 30-40 □ 40-60 □ More than 60

What is your educational level?

□ uneducated □ Basic Education □ High school □ Some college □ Master/PhD

Did you know about the e-governance plan in Egypt?

□ Yes □ No

Have you used any online services from Egypt's digital platform before?

□ Yes □ No

If the citizen response is Yes so, we will ask him the following questions:

Have you had any difficulty using the electronic service through the Egypt's digital platform?

□ Yes □ No

What do you think should be developed on Egypt's digital platform?

□ User interface
□ Adding more services
□ Increase awareness about using the platform and it's services
□ improving technical support
□ Other

Finance Factor:

The questions aim to know the level of citizen's income and its impact on the use of government electronic services, especially if they are at a higher cost than the regular services provided by the government, to find the best way to finance electronic government in Egypt, and if the Egyptian citizen will be an effective party to that financing.

What is your monthly income in EGP?

□ Less than 2000 □ 2000 - 4000 □ 4000 - 8000 □ 8000 - 20000 □ More than 20000

How much did the last government electronic service you used cost?

□ The citizen replies by a number in EGP
□ I've never used government electronic services before

If a government electronic service is easier, better, safer, but more expensive, would you rather use it?

□ Yes □ No

Emerging Technologies:

These questions measure the extent to which people know what emerging technologies are, how important they are, how much they know about their impact on the success of e-governance in Egypt, and whether they use emerging technology applications to make their lives easier.

What do you know about Emerging technology applications?

□ Programs that make life easier, such as IOT apps
□ its operating systems for iPhone
□ I don't know anything about it

How many Emerging technology applications do you know?

□ AI □ IOT □ AR □ Block chain □ I don't know any

Do you use Emerging technology applications in your life?

□ Yes, I use it regularly □ I started using it recently □ I don't use it

Have emerging tech apps helped you in your career?

□ Yes, it helped me accomplish a lot of tasks in a short amount of time
□ It does not have an effective effect in my specialty
□ It didn't help me with my work

How do you think emerging technology applications affect the e-governance experience in Egypt?

□ Affect strongly □ Don't have a noticeable effect □ They don't affect

What do you think are the most important emerging technology applications affecting the success of e-governance in Egypt?

□ IOT □ AI □ AR □ Block chain

□ all have the same impact on the success of e-governance

In your opinion, is the government's decision to focus on developing emerging technology applications a wise one?

□ Yes, it is a wise decision and will help facilitate the work of state agencies
□ The cost of this decision outweighs the benefit at this time
□ Not a wise decision

In your opinion, is the success of e-governance in Egypt linked to the development of emerging technology applications?

□ Yes, the quality of e-governance success is dependent on emerging technology applications
□ There is an indirect correlation between the success of e-governance and the development of emerging technology applications
□ There is no correlation between the quality of e-governance success and emerging technology applications

Telecommunications infrastructure:

These questions measure the extent to which people are aware of the importance of telecommunications infrastructure and the need to develop it to achieve the Egyptian government's vision of digital transformation and e-governance.

Have you ever heard the term telecommunications infrastructure before?

□ Yes, I did, and I'm interested in that field
□ Yes, I have, but only superficially for educational purposes
□ I've never heard that term

In your opinion, is the telecommunications infrastructure worthy of attention and periodic upgrades?

□ Yes, because it is the cornerstone of any digital transformation that takes place in the country
□ Yes, but not at the expense of other aspects of the state
□ No, it's not important, so there's no need to develop it

In your opinion, is the development of telecommunications infrastructure the most important aspect of achieving digital transformation?

□ Yes, it is the cornerstone of any development in the field of e-governance and digital transformation
□ Yes, but more attention should be paid to the other aspects
□ It has nothing to do with digital transformation

Have you ever heard of the Telecommunications Infrastructure Index (TII)?

□ Yes, I heard it was related to my line of work
□ Yes, I heard, but I don't have enough information about that index
□ I haven't heard of that index

What do you think are the reasons for Egypt's low ranking in the Telecommunications Infrastructure Index?

□ Lack of advanced devices that help improve the functioning of Egypt's telecommunications infrastructure
□ Lack of interest in the field
□ Lack of financial resources and support to develop the field
□ Officials are not convinced of the importance of developing telecommunications infrastructure

Is the government's decision to upgrade the telecommunications infrastructure a wise one?

□ Yes, a wise decision that reflects the government's understanding of the importance of telecommunications infrastructure to achieve digital transformation at an advanced level
□ A wise decision, but sometime in the future
□ It's not a wise decision

Do you expect Egypt's ranking in the Telecom Infrastructure Index to increase in the coming years?

□ Yes, due to the decisions taken by the government to develop the industry
□ No, because there is no effective impact of the state's decisions in its direction to develop the field

In your opinion, does the success of e-governance in Egypt depend on the existence of a well-developed telecommunications infrastructure?

□ Yes, because having an advanced infrastructure a positive impact on digital transformation
□ Yes, but it can succeed without the effective development of the country's
□ telecommunications infrastructure
□ No, there is no correlation between the success of an e-governance experiment

Quality of health service:

We know that there is a significant relationship between the application of e-governance for modern applications in the health sector and the quality of health services, meaning that the more there is positive activation of the application of e-governance for modern applications, which is represented in its elements (technological components, human components, administrative components, and organizational components), the more it is reflected. This has a positive impact on the quality of health services in Egypt. Therefore, I chose these questions to see the impact of these applications on patients and how they receive the application of electronic governance for modern applications in the health sector.

Do you think that using modern applications of electronic governance in the health sector improves the quality of health services?

□ Yes
□ No
□ I don't know what modern applications of electronic governance

How would you describe the impact of e-governance on your access to health services?

□ The situation has improved by providing easy and immediate access to important health information, such as electronic medical records, medical reports, and treatment directions.
□ There has been no significant change in my experience of obtaining health services due to electronic administration.
□ Due to the difficulty of accessing the Internet, my access to health services declined after the implementation of electronic governance.

Have you used any e-health applications provided by the Ministry of Health and Population?

□ Yes, I used the Egypt Health Passport application during the Corona vaccine period to know the specific dates for each dose.
□ I did not use any e-health applications provided by the Ministry of Health and Population.
□ I did not know that there were applications for the Ministry of Health and Population before.

Do you think electronic governance has a role in improving patient safety and reducing medical errors?

□ Yes, as e-government works to enhance patient safety by improving access to medical information and reducing gaps in health care that lead to accidents or medical errors.
□ No, Due to challenges in implementing electronic systems and lack of training, e-government may be ineffective in improving patient safety and reducing medical errors.

University E-governance:

We know that most likely the application of electronic governance has begun in universities, and this application was represented by the Thinqi platform at Cairo University. Therefore, these questions were chosen to be asked to students to evaluate the role of this platform as an electronic governance tool.

What do you know about electronic governance in universities?

□ E-governance in universities includes the use of information technology to improve the quality of education
□ E-governance means citizen participation in educational decision-making using information and communications technology.
□ I don't know anything about University E-governance**.**

Does the university use electronic governance technologies such as online education platforms?

□ Yes, the university has launched the Thinqi platform to obtain educational materials online.
□ No, the university has not launched any platforms, but we use WhatsApp groups to obtain educational materials.

Has the Thinqi platform improved your access to educational resources and communication with educational staff as a means of electronic governance?

□ Yes, the Thinqi platform has greatly facilitated access to resources instead of using traditional means such as WhatsApp groups and others.
□ No, I had difficulty using the platform in comparison.

Do you think that applying electronic governance in universities improves the quality of higher education? An example of this is the Thinqi platform.

□ Yes, implementing e-governance in universities, such as the Thinqi platform, can improve the quality of higher education by improving access and communication
□ No, for several reasons, including the lack of sufficient technological infrastructure to effectively implement electronic governance in universities.
□ I don't know.

Technological Impact Factor:

This variable gauge the influence of emergent technologies on Egypt's economic landscape. It encompasses:

- **Innovation Rate**: This metric quantifies the frequency and impact of novel technologies being developed or adopted within Egypt, serving as an indicator of technological progress.
- **Productivity Gains**: This measures the enhancements in efficiency and output across various sectors attributable to technological adoption, reflecting the transformative power of technology.
- **Investment in Tech**: This quantifies the volume of domestic and foreign capital channeled into technology-centric sectors, serving as a barometer of the health of the tech industry.
- **Digital Market Expansion**: This tracks the proliferation of digital services and platforms that contribute to the economy, indicating the digitalization of the economy.

How would you rate the current level of technological innovation in Egypt?

□ Very Low □ Low □ Moderate □ High □ Very High

To what extent do you believe that technological adoption has improved productivity across various sectors in Egypt?

□ Not at all □ Slightly □ Moderate □ Greatly □ Extremely

How would you assess the current level of investment in technology-centric sectors in Egypt?

□ Very Low □ Low □ Moderate □ High □ Very High

How would you rate the expansion of digital services and platforms contributing to the economy in Egypt?

□ Very Low □ Low □ Moderate □ High □ Very High

Economic Enhancement through E-Governance:

This variable captures the economic dividends accruing from the implementation of e-governance. It includes:

Foreign Direct Investment (FDI): This measures the uptick in FDI attributable to enhanced government services and transparency facilitated by e-governance, serving as an indicator of international confidence.

Business Process Optimization: This reflects the streamlining of government-related business processes, leading to cost savings and enhanced competitiveness, demonstrating the efficiency gains from e-governance.

Employment Opportunities: This captures the creation of new job opportunities, particularly in the IT sector, as a consequence of e-governance initiatives, indicating the employment generation potential of e-governance.

Public-Private Partnerships: This denotes collaborations between the government and private sector for digital projects, which can catalyze economic growth, highlighting the synergistic potential of such partnerships.

How much do you think e-governance has contributed to an increase in Foreign Direct Investment (FDI) in Egypt?

□ Not at all □ Slightly □ Moderate □ Greatly □ Extremely

To what extent do you believe that e-governance has optimized business processes in Egypt?

□ Not at all □ Slightly □ Moderate □ Greatly □ Extremely

How much do you think e-governance initiatives have contributed to creating new job opportunities in the IT sector in Egypt?

□ Not at all □ Slightly □ Moderate □ Greatly □ Extremely

How would you rate the impact of e-governance on the creation of employment opportunities in the IT sector in Egypt?

□ Very negative □ Negative □ Natural □ Positive □ Very positive

Covid-19 pandemic:

To what extent do you agree with the statement: "The use of e-government services in Egypt increased during the COVID-19 pandemic"?

□ Strongly disagree □ Disagree □ Neither agree nor disagree □ Agree □ Strongly agree

To what extent do you agree with the statement: "There was a specific e-government service in Egypt that was most utilized during the COVID-19 pandemic"?

□ Strongly disagree □ Disagree □ Neither agree nor disagree □ Agree □ Strongly agree

To what extent do you agree with the statement: "The Egyptian government introduced new e-government services as a response to the COVID-19 pandemic"?

□ Strongly disagree □ Disagree □ Neither agree nor disagree □ Agree □ Strongly agree

To what extent do you agree with the statement: "There were significant challenges faced by citizens of Egypt in accessing e-government services during the COVID-19 pandemic"?

□ Strongly disagree □ Disagree □ Neither agree nor disagree □ Agree □ Strongly agree

To what extent do you agree with the statement: "The satisfaction level of citizens with e-government services in Egypt improved during the COVID-19 pandemic"?

□ Strongly disagree □ Disagree □ Neither agree nor disagree □ Agree □ Strongly agree

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Conclusion:

An emphasis is placed here on the importance of surveys in guiding progress and fostering a collaborative relationship between governments and citizens because they play a symbolic role in shaping the future of E-government, In conclusion, if we analyze these questionnaires, the collected data will lead us to conclude that Egypt has indeed taken serious steps to develop e-government, including Digital Egypt Platform, Thinqi Platform, and so on, as well as digitizing all government services and departments. However, financial and cultural constraints remain obstacles to its completion.

CHAPTER (5)
Conclusion

At the conclusion of our research, we will present a summary of what has been done. We first defined e-government as the use of communication and information technology in providing better services to citizens, and we presented its importance as it helps to increase transparency and effectiveness in the civil service system. Then we moved to present the most important previous literature that studied e-government in Egypt. From the study of the previous literature, we reached some results and variables that we addressed in detail later and presented a conceptual framework with a detailed explanation of the components of e-government in general, and this made us interested after that to measure these variables in a questionnaire that was formulated to obtain data to be analyzed later to determine the status of e-government in Egypt.

We can summarize that Egypt is taking serious steps to lay the foundations of e-government system to achieve the goals of sustainable development and to implement the Egypt 2030 plan. We find that Egypt has introduced the e-government system in the field of university and pre-university education and established educational platforms for students and researchers such as the Egyptian Knowledge Bank and the thinqi platform and made partnerships with major companies such as Microsoft in the field of education. Also, Egypt has introduced the e-government system in the field of health services, as it was previously indicated that there is a direct relationship between the quality of educational and health services provided and the development of e-government, and this explains Egypt's efforts to introduce e-government into the health and education system.

We find that Egypt is taking rapid steps to pay attention to emerging technology in order to support it in implementing its plan for digital transformation in government organizations, as in recent times it has taken clear steps to develop many aspects of e-government, such as paying attention to telecommunications infrastructure, as it is considered the backbone and cornerstone of the success of the e-governance experience, as previously indicated. Egypt also paid attention to the idea of employees' awareness and the need for them to learn advanced technology tools and keep pace with these changes. Despite the many steps that Egypt is taking towards digital transformation, there are many challenges that slow down those steps, and among those challenges are the high prices of advanced devices and the difficulty of implementing a complete communications network professionally. Therefore, there is a deficiency in the speed of development of Egypt's telecommunications infrastructure. Which is appeared in the e-government development index, where Egypt ranked 103 out of 193 countries in 2022.

In the end, we can make recommendations to the Egyptian government. Firstly, Egypt must find new sources to finance the e-government system, such as cooperation with the private sector and large companies, and not rely solely on the state's general budget to solve the financing problems that Egypt faces, considering that the success of E-government in Egypt will have a positive impact on the Egyptian economy, as we mentioned previously. Secondly, more effort must be made to increase the awareness of citizens and employees in the civil service system about the importance of digital transformation and its benefits. Finally, Egypt must work to solve the problems of infrastructure, electricity, and the digital divide.

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