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Exploring the Potential of E-Government in Reducing Corruption – Case of Egypt

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Exploring the Potential of E-Government in Reducing Corruption – Case of Egypt

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Abstract

Many countries have recognized the significance of electronic work transition to application, frequently known as e-government, with the purpose of improving their bureaucratic performance and reducing corruption. From an economic standpoint, transparency may boost government efficiency as it increases the government capacity and, eventually, fosters good governance by reducing corruption and inefficiency. As a result, this study aims to analyze the correlation between e-government and corruption, as well as whether e-government reduced the detrimental effects of corruption on public trust. To accomplish this objective, the thesis focuses on in-depth interviews with citizens of all ages, socioeconomic and educational backgrounds, as well as policy experts and scholars. The study's findings reveal that respondents recognize the importance of the e-portal in helping them save time, effort, and even money when completing any official form. This, however, applies only to people who are technologically literate. People with no access to the internet or even a basic comprehension of this digital tool, on the other hand, are unable to use the e-portal and consider it a burden.

Keywords: E-government, portal, corruption, transparency, Egypt.

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Acronyms

E-government	Electronic Government
E-Service	Electronic Service
E-Portal	Electronic Portal
ICT	Information and Communication Technology
TI	Transparency International
MENA	Middle East and North Africa
CPI	Corruption Perception Index
SDS	Sustainable Development Strategy
OECD	Organization for Economic Co-operation and Development
G2G	Government-to-Government
G2E	Government-to-Employees
G2C	Government-to-Citizen
G2B	Government-to-business
CCI	Control of Corruption Index

ICRG	International Country Risk Guide
UN	United Nations
EGDI	E-Government Development Index
EPI	E-Participation Index

1. Chapter One: Introduction

1.1. Preface

Many developments in public-sector technology are occurring across the world, and these innovations serve to improve governmental organization performance by streamlining administrative procedures and boosting the effectiveness and efficiency of public effort (Hussein, 2021). Regarding this, a number of nations have acknowledged the relevance of the electronic work transition to the application, or electronic government (e-government) (Hussein, 2021). These countries have begun to embrace the perception of e-government with the purpose of improving bureaucratic efficiency and attaining sustainable growth, increasing economic progress, and delivering solutions which fulfil consumer desires (Hussein, 2021). An increasing number of countries are adopting e-government and using information and communication technology (ICT) because of the assumption that it would improve government operations and services to the people (Abu-Shanab, 2013).

However, the governmental feature of e-government is understudied in the literature; hence, it requires further devotion from scholars (Abu-Shanab, 2013). As more public services move online, people continue to embrace e-government globally. Developments in ICTs permitted new kinds of government services' delivery via a range of digital networks like email, cellphones, smart cards, and tablets (Carter & Bélanger, 2005; Lfstedt, 2007). The capacity toward distributing government services and information to benefit businesses along with residents in the larger society whilst saving money and time is central to e-government (Carter & Bélanger, 2005; Lfstedt, 2007). Considering the foregoing, scholars tested the effect of e-government on the economic progress by examining the control channel's corruption's role in regulating the influence of the ICT usage in various country groups (Mouna, Nedra & Khaireddine, 2020).

One of Egypt's strategic programs for establishing an information base is the electronic government project. Also, this would pave the path for an innovative Egyptian civilization capable of dealing with the information technology uprising to close the digital divide of Egypt and the developed world (Abdelkader, 2015). Egypt's government established an electronic portal (e-portal) to ease the services' delivery to its civilians (Abdelkader, 2015).

1.2. Research Problem

Based on Sadik-Zada, Gatto and Niftiyev (2022)'s research, every year, developing nations lose $1.26 trillion USD due to tax evasion, corruption, and other unlawful money flows. This amount would be roughly enough to bring 1.4 billion individuals out of severe poverty while maintaining these individuals over the ordinary poverty threshold of 1.25 USD for a period of over four years. It is nearly 10 times that of global official development aid (Sadik-Zada, Gatto & Niftiyev, 2022, p. 1). A vast body of observed proof confirms a positive correlation linking poverty and bribery, particularly in the developing nations (Sadik-Zada, Gatto & Niftiyev, 2022). According to the 2022 Transparency International (TI) research, Sub-Saharan Africa, as well as low and low-middle revenue nations in Central Asia, Eastern Europe, and the Middle East and North Africa (MENA), do mainly poorly on TI's Corruption Perceptions Index (CPI). The CPI, on the other hand, is an indicator of bribes and petty corruption, that is exemplified by the "everyday abuse of entrusted power by low- and middle-level public officials in their interactions with ordinary citizens who frequently are attempting to access basic goods or services in places such as hospitals, schools, police departments, and other agencies" (Transparency International, 2009, p.33). Petty corruption, as opposed to grand corruption, is associated with officials rather than political figures. This distinction is critical for incorporating the petty corruption issue in the subsequent fragments with the primary agent model (Sadik-Zada, Gatto & Niftiyev, 2022).

As per the Transparency International's Global Corruption Barometer (2013), one out of every four individuals have given bribes to acquire access to the extremely necessities. Furthermore, a study discovered that low-income economies, as well as low-middle along with middle-income nations that have bad governmental systems, had higher rates of petty corruption and low-capacity bureaucracy (Sadik-Zada, Gatto & Niftiyev, 2022). Notwithstanding the slight number of benefits, petty corruption has damaging national effects on the economic growth, accumulation of human capital, the amount of incoming official development aid, and state-building (Sadik-Zada, Gatto & Niftiyev, 2022). In contradiction of grand corruption, petty corruption thrives all through fiscal downturns when services and goods are scarce (United Nations Development Programme, 2008). By increasing bureaucratic barriers, public authorities may frequently leave taxpayers with little choice except to pay bribes for getting de jure public services (United Nations Development Programme, 2008). Petty corruption has an inconsistent impact on the poor, according to empirical investigations (Pollan, 2020). Dauti's previous study (2017)

indicates that small corruption in the public services' delivery to residents promotes additional corruption - at least within the scope of municipal service supply. As a result, corruption is seen as the key impediment to achieving the dual objectives of severe poverty reduction and shared wealth amongst a significant segment of the population in emerging and transition countries (Sadik-Zada, Gatto & Niftiyev, 2022).

1.3. Background

The primary purpose of attempts to enhance government openness is to reduce corruption. This is because openness encourages public officials to act morally and presumably draws honest people to serve in government (Kolstad & Wiig, 2009). Transparency may increase government efficiency by solving the principal-agent concerns along with lowering rent-seeking performance from an economic viewpoint (Jun, Wang & Wang, 2014). In other words, through its beneficial influence on decreasing corruption and inefficiency, transparency is essential for developing government capability and, eventually, developing good governance (Jun, Wang & Wang, 2014).

E-government can assist in reducing corruption, although there are questions over whether e-government can genuinely decrease corruption (Kim, Kim & Lee, 2009). ICTs may have no meaningful influence on decreasing corruption and may instead open up new avenues for wrongdoing. Although ICT has been used to eliminate corruption in wealthy nations, it is uncertain if the same strategies are relevant in developing countries (Mahmood, 2004). Digital governance may help governments enhance their efficiency and effectiveness, and it can help to reduce corruption in some circumstances, but it is not always applicable (Basyal, Poudyal & Seo, 2018). This study employs a likelihood reduction to investigate the link amongst digital governance and corruption (Basyal, Poudyal & Seo, 2018).

1.4. Research Question

Considering the aforementioned objectives, this thesis 's research question is the following:

Main Question: How can e-government reduce corruption in Egypt?

To fully address this question and comprehend its context and numerous elements, the purpose of this thesis is to examine the link between e-government, and corruption. It also investigates if e-government reduces the destructive consequences of corruption on public faith. Additionally, it will answer the following sub-questions:

- If e-government is a genuine anti-corruption engine or only a proximate for development? How can e-government's influence be deployed to improve the government's performance?
- How intense is the current corruption status (petty money) in Egypt, and how frequent does it occur? Additionally, how was Egypt's transition to e-government, and what obstacles and roadblocks did it face?

1.5. Policy Relevance

Based on the Sustainable Development Strategy (SDS) Egypt's Vision for 2030, establishing digital infrastructure is given greater weight by e-government as one of the components to raise the Egyptian citizens standard of living (Hussein, 2021). This may be accomplished by delivering all feasible services to citizens in a higher quality, at a cheaper cost, and with less effort and time, as well as the opportunity to access services from anywhere at any time. The advancement of online infrastructures is also a critical pillar for all aspects of technological progress, promoting digital and financial inclusivity and supporting in the move to a digital and economy based on knowledge (Hussein, 2021).

In 2019, Egypt's Cabinet released a report outlining the country's achievements in e-government in many areas:

- E-government portal delivered 25 new electronic applications, and mobile phones provided 18 government services, along with 210 traffic divisions were added to the traffic system (Hussein, 2021).
- In the course of the fiscal year 2018/2019, 9 services provided by the government and 17 government entities were connected to the trading platform for government services (Hussein, 2021).
- In the 2019/2020 budgets, around 8 billion EGP have been budgeted for the ICTs modernization project (Hussein, 2021).

Although the below studies assessed the public satisfaction with e-government service delivery in terminating the corruption, only a few confirmed that satisfaction is because of trust. On the other hand, researchers such as Dharma (2015) have been bombarded with studies in the last decade that utilize faith in government as an element of utilizing or embracing e-government services. Given that these studies have provided us with a strong understanding of the connection

between trusting the government and adopting e-government to reduce corruption. This research shall investigate the previously stated connection, shading the light on the correlation linking e-government end-user happiness and the end of the bureaucratic corruption in general. Given that e-government includes specific digital service technologies, the terms e-service and e-government will be used simultaneously.

1.6. Research Outline

This research is segregated into seven chapters. The first chapter is an introduction that provides an outline of the thesis structure and explains the study's flow. The second chapter deals with definitions for key topics as well as the conceptual framework for using the E-Government anti-corruption impact model on the Egyptian e-government portal. The literature on various viewpoints, traits, and types of e-government is supplied in the third chapter under the heading literature review. Furthermore, this chapter gives a brief on the stages of E-Government and their functioning in various nations, as well as the linkage between corruption and transparency. The fourth chapter of the thesis provides the relevant information on Egypt and its adoption to e-government, as well as rating it in comparison to other nations. while Chapter five discusses the study's methodology, data gathering equipment and techniques, and sampling. The study's findings are detailed in Chapter 6. Finally, chapter seven contains the conclusion and policy suggestions for Egypt's adoption of e-government services.

2. Chapter Two: Literature Review

Hierarchical, bureaucratic organizational structures in the public sector are being rethought considering the new Internet era, digital economy, and extensive usage of information technology in the private sector (Ndou, 2004). Customers, residents, and enterprises are exposed to new digital information technology applications and electronic exchange models adopted by the private sector on a regular basis. They expect the same from government agencies (Ndou, 2004). In light of such unprecedented developments, a paradigm shift in the public sector is required (Tapscott & Caston, 1994). A paradigm change involves engagement from empowered citizens, knowledge management with a customer focus, flexibility, network and organization, vertical and horizontal integration, and creative entrepreneurship, as well as organizational learning (Ho, 2002; Kaufman, 2015).

Reviewing relevant literature, there were four main themes of study which examined the connection between e-government, transparency, and corruption. Those themes are: E-government Stages, Adoption of E-government, Challenges for Successful E-government Implementation, E-Government as a stimulus for economic growth, Relationship between E-government and Transparency, E-government's Influence on Corruption and ending this section with How can Transparency Fight Corruption.

2.1. Stages of E-Government Evolution

Depending on how the academics conceptualize the process, several stages are concerned in the creation of a system of e-government. However, despite terminological errors, there are underlying themes that run across the plethora of measures suggested. Based on the experiences of other countries, these commonalities illustrate the critical steps necessary for the efficient development of e-government systems (Alhassan, 2020). Although scholars have recognized numerous phases in developing the e-governance system, one common characteristic is the first usage of websites and information sharing, with subsequent stages of development defined by reciprocal interaction and system integration. The UN e-government survey called 'UN Global E-government Readiness Report' (2004) used the Web Measure Assessment Model, which contains the below five steps.

The first step is Emerging Presence, e-government provides fundamental information. An official website serves as the online presence of the government; connections to the ministries or

subdivisions of finance, education, social welfare, health, and labor can occur. Regional or local government ties can also occur; Certain archival content, like the papers of the heads of countries, such as the constitution, may be available on the internet; nevertheless, the majority of the data is static, and people have the fewest alternatives (UN Global E-government Readiness Report, 2004; Torres, Pina & Acerete, 2005; Al-Hashmi & Darem, 2008).

The second step is Enhanced Presence, the government offers more current and historical public policy such as laws, policies and regulations, bulletins, and datasets that can be downloaded. The single user may look for documents, and there is an assistance function as well as a website map. A broader range of public policy materials, like policy briefs or an e-government plan on certain health or education topics. Though more complex, the relationship is yet generally unidirectional, with information going mostly as G2C (government to citizen) (UN Global E-government Readiness Report, 2004; Torres, Pina & Acerete, 2005; Al-Hashmi & Darem, 2008).

The third step is Interactive Presence, the government's online services adopt an interactive mode, including features to improve customer ease like downloading applications for tax collection and license renewal forms. For relevant public information, audio and video capabilities are supplied. Government authorities can be reached by email, fax, phone, and postal letter. The site is updated more frequently to maintain the public's information relevant and up to date (UN Global E-government Readiness Report, 2004; Torres, Pina & Acerete, 2005; Al-Hashmi & Darem, 2008).

The fourth step is Transactional Presence, it allows reciprocal interaction among the individuals and the governments. It provides choices for paying taxes, birth certificates/passports, applying for ID cards, renewing licenses, and other alike C2G connections by permitting the individuals to submit online requests every day, every week, at any time. Citizens can use their credit or debit card to pay for applicable public services like taxes, traffic fines, and postal service costs. Suppliers of products and services can bid for public connections online via secure links (UN Global E-government Readiness Report, 2004; Torres, Pina & Acerete, 2005; Al-Hashmi & Darem, 2008).

The fifth and last step is Networked Presence, it denotes the highest advanced degree of online e-government projects. It is notable for combining G2G, G2C, and C2G relations. The government urges deliberate decision-making and is prepared and capable of engaging society in a reciprocal open discussion. The government aggressively seeks citizens' input on lawmaking,

public policy, and democracy participating decision making using interactive elements like as web commentary forms and creative live consultation techniques. The combination of public sector institutions alongside comprehensive cooperation, as well as comprehension of the notions of joint decisions, citizen empowerment, and participatory democracy as a constitutional right, is implied at this level of the paradigm (UN Global E-government Readiness Report, 2004; Torres, Pina & Acerete, 2005; Al-Hashmi & Darem, 2008).

According to UNPA and ASPA (2001) an e-Government benchmark research led by the American Society for Public Administration indicates that nearly all 32 Emerging Presence countries were found to be among the least developed in the world, with static, inadequate, seldom updated material, few interactive elements, and no services online. There were occurrences of emerging nations at the Enhanced Presence and Interactive Presence stages, suggesting their proclivity for e-government accomplishment (Ndou, 2004). With a few exceptions, both industrialized and developing countries saw the Transactional and, in especially, the Networked Presence as extremely distant points. The preponderance of phases 1 and 2 in developing nations may be clarified by the fact that e-government's adaptation problems go well beyond technology: they necessitate new administrative framework and capabilities, new leadership procedures, and the renovation of public and private interactions (Allen et al., 2001).

2.2. Adoption of E-Government

For the technical environment and infrastructure, developing countries are far behind developed countries, owing to the fact that technology is generated in developed countries while developing ones import it. As they lack an indigenous ICT industry, several developing countries import ICT. This challenge has been linked by researchers to strategic, technological, policy, and organizational reasons. The presence of a mix of political, legal, economic, and social constraints makes it difficult for developing countries to fully benefit from e-government.

A study by Li, Wei, and Ma (2021) inspected the outcome of e-government on corruption employing evidence from local government statistics, which shows improving and strengthening e-government level is accommodating to minimize corruption from the standpoint of local government by gathering from 29 provinces in China longitudinal data from 2006 to 2015. According to the study's findings, corruption decreases as e-government usage increases. In addition, utilizing the Panel Threshold Regression model, this study offers more proof for the

substantial threshold features amid e-government and corruption (Li, Wei, and Ma, 2021). It was revealed that as the degree of e-government improves, its impact on lowering corruption changes. E-government's influence on curbing corruption is changing and not linear, with a tendency to expand initially and subsequently decline. Furthermore, the restrictive impact is particularly visible in provinces with lesser levels of e-government. The outcome of the study examines the present state of e-government and to assist practitioners develop anti-corruption policies based on this evidence, particularly for Chinese government executives (Li, Wei, and Ma, 2021).

Schuppan's (2009) article discusses the many cultural and institutional circumstances that must be studied while establishing e-Government in the area of Sub-Saharan Africa. Despite the fact that e-government is a universal marvel, merely moving ICT resolutions and organizational principles from industrialized to underdeveloped nations is insufficient. Without a doubt, e-government has the ability to alleviate development and administrative issues. However, it is clear that, in comparison to industrialized nations, more work is required when adopting E-Government in developing nations (Schuppan, 2009). In order to minimize unexpected consequences, the differing starting institutional, cultural, and broader administrative circumstances must be studied more than in industrialized nations. Simply stating that E-Government programs did not succeed in Africa and other developing countries oversimplifies the situation. Although African countries are significantly behind wealthy nations in the E-Government, this ought be seen as a governmental failure or a general lack of competence. When implementing E-Government strategies and initiatives, it is serious to think about the various administrative contexts and rationalities (Heeks, 2001). As a result, a context-oriented strategy appears to be a more likely path to effective E-Government deployment, particularly for African nations. The outcomes of this strategy may not appear determined from a Western standpoint; nonetheless, they may help to achieve realistic resolutions along with the development issues in African countries (Heeks, 2002).

Zambia is more likely to have indigenous knowledge systems that are inefficient, have a high amount of red tape in the public services' provision, and are more likely to engage in corrupt and wasteful practices (Bwalya, 2009). The implementation of e-Governance promises a radical paradigm to change in which public organizations will be further transparent and receptive, encourage effective Public Private Partnerships (PPP), and authorize individuals through enabling information besides other resources more easily reachable (Stiftung, 2002). This article explored two situations from Zambia in which ICT was used to promote e-government projects. Also, it has

looked at the challenges, prospects, and worries, as well as the adoption standards for e-government, to successfully incorporate it into the context of Zambia (Stiftung, 2002). It has been discovered that a number of factors, including a shortage of political desire, a poor IT infrastructure, the affordability of information in English rather than native languages, inadequate change management procedures, the absence of adaptation of e-government procedures, etc., have significantly slowed down Zambia's adoption of suitable e-government practices (Elliman, 2006; Bwalya, 2009). Out of these highlighted issues, the research develops a conceptual model that provides well-adjusted e-government adoption criteria comprising a mixture of participative and electronic services (Warkentin et al., 2002; Gilbert, Balestrini & Littleboy, 2004). Given the similarities in the suggested conceptual model, it serves as a foundation for a model that might later be replicated to include all of the countries that make up the Southern African Development Community (SADC) (Bwalya, 2009).

Utilizing panel data from 2003 to 2018, a study by Ali et al. (2021) investigates the connections linking government effectiveness, e-government development index, education, press freedom, economics, and corruption control in a group of South Asian nations, plus Pakistan, India, Sri Lanka, and Bangladesh. The unit root test, fixed-effect model, cointegration test, and heterogeneous panel causality test are used because they all address the model's endogeneity problem (Latif et al., 2018). Also, the dynamic ordinary least square (DOLS) and the fully modified ordinary least square (FMOLS) tests were utilized to verify the robustness of the results by doing a sensitivity analysis (Phillips & Hansen, 1990; Stock & Watson, 1993). The study's major findings reveal that government effectiveness, e-government development index, and education all have a substantial and positive linkage with corruption control (Latif et al., 2018). Press freedom and the economy, on the other hand, have a negative but negligible association with corruption control (Escresa & Picci, 2020). According to the causality test, there is a single direction of causation between education and the reduction of corruption and e-government development index (Kaffenberger, 2012; Elbahnasawy, 2014). There is bidirectional causation between corruption control and government effectiveness, but no fundamental link was observed amongst economy, press freedom, and corruption control. This research focuses on the key dimensions that aid in the control of corruption. Since the findings show that e-government may be an essential part in reducing corruption, it is advised that governments in the individual nations stress system transparency (Ali et al., 2021).

The development of national policies and plans to advance the information economy must be actively undertaken by developing nations if they are to profit from it in terms of economic and social development (Crede & Mansell, 1998). Nonetheless, developing countries' capacity to enjoy the ultimate gains of e-government is restricted, and is impeded in great part by the presence of several social, political, and economic impediments. In spite of the obstacles and constraints, they encountered, the reference examples presented here demonstrate that developing nations can and might benefit from the ICT revolution learning (Ndou, 2004).

2.3. Challenges for successful E-Government Implementation

While it is obvious that ICTs and e-government are important drivers of wealth creation and development, there are a number of barriers that limit the research and abuse of its advantages. Due to the e-government efforts' complexity, a wide range of obstacles and hurdles to administration and implementation exist based on Ndou's article (2004).

The first challenge is the ICT infrastructure; because of the digital divide, many developing countries struggle to develop the ICT infrastructure needed to implement e-Government. Due to the fact that economies with high incomes have 416 laptops for each 1,000 people, while economies with low incomes only have 6 for each 1,000, there is a significant digital divide between developed and underdeveloped nations (World Bank, 2003). The ICT infrastructures on the other hand, comprises of a lot more than simply telecommunication and equipment for computers. People must also be e-ready and ICT savvy in order to use and profit from e-government apps (Ndou, 2004). The efficiency of e-government depends on people's capacity to access information and their flexibility and desire to do so. The more advanced humanity becomes, the keener citizens ought to embrace and utilize e-government's services (Ndou, 2004).

The second challenge is the shortage of e-business and e-government laws in many emerging nations. In order to guarantee the security, privacy, and legitimacy of digital contacts and digital signatures, among other things, legislative modifications and the establishment of safeguards will be necessary (Ndou, 2004). Governments everywhere must thus focus on designing and creating a public key infrastructure to ensure secure commercial and individual transactions (Granados & Masilungan, 2001).

The deficiency of ICT expertise in the public sector is a key barrier to an e-government endeavor, which brings us to the third challenge: human capital development. This is remarkably

troubling in developing nations, where a persistent scarcity of trained workers and inadequate human resource training have long been issues (UNPA & ASPA, 2001). For e-Government to be used successfully, it is essential that the required skills be available. Technology, business, and administrative abilities are all necessary for e-government (Lin et al., 2001). The ability to use and manage online services, processes, and consumers is necessary, as are technical capabilities for setting up, maintaining, developing, and implementing ICT infrastructure (Ndou, 2004).

The fourth challenge is managing change. As new work practices, processing methods, and task-accomplishing techniques are adopted, change management issues must be resolved. When designed appropriately, e-government transforms and reinvents government operations and procedures, which goes beyond cost savings and service quality improvement (Ndou, 2004). The two sub ideas of change management are change management methodology and change resistance management. The term "change management approach" describes the techniques used by businesses to handle change. DeLisi (1990) asserts that the main force behind strategic organizational transformation is culture. Being more adaptive begins with understanding the culture of a business (Hassard & Sharifi, 1989). Hierarchy is the most prevalent cultural norm in a government institution, which serves as, in many respects, its defining characteristic (Dutch ICT and Government Advisory Committee, 2001). ICT is unique because of its network component; intranets and information sharing within businesses, in particular, could undermine hierarchies and is only truly helpful to an organization that adopts a more networked strategy.

Employee struggle to shift continues to be the greatest obstacle to effective transformation. ICT applications and change in general are feared by workers because they deem ICT will substitute them and cause them to lose their jobs. It is also challenging to quickly learn new methods of doing things after giving up old ones. For people to learn and adapt, there must be incentives in place, and well-structured programs must be developed to promote employee participation throughout the whole transition process (Kumar & Bhatnagar, 2001).

The fifth challenge, which is cooperation and collaboration, is being presented by the growth of e-government at the local, regional, and national levels, in addition to across public and private companies. However, collaboration and cooperation are challenging to develop (Ndou, 2004). To keep control, sway, and hierarchical position, governments typically exhibit strong opposition to open and transparent procedures. Particularly in nations with a history of régime, political unpredictability, or pervasive corruption, citizens distrust their governments (Ndou,

2004). It is crucial to strive to increase public trust in government in order to ensure that the public and stakeholders would participate as partners in e-government operations. Collaboration between the public and private sectors is also essential to supply the government with the resources, abilities, and expertise it lacks (Talero & Gaudette, 1996).

The sixth challenge is the Strategy; creating an efficient and context-specific strategy is one of the utmost thought-provoking problems for an e-government project. Every undertaking or project needs to be built on a thorough, analytical, and vigorous strategy (Ndou, 2004). This appears to be a challenging undertaking that calls for focus on several various factors and procedures as well as a comprehensive vision, sustained attention, and objectives. Many public organizations constraint their efforts to only moving their services and information online, omitting the restructuring process necessary to fully capitalize on the advantages (Ndou, 2004). To overcome the obstacles to change, the government requires a clear plan. The plan includes an exhaustive assessment of the existing condition, the real situation on the ground, and the project inventory. Additionally, program costs, impacts, and advantages are explained, and project upgrades are routinely monitored and evaluated (Ndou, 2004). To draw from the commercial sector, e-government must be customer-focused and service-based, addressing people's requirements and improving their standard of living. This suggests that a vision for e-government asks for more appealing, more fair services and processes for both the general public and companies, as well as more access to information. The ultimate goal of e-Government efforts should be to enhance how the government provides services to its citizens, even when many programs are aimed at improving internal government operations. Understanding the many roles that citizens may play as collaborators, taxpayers, participants, businesses, workers, shareholders, and advocates (Porrua, Rinne & Serrano, 2001).

The leadership role presents the seventh and final challenge since expectations for changes and leaders are clouded by shifting and ambiguous concepts (OECD, 2001). Every innovative project or endeavour is driven in large part by leadership. Public institutions are frequently hesitant to change as e-government is a difficult procedure with major budgets, dangers, and obstacles (Ndou, 2004). To promote, influence, involve, and support other organizations and institutions, a major actor (organization or institution) has to be aware of the project's genuine costs and benefits. Leadership is needed beforehand, throughout, and afterwards the project's implementation. Leadership is required at all stages of a project: beforehand it starts, to explain the idea, to create

a model, and to raise awareness; throughout, to achieve change and to structure the project; and afterwards, to guarantee that the initiative will be flexible and adaptable as needed (Ndou, 2004). To overcome organizations' innate reluctance to change, acquire the resources required for enhanced management, and establish and sustain organizational commitment to new ways of doing government, top leadership commitment and clear lines of responsibility are essential (McClure, 2001).

2.4. E-Government as a stimulus for economic growth

It seemed inevitable that the potential and power of the digital revolution would find some way to influence how governments operate (Azim, Salman & El Henawy, 2020). It's interesting to note that in the 1980s and 1990s, the majority of people anticipated that computers would have an impact on the economy and society, but very few thought that they would one day change government itself (Azim, Salman & El Henawy, 2020). Computers are beginning to do this, but there hasn't yet been a fundamental shift in how a whole society, or its citizens interact with the state. The area of economics has seen the more significant change (Azim, Salman & El Henawy, 2020).

Structural Equation Modeling (SEM) was used by Krishnan and Teo (2013) to perform experimental study on environmental degradation, corruption, and e-government utilizing cross-sectional data from 105 countries between 2004 and 2008. It was discovered that corruption and environmental degradation have a major impact on growth as a result of e-government (Krishnan & Teo, 2013). For the OECD nations from 1996 to 2007, Czernich et al. (2011) through empirical observation investigated the broadband-growth nexus. Results of their research show a favorable correlation between economic development and broadband (Czernich et al., 2011).

For the years 1991 to 2000, Choi and Yi (2009) analyzed the experimental association between internet use and growth in 217 different nations. The study's findings indicate that an increase in internet subscriptions accelerates economic development by 0.5%. Internet is a part of e-government that makes public administration available online, which promotes economic growth by reducing the cost of information and spreading information (Choi & Yi, 2009, p. 9). As it makes a substantial contribution to the information technology industry, software development has drawn the policy makers’ attention (Majeed & Malik, 2016). The significance of information technology in a nation's economic development is clarified by Summers (1999). The study's

primary focus is on software development, which has a major positive impact on a nation's economic success (Summers, 1999).

Mahyideen et al. (2012) use heterogeneous co-integration approaches to evaluate ICT's role in the economic prosperity of ASEAN nations from 1976 to 2010 and discover that ICT boosts input efficiency and boosts economic development. Their experimental results support a long-term connection between economic growth and ICT (Mahyideen et al., 2012). Hence, e-government facilitates the dissemination of information and knowledge, allowing an economy to reach its full potential (Majeed & Malik, 2016).

2.5. Relationship between E-government and Transparency

According to Armstrong's (2011) assessment of the research, disclosing more public data shall boost public officials' trustworthiness. Hence, it was concluded by Cuillier & Piotrowski (2009) that providing important information on websites of e-government would increase openness along with garner more finance and public backing for e-government projects. Their outcomes indicate that availability will have an impact on e-participation by creating a divide between the ones who acquire information online and the ones who do not (Cuillier & Piotrowski, 2009). According to Bertot, Jaeger & Grimes (2010) research, e-government will improve openness by taking further steps such as developing transparency metrics, creating an openness readiness index, evaluating current systems for transferability and growth, reusing rather than reinventing, and creating and investing in cooperative pilot projects.

An assessment by Bonsón et al. (2012) of 75 European sites indicated that government usage of social media tools and ICTs improves transparency but not e-participation, implying that governments are incapable of engaging citizens in a two-way effective conversation. A poll of CIOs (Chief Information Officers) was showed to inspect the notion of open e-government, and it was discovered that there is no trend toward open electronic government, but rather a requirement to fulfil people' desire for greater transparency, accountability, and openness (Ganapati & Reddick, 2012). Another research by Lollar (2006) advocated the following steps for government transparency and openness: bidding data, new employ data, a complaint box, and an allegation box. Improving information supply entails providing individuals with authentic, accurate, timely, relevant, and complete information that is tailored to their specific requirements (Lollar, 2006).

2.6. E-Government's influence on Corruption

According to Tanzi (1998), corruption is seen as deceit, terrible offenses, and a main roadblock to growth and development economically. It is an issue that hasn't been resolved and has a variety of detrimental effects for civilizations (Zheng, 2016). The 2017 newsletter from Transparency International included some of the major corruption scandals of the year, including those in Brazil, Spain, South Korea, Azerbaijan, South Africa, and the then-going ideal papers affair. Although corruption is a big issue everywhere, it is more prevalent in underdeveloped emerging nations (Basyal, Poudyal, & Seo, 2018).

The anti-corruption effects of e-government are separated into two categories, according to Ojha, Palvia, and Gupta (2008): studies that take a micro perspective and emphasis on the explanation and outcomes of definite e-government initiatives, and researches that take a macro perspective on the overall effects of e-government in a nation or state. For the micro perspective, numerous e-government and citizen satisfaction studies note the anti-corruption effect of particular e-government programs (NeGP Report, 2007; Bhatnagar et al., 2007). It is vital to note these studies' and narratives' shortcomings, even if they have made significant contributions to our comprehension of the connection involving corruption and e-government (Ojha, Palvia, & Gupta, 2008). First of all, because most of this material is theoretical, it has a tendency to see each e-government project as exceptional or unique, neglecting to evaluate the successes and failures of various e-government initiatives in terms of combating corruption in a systematic way (Ojha, Palvia, & Gupta, 2008). Second, practically all of the studies on the advantages of certain e-government initiatives in combating corruption are qualitative. This makes sense considering that quantitative research on corruption is typically a clandestine endeavor plagued by problems with data collection (Jos, 1993). Thirdly, if there aren't any methodologically sound independent effect evaluations, the outcomes of many of these studies may be skewed in favor of innovation. Truth be told, e-government literature generally suffers from this academic approach and deficiency of scientific rigor (Heeks & Bailur, 2007). On the other hand, very few articles have looked at the connection between macro-level corruption and e-government. E-government appears to have a detrimental impact on corruption if e-government readiness score is utilized as the independent variable. According to Ojha, Palvia, and Gupta (2008), corrupt practices are negatively impacted by factors and indices that represent citizens' access to ICT and the internet. If the independent variable is a variable or indicator that gauges the development or maturity of e-government, it

seems that e-government has no or little impact on corruption. However, further empirical research is needed on this specific topic (Ojha, Palvia, & Gupta, 2008).

E-government has been viewed like a strategy to increase openness and transparency while also lowering corruption because of the global usage of ICTs (Bertot, Jaeger, & Grimes, 2010). The possibility that citizens will participate in policy processes is increased by the adoption of e-government and governance that is based on social media. It could encourage workers to be more open, responsible, and time bound (Basyal, Poudyal, & Seo, 2018). E-government has been found to be successful in reducing corruption in the past, albeit in limited case studies. By controlling for other pertinent factors or concentrating on variables that are statistically significant, earlier empirical investigations show the correlation of E-government and corruption (Basyal, Poudyal, & Seo, 2018). ICT development is already at a high level in many industrialized countries, and other potential anti-corruption tools have also advanced to a respectable level. This introduces the query of whether e-government actually combats corruption or if it is only a development proxy (Basyal, Poudyal, & Seo, 2018).

Research conducted by Iqbal (2010) provides detailed information about the corruption issue in Bangladesh. The findings of this investigation provide solid proof of widespread corruption. Other instances to assist in comprehending the country's governance situation include the actions of the current caretaker administration and the regularity with which certain senior political officials, bureaucrats, and businesses have been punished for corruption (Howard, 2011). Every administration has undertaken a surprising number of reform attempts to reduce corruption, most of which have failed. Plato claimed that creating laws is worthless since decent individuals do not require coercion to be responsible; yet wicked people will find a method to avoid the law (Howard, 2011). Developmental nations like Bangladesh must consider reducing corruption in some new manner of reform rather than establishing laws alone, given the pressure of globalization and the new trend of services in this period of the ICT revolution. E-governance is a new type of restructuration for Bangladesh and other developing nations to limit the corrupt behaviors of participants. It may be a good anti-corruption tool (Iqbal, 2010).

One of the most hotly debated topics in the literature on public economics is the use of e-government to reduce petty corruption within the government (Addo & Avgerou, 2020; Addo, 2021). Between 2004 and 2021, around 155 Scopus-indexed studies addressing the connection between e-government and corruption were published (Khan, Krishnan, & Dhir, 2021). The

remaining 53% are country-specific surveys, while 41% are cross-country surveys (Khan, Krishnan & Dhir, 2021, p. 4). According to the majority of them (Choi, 2014; Elbahnasawy, 2014), e-government has a positive anti-corruption impact. While this has been happening, there are now 153 countries with open government data websites (Khan, Krishnan, & Dhir, 2021). The purpose of these portals, which are essential elements of e-government, is to strengthen the effectiveness and productivity of bureaucratic machinery (Dobrolyubova, Klochkova & Alexandrov, 2019; Ouedraogo & Sy, 2020; Patnaik, Das & Patra, 2008). Recently, there has been a lot of interest in the use of information and communication technologies (ICTs) to increase the efficacy and efficiency of the bureaucratic machine (Carr & Jago, 2014). The usage of ICTs and their widespread adoption have a favorable influence on every aspect of public administration, according to Homburg (2018). According to Carr and Jago (2014), the functioning of modern information technology in public administration is considered as the antithesis of small-scale corruption. The magnitude of e-government in decreasing corruption, however, is being questioned by a number of scholars (Khan, Krishnan, & Dhir, 2021). Another study by Saxena (2017) discovered that e-government is unable to solve the hitch of corruption in the provision of public sector services because of the persistence of subpar institutional quality inside bureaucracy. Furthermore, the majority of countries throughout the world have not seen an improvement in public administration systems as a result of ICT growth, according to Transparency International's (2020) most recent results.

2.7. How can Transparency fight corruption?

A government website or e-service portal can include one of three types of government transparency, as proposed by Hood and Heald (2006): (1) Transparency in policymaking procedures, (2) Transparency in procedure substance, and (3) Visibility in policy results or impacts. Decision-making Accountability is the government's openness in exposing the methods required to decide as well as the reasons behind such a decision (Dharma, 2015). Political openness denotes the data provided regarding how policies are implemented to solve problems for citizens. Transparency in policy outcomes focuses on the impact of a policy which was implemented (Dharma, 2015). Transparency shall therefore be assessed through concentrating on revealed data regarding the recent operation of an agency's or ministry's agendas, the strategies implemented, and the consequences or consequences of the policy through e-service websites (Dharma, 2015).

Due to the numerous elements impacting such a connection and the complexity of the data involved, the link amongst transparency and e-governance is problematic to define and assess (Burger & Owens, 2010). Citizens and lawmakers are significant sources of budgetary transparency demand (Wehner & De Renzio, 2013). Increasing the risk of corruption, encouraging public bureaucrats, making it simpler to choose honest administrators, making officials more accountable, and aiding in the maintenance of standards of honesty and belief are just a few of the ways that transparency may reduce corruption (Kolstad & Wiig, 2009). Since individuals and authorities won't be able to hold governments responsible due to the deprivation of open access to information, transparency alone won't be enough to prevent corruption (Kolstad & Wiig, 2009). To take such action and hold authorities accountable, it requires some level of authority (Abu-Shanab, 2013). A Latin American (LA) study by Diaz and Hernandez (2012) used a wide range of indices to assess four areas of information: content (macroeconomic, political, fiscal, and financial and economic), features, electronic display techniques, and accessibility. The researchers noted that LA countries use online openness of financial and economic data (Diaz & Hernandez, 2012). Most offices, particularly the state budget, provide open access to information (Diaz & Hernandez, 2012). So, it was proposed by Rao (2011) a comprehensive system for personnel information to increase public bodies' internal operations. This technology will handle operations between governments and workers automatically (Rao, 2011). Employee information accessibility for government institutions is critical to the achievement of openness and e-government (Rao, 2011; Abu-Shanab, 2013). The aforementioned European website research conducted by Pina, Torres and Royo (2010) resulted in a list of measures divided into two categories: financial responsibility procedures and website-associated procedures. Website-associated metrics were classified into four categories: transparency, interaction, and usability (Pina, Torres & Royo, 2010). The consequences show that monetary numbers and information may be accessed anywhere and at any time via the Net, indicating an increase in openness and fiscal responsibility as well as a decrease in distribution expenses (Abu-Shanab, 2013). Beyond legal requirements, ICTs do not encourage financial responsibility, although in most circumstances, the Internet made it possible for citizens to seek and obtain authorized data and coordinate communications (Abu-Shanab, 2013). McNeal and Hale (2010) stated the e-disclosure is a critical element of transparency and will be impacted by two primary elements: the controlling and party-political settings. Furthermore, e-disclosure of

political financial information may not have a direct link with e-government (McNeal & Hale, 2010; Abu-Shanab, 2013).

E-government may run into difficulties and perhaps fail as a social innovation approach to public administration (Sadik-Zada, Gatto & Niftiyev, 2022). E-government or digitalization practices help to increase transparency, which is assisted by consistent policies (Ponti, Cerrillo-i-Martnez & Di Mascio, 2022). However, transparency and digitization in public administration are not intrinsically related. Innovation can be filtered out by political networks, institutions, and circles (Hudson, 1999). Bureaucracies may also be resistant to reform and stop working on them when conditions change (Allen et al., 2001; Heeks, 2001). Erkut (2020) draws attention to the 'knowledge issue' in e-government, wherein governments may leverage the vast amounts of data provided by contemporary ICTs from the public. In this setting, the growth of e-government is a two-edged sword (Erkut, 2020). On one hand, improving their e-government platforms will help emerging and transitional countries expand the quality of public service delivery (Erkut, 2020). The exploitation of big data and other implementation disputes, on the other hand, may impede the advancement of openness (Erkut, 2020; Sadik-Zada, Gatto, & Niftiyev, 2022). Similar to the above, the advantages of e-government infrastructure are significantly diminished by constraints such as IT infrastructure, privacy and security, IT skills, organizational problems, and budget (Ebrahim & Irani, 2005).

2.7.1. Case Study: Seoul Metropolitan Government

The advancement of ICT has resulted in a more convenient infrastructure for accessing information, and many government agencies have begun to use it in their administrative activities (Kim & Cho, 2005). The information system becomes increasingly important as the scale of government agencies grows. Many nations, like the Korean local government, have concentrated on launching the information system and making it simple to use (Kim & Cho, 2005). Even though many governments have spent a significant portion of their budget on administrative information systems, there have been few notable achievements (Kim & Cho, 2005). A suitable example of the many techniques of the practice of e-government to augment transparency and prevent corruption is the Online Procedures Enhancement for Civil Applications (OPEN) system of the Seoul Metropolitan Government (Bertot, Jaeger & Grimes, 2010). The Seoul Metropolitan Government created the complete online platform known as e-Seoul or the Seoul Digital Administration, often referred to as the Seoul Metropolitan electronic Government, to provide people with simple access

to a range of government services and information (Shim & Eom, 2008). The system's goal is to decrease corruption problems by minimizing human involvement by utilizing contemporary information technology (Shim & Eom, 2008).

OPEN was established in 1999 with numerous separate anti-corruption safeguards built in the system's functionalities and is among the most well-researched anti-corruption e-government initiatives (Lee, 2009). The program was part of a larger effort by the government and business to overhaul Korean governance (Lee, 2009). Long before the advent of OPEN, the Seoul authority was notorious for its corruption levels, with government personnel in charge of registrations and appeals able to choose the order in which they would handle documents, requiring citizens to give bribes known as "express fees" to have their resources handled (Kim & Cho, 2005; Shim & Eom, 2008). Additionally, residents who requested government assistance through a petition had to await weeks or months to find out the end result of their request (Shim & Eom, 2008). In order to decrease the number of locations where government employees and the general public were precisely involved, the OPEN concept limited the number of places (Bertot, Jaeger & Grimes, 2010).

Originally, OPEN featured a variety of services ranging to 54 public services in transportation, health, education, culture, tourism, the environment, safety, and other areas, where corruption was thought in all probability to happen, with individuals capable of checking the position of their documents and the appropriate government personnel online (Bertot, Jaeger & Grimes, 2010, p. 266). The OPEN system constantly monitors for processing postponements, and government employees and agencies must offer explanations for any delays (Bertot, Jaeger & Grimes, 2010). For instance, if a person wishes to get building approval after filing an application and supporting documentation, the individual does not need to meet with the official in charge (Kim & Cho, 2005). Instead, the officer will put the application's data on the OPEN site (Kim & Cho, 2005). In real time, the citizen may learn if the application was submitted accurately, who is now in charge of and examining the application, when the permission is anticipated to be issued, and whether it was rejected and why (Kim & Cho, 2005). Additionally, the department's mobile numbers, and email addresses are accessible online now, enabling anybody to get in touch with the agent in charge of their case (Shim & Eom, 2008). The new approach makes it possible for each person to monitor the advancement of their own petition as a consequence (Shim & Eom,

2008). Additional data checks are also carried out via other sources, which limits the public officials' discretion (Shim & Eom, 2008).

Despite the fact that many such systems have been implemented for the purpose of performing administrative proceedings both locally and internationally, they have only delivered information relating to the final judgement via the Internet (Kim & Cho, 2005). On the other hand, the OPEN system is a more dynamic system that allows a citizen to track all pertinent information from the beginning to the finish of the citizen's request without having to wait for responses (Kim & Cho, 2005). According to Kim, Kim and Lee (2009), OPEN has reduced corruption and increased openness, particularly in the control of government personnel' actions. Locals' perceptions of corruption have also been drastically changed by the system's effectiveness; 68% of them believe that OPEN considerably reduced government corruption in the first five years of its existence (Cho & Choi, 2004, p. 26). Overall, e-Seoul is an important instrument for enhancing openness, efficiency, and accessibility in the administrative processes of the Seoul Metropolitan Government (Bertot, Jaeger & Grimes, 2010).

The United States Secretary-General and the Governor of Seoul arranged to make the Seoul metropolitan government's OPEN system available to the U.N.'s 180 member nations (Kim & Cho, 2005). The Seoul administration translated the OPEN system handbook into six languages and hosted an anti-corruption seminar in Seoul in 2001, in collaboration with the United Nations (Kim & Cho, 2005). International organizations urging use of Seoul's OPEN system include the International Transparency Organization, the Organization for Economic Cooperation and Development, and the World Bank (Kim & Cho, 2005). As an industry that is evolving quickly, e-government requires constant innovation to reach and sustain this level of success. To stay ahead of the competition, it requires experimentation, creativity, organization, and perseverance (Turner, Kim & Kwon, 2022).

3. Chapter Three: Conceptual Framework

This chapter gives a broad perspective of the numerous definitions and conceptual viewpoints of e-government that have been expressed in the literature. This includes the digital process and features, possible advantages, and philosophical and historical views. These viewpoints have been emphasized differently by international organizations and academics.

3.1. E-Government

The literature offers multiple descriptions of e-government. As an illustration, the OECD (2008) determines e-governance as the utilization of ICTs to improve access to government resources and data, government openness to new concepts, and government act transparency. Al-Halo (2009) expanded the definition of e-government to include employing digital data to develop administrative processes and offer services to its citizens. The process of enhancing service provision to citizens and other members of society by fundamentally adjusting how governments govern data is another definition of e-government (Al-Halo, 2009). In accordance with the definitions, Northrup and Thorson (2003) highlight three benefits to justify e-government drive: enhanced productivity, greater transparency, and innovation. E-government definition and benefits, both, allude to the external and internal aims of e-government. Corresponding to the above meanings, the scholars are able to describe e-government as using communication and data technology to offer better services with greater transparency and lower costs. As highlighted by Abdel-Fattah (2022), the role of e-government is to make all essential services equally accessible, secure, private, and effectively supplied. It also enhances interaction and public engagement, carries out organizational missions, and achieves goals while boosting economic competitiveness, administrative effectiveness, and public satisfaction (Abdel-Fattah, 2022).

As per World Bank (2012) and OECD (2003), the significance of e-government may be described as follows:

- Enabling individuals to meet their requirements more easily by streamlining data and procedures.
- Improving the exchange of information between citizens and governments.
- Enhancing transparency and effectiveness, which aids in the advancement of faith among citizens and governments.
- Increasing the government services' quality and performance.

- A better grasp of the needs of the users.

According to Abdel-Fattah (2022), there are four main types of the e-government: government-to-government (G2G), government-to-business (G2B), government-to-citizen (G2C), and government-to-employees (G2E).

3.1.1. E-Government vs E-Governance

While e-government and e-governance have similar meanings (Adeyemo, 2011; UN Global e-government preparedness report, 2005), there are major distinctions among the two terms. E-government is utilizing ICT to deploy new service delivery channels and enhance communication linking civil society, public servants, and citizens. E-governance is a more comprehensive model that is more than the straightforward service supplying (Singh, 2010). In order to improve interactions with citizens, businesses, and various branches of the government, government institutions are using ICT (Singh, 2010). As a result, citizens receive better services, businesses and industry are better able to interact with government institutions, citizens are empowered, and there is more transparency and accountability. As a result, there will be a more effective government (Singh, 2010). E-government has similar objectives. According to Salamat, Hassan, and Muhammad (2011), good governance aims to create a constructive interaction with the larger environment (political, economic, and social systems) in order to better manage a country's affairs at all levels. The use of ICTs at all levels of government and public sector organizations to improve governance is known as e-governance, according to Salamat, Hassan, and Muhammad (2011). E-government, e-democracy, and e-regulation are the three key components of e-governance, according to Adeyemo (2011). As indicated earlier, e-government is the process of utilizing information technology to improve governmental operations, frequently in collaboration with individuals, companies, and other public sector organizations (Adeyemo, 2011). E-regulation is the creation of interactive electronic tools for organizational growth, according to Athmay (2013). E-democracy is the application of technology to enhance the public's involvement in decision-making (Athmay, 2013).

The phrase "e-governance" refers to the connections that exist between the government and its political, administrative, and social surroundings (Athmay, 2013). The greatest significant advantages of e-governance in poor nations contain accountability, transparency, engagement, equity, and support for the rule of law (Athmay, 2013). To that end, e-governance is a challenge in the mainstream of developing nations since the majority of those being governed are unsure of

several legislation and procedures and governors are oblivious of the consequences of improvements in ICTs (Singh, 2010). According to Singh's case study (2010) on India, e-government hype does not correspond to actual e-government. The main takeaway from e-government method over the past exceeding ten years is that public service provision is still lacking and unsatisfactory.

3.2. Transparency

Transparency is providing information on what the government is really doing, which encourages more accountability (Dharma, 2015). The more transparent an administration's e-portal is the more vulnerable the administration is to people monitoring its effectiveness (Dharma, 2015). Transparency is defined as open discussion between citizens and governments. the appropriate knowledge with the necessary data to meet the demands of people (Cerrillo-i-Martínez, 2011; Cuillier & Piotrowski, 2009). There are several laws relating to transparency that are now in force across the world, such as the right to information, free access to e-government data, and the use of ICT to advocate public records (Dharma, 2015). According to Bagdai, Van der Molen and Tuladhar's studies (2012), transparency has a substantial impact on reducing uncertainty for governments. Furthermore, greater openness is accompanying with lower governmental deficits and debt (Alt & Lassen, 2006).

In addition, transparency techniques for preventing corruption are policy instruments aimed at reducing corrupt government activities (Hanna et al., 2011). Transparency techniques intend to lessen the information disproportionately between the principal (public) and the agents from the perspective of principal-agent theory (Hanna et al., 2011). Transparency may be used to disinfect corrupt conduct since it exposes it. However, openness is frequently assumed to be monolithic, with little discussion of various policy methods. One notable exclusion is Hanna et al. (2011), who show how monitoring and motivating systems lower corruption by strengthening the cost and risk associated with it. Community monitoring initiatives, according to Molina et al. (2016), can lessen corruption, although the benefits vary by industry. Transparency mechanisms must be tailored to the various circumstances of corruption (Molina et al., 2016).

3.3. Corruption

As per prior studies (Tchamyou, Erreygers & Cassimon, 2019; Kolstad & Søreide, 2009), corruption regulator is viewed as a basic driver in economic growth, through which the influence

of ICT can be controlled. Unethical officials might operate in their own best benefits by misrepresenting state purposes and misusing community monies (Piatkowski, 2006). Thus, by utilizing ICTs, the régime can rearrange the superintendent connection in order to decrease contact between public officials and people, as well as time and expense, as well as numerous potentials for corruption (Piatkowski, 2006). Furthermore, e-government provides extensive data on dealings, making it easier to follow activities and strengthening social wealth by boosting contacts among persons (Mouna, Nedra & Khaireddine, 2020). The processes by which e-government lowers corruption are simple: E-government improves transparency and accountability by reducing connection between dishonest bureaucrats and people (Mouna, Nedra & Khaireddine, 2020). Especially that bribery, favoritism, misuse of discretion, and inappropriate political donations are all examples of corruption (Li, Wei & Ma, 2021). It may happen at both the macro and micro levels. Macro-level corruption, often known as big corruption, is the manipulation of government expenditure and resource distribution for the benefit of politicians or higher-level government officials (Dimant & Schulte, 2016). Micro-level corruption, often known as bureaucratic corruption, is typically perpetrated by lower-level government officials in charge of providing residents with public services (Li, Wei & Ma, 2021).

According to Chen and Ganapati (2023), corruption is frequently described as the misuse of a public position for the personal advantage of the public servant. Government corruption is harmful because it diverts resources that should be used for the common interest in favor of private gain. It is challenging to directly assess corruption since it is a concealed activity (Bauhr and Grimes, 2017). There are two methods to assess corruption: subjectively and objectively. The arbitrary metrics are the Corruption Perception Index (CPI) by Transparency International, the Control of Corruption Index (CCI) by the World Bank, and the Corruption Risk Index by the International Country Risk Guide (ICRG) (Chen and Ganapati, 2023). There are no established standards of objectivity for metrics of corruption, and relatively few research has employed them. Empirical studies frequently include subjective metrics that may not accurately reflect actual corruption or corruption experience (Chen and Ganapati, 2023).

3.3.1. Corruption's Factors

Corruption may spread across a society, affecting its political setting, economics, and even culture. Its implications for both privileged and non-privileged are sometimes severe (Sakib, 2019). Governments have toppled in both developed and underdeveloped countries as a result of

corruption allegations (Graycar & Prenzler, 2013). Numerous cross-country researches have highlighted macro-aspects of corruption and identified a variety of explanations for it. This section briefly covers some of the most important elements that influence corruption, according to Li, Wei & Ma (2021):

First, the economic factor: Studies conducted in the past by Choi (2014) and Nam (2018) have demonstrated a negative relationship between corruption and economic progress. Highly advanced countries can give residents greater education and higher cultural literacy, making highly advanced countries more susceptible to detecting corruption tendencies. Higher educated people are more aware of how government functions, more inclined to exercise their rights and obligations to monitor public servants, and more likely to interact and express themselves as citizens (Zheng, 2016).

The second component is political; in developing nations with closed and non-competitive political systems, corruption typically results from coercive power. Political factors have a significant impact on corruption as well (Nam, 2018). The level of democratic advancement was assumed to have an influence on how e-government will affect corruption (Wang & Gao, 2019). Similar to this, empirical study in Africa, Asia, and Latin America has demonstrated that the level of democracy has a double impact on people's views of corruption, with the amount of democracy increasing, the people's perceptions of corruption increase as well (Li, Huhe, & Tang, 2015).

Lastly the cultural factor, to some extent, cultural variables influence corruption, with diverse cultures in nations being another prevalent explanation for differing corruption (Zhao & Xu, 2015). In most circumstances, individuals must pay extra-unauthorized money to obtain governmental or private services (Sakib, 2019). People who refuse to offer bribes are either punished or obliged to get their services via unofficial means, like lobbying or personal connections. These elements indicate corruption's cultural permeation (Sakib, 2019).

3.4. Theoretical Framework

Sanmukhiya (2019) stated that while facilitating access to information and enhancing communications with individuals, companies, and government agencies, e-governance also promotes freedom of speech, more fairness, lowers monopoly, enhances accountability and effectiveness of the government, reduces procedural delays, prevents corruption, fosters democracy, raises e-participation, and promotes social inclusion. In this case, the people have the

authority to closely watch what the government is doing. Hassan (2004) stated that since there is less contact with the governmental employees, bribery problems, red tape, nepotism, and bureaucratic incompetence are reduced, e-governance is seen as a remedy for corruption. It alters citizens' impressions of the government and boosts citizens' contentment (Belwal & Al-Zoubi, 2008). The adoption of ICTs by the public sector to enhance the delivery of services and information, promote citizen involvement in decision-making, and increase government transparency is another definition of e-governance (UNESCO, 2011).

Based on a thorough literature search, their personal experience, and a discussion of the e-Government procedures that prevent corruption, Ojha, Palvia, and Gupta (2008) discovered that there are three parts to a prospective conceptual model of e-government's anti-corruption impact.

3.4.1. Conceptual Model

For the e-government service types, G2C and C2G (Government to Citizens and vice versa) is the primary category of e-government, according to Kumar (2015). G2C/C2G encourages the conveyance of public services online, particularly via the usage or exchange of electronic service delivery for information and communications.

For the e-government services characteristics, they distinguish the e-government from traditional government: low asset specificity, low uncertainty, online availability of information, service 365 days, disintermediation, automated processing, low information asymmetry, lower monitoring costs, and audit trail of interactions and transactions between a government and citizens/businesses (Ojha, Palvia & Gupta, 2008). Services for E-Government Characteristics can be measured by linking two theories pertinent to corruption research on how e-government supports efforts to combat corruption. The two theories are Principal-Agent Theory (Agency Theory), and Transaction Cost Economics.

Based on Eisenhardt (1989)'s research on The Principal-Agent Theory (Agency Theory), the agency problem can be defined as a conflict between the principal's and the agent's aims, as well as limitations in the principal's capacity to oversee the agent. In an e-government self-service paradigm, the agent is disintermediated and only technology artifacts operate as a conduit for interaction amongst the government and the public (Kopp, 2023). The front-desk public employee who completes a task or provides a service to a citizen is referred to by the authors as the agent in this context, while the senior public employee in charge of overseeing the work of the former is referred to as the principle (Ojha, Palvia & Gupta, 2008).

Web-based self-services may often replace public authorities in interactions with the government and the execution of transactions (Lusta & Aktas, 2017). The principal-agent problem can come up again when e-government services are delivered manually to citizens, such as service desks or counters. The state of applications pending resolution, open critiques, and hourly/daily computer records for operational e-government services (provided at counters/desks) may be useful in enabling the agent to function in accordance with the principal's goals (Ojha, Palvia, & Gupta, 2008). However, owing to laws governing access to information and e-government services, individuals may now promptly observe the actions of chosen and non-chosen bureaucrats. Professionals and volunteer organizations can actively participate in reviewing government data and pointing out any errors (Ojha, Palvia, & Gupta, 2008). In the authors' model, it measures the characteristics with the (%) sign, such as the audit trail, disintermediation, automated processing, low information asymmetry, and lower monitoring costs.

The Transaction Cost Economics (TCE) is formed based on New Institutional Economics and New Economics of the Organization, two complementary areas of economics research (Ojha, Palvia & Gupta, 2008). The former focuses on the institutional setting and establishments of governance, while the latter addresses policy concerns pertaining to industrial organization (Williamson, 1998). As mentioned by Young (2013), every form of transaction generates coordination costs for overseeing, regulating, and managing transactions, such as the expenses associated with maintaining the economic system of enterprises. According to TCE, transaction costs recognize two fundamental characteristics of humans: limited rationality and opportunism (Ojha, Palvia & Gupta, 2008). Herbert Simon's theory's Bounded rationality suggests that, while people strive to be rational, their rationality is constrained by restrictions such as restricted information processing and communication capacities or uncertainty. Opportunism suggests self-regard pursuing activities such as cheating, lying, deception, and corruption (Lumineau & Oliveira, 2020). As stated by Husted (1994), if the assets necessary to complete a transaction experiences a low asset specificity; hence, the consequence of opportunism is reduced, leading to a decrease in the transaction costs (bribes). There are two techniques to reducing asset specificity: as previously said, delivering services in a variety of places, and/or altering the transaction itself, such that certain assets are no more necessary to complete that transaction (Ojha, Palvia & Gupta, 2008).
E-government clarifies a citizen's rights, obligations, and liabilities by publishing the regulations, guidelines, and forms online with the purpose of reducing ambiguity in government transactions,

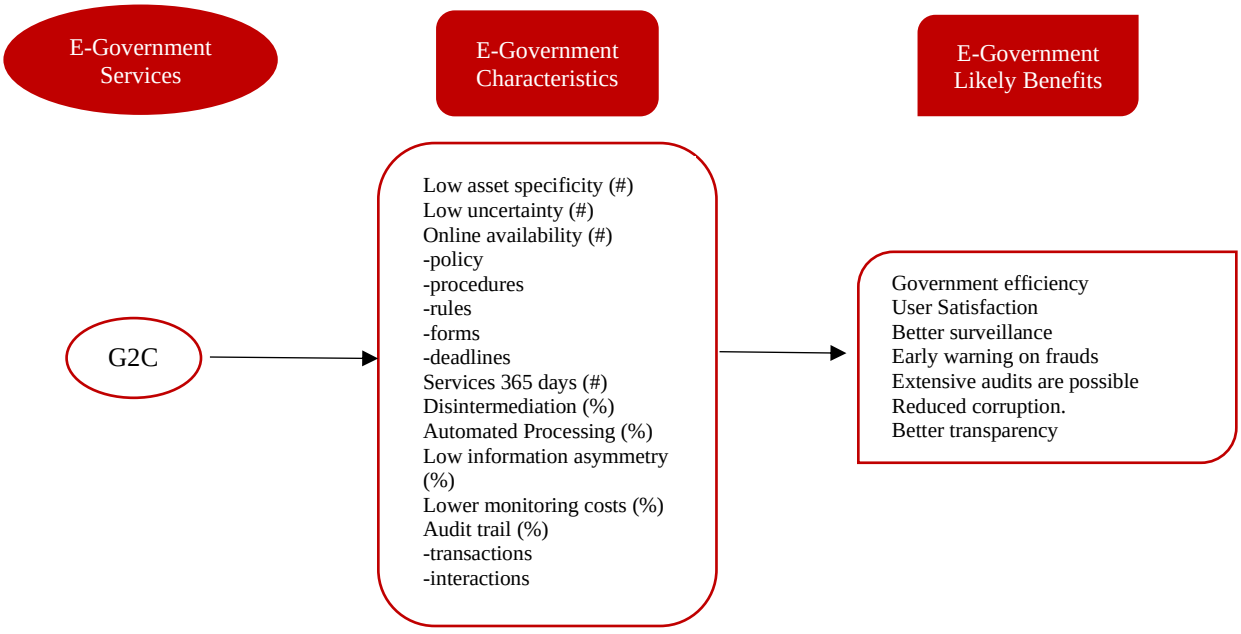
whether online or offline. Hence, according to Ojha, Palvia & Gupta (2008), reduced uncertainty, in turn, would consequence in low opportunism and, as a result, lower transaction costs which reduces corruption. In the authors' model, it measures the characteristics with the (#) sign, such as low asset specificity, low uncertainty, online availability, and services 365 days.

For the e-government's potential benefits, the electronic government's advantages are as follows: government efficiency; customer happiness; improved surveillance; early detection of frauds; broad audits; decreased corruption; and better transparency. Each of the three phases requires the use of e-government (Bhatnagar, 2004). All of these elements are inextricably tied to corruption or its non-existence. There are interconnections between these components, but they are not clearly stated in the model to be easy to comprehend (Ojha, Palvia & Gupta, 2008).

Figure 1 displays the authors (Ojha, Palvia & Gupta, 2008)'s suggested conceptual model of e-government anti-corruption effect, which is based on the three dimensions of e-government as well as the aforementioned theoretical underpinnings of e-government anti-corruption linkage. The model is projected to increase knowledge of how e-government combats corruption and contribute to advancing that knowledge.

Figure 1: Customized model of E-Government anti-corruption impact

(based on Ojha, Palvia & Gupta's 2008 model)



(#) can be measured by Transaction Cost Economics

(%) can be measured by Principal Agent Theory

Source: Author of this Thesis

This section describes the research model used in this research to integrate E-Government anti-corruption impact model, encompassing chosen essential factors highlighted in the literature owing to their importance to e-government efficiency in fighting corruption. As previously noted, Ojha, Palvia, and Gupta's (2008) model 'E-Government anti-corruption impact' focuses on three major aspects: E-government Service, E-government Service Characteristics, and E-government's Potential Benefits and each aspect has its own types and characteristics. However, this study focuses only on the G2C government service type and all the characteristics will be measured by both the Transaction Cost Economics with the sign (#) and Principal Agent Theory with the sign (%) in order to fulfill all of e-government benefits.

4. Chapter Four: Contextual Background

4.1. E-government in Egypt

Since Ancient Egyptian times, the Egyptian government has been recognized to be very unified. In case it is needed to outline the primary defining qualities of the bureaucracy in Egypt, probably monopolization, overstaffing, poor remuneration, and a distinct administrative culture spring to mind (Baradei, 2021). The Egyptian administration lacks transparency and accountability in numerous ways (Baradei, 2021). According to Baradei, transparency is sorely missing in several features of contemporary government's procedure, where significant decisions about policy can be shown to Egyptians as a final business; for instance, the new Suez-Canal branch and the new Administrative Capital of Egypt, which was accomplished in the highest speed of one year rather than three years (2021). Massive attempts are currently underway to automate government functions. E-government was initially widely implemented in the government during Mubarak's tenure, with the help of Ahmed Darwish, the previous Minister of State for Administrative Reform who studied computer engineering (Gebba & Zakaria, 2012). Throughout his tenure, the country received the United Nations Public Service Award (UNPSA) in appreciation of its fruitful hard work in converting the public college submission system after a time-consuming manual process to an automated system that serves over 300k undergraduates each year (Gebba & Zakaria, 2012).

Also, a variety of systematic public services were made available online via the website of the Government, some of which are still operational today (Gebba & Zakaria, 2012). The government of President Sisi is opposing the administrative corruption. As per the Worldwide Governance Indicators, Egypt is beginning to demonstrate development in the combatting corruption pillar of the good governance evaluation (World Bank, 2019). The Administrative Control Agency, which oversees inspecting and documenting the corruption in public service, has been described to be active in recent years, and reporters are awash with stated cases of exposed corruption by highest government administrators such as governors, ministers, and assistant councils (Baradei, 2021).

Egypt began constructing its information and communications technology network in 1985 and launched its e-government initiative in 2001 (Elgohary & Abdelazyz, 2020). This initiative launch originated under the Ministry of Communication and Information Technology (MCIT) and was an element of Egypt's Information and Communication Technology (ICT) strategy, the

Egyptian Information Society Initiative (EISI) (Elkadi, 2013). As part of administrative development and institutional public administration reform, the program was moved to the Ministry of State for Administrative Development (MSAD) (Zaied, Ali & El-Ghareeb, 2017). However, as mentioned by Abdelkader (2015), the formal launch of the e-government site of Egypt (www.egypt.gov.eg) occurred on January 25, 2004, and was witnessed by Bill Gates, since Microsoft was selected to oversee the project's execution. Later on, in mid-2023, the e-portal's website changed to be under this URL (Uniform Resource Locator) (www.digital.gov.eg/). Several hurdles and impediments hampered e-government deployment. As a result, multiple projects were developed under the program, each focusing on a different type of problem (Abdelkader, 2015). Citizens, corporations, and foreigners can access services through an e-government portal, which has material in Arabic and English (Darwish, 2008). The website provides an e-payment option as well as the opportunity to acquire papers required for government services (Zaied, Ali & El-Ghareeb, 2017). E-Furthermore, e-government provides foreigners with internet services; for instance, Egypt airline tickets and cultural services (Zaied, Ali & El-Ghareeb, 2017). The Egyptian government realized the significance of e-government at all levels. It is widely recognized that it plays a critical part in providing appropriate and effective facilities to the residents, stimulating the economy, and improving ICTs sharing across various governmental divisions (Fawzy & Magdi, 2020). However, Egypt, similar to other developing nations, continues to face several problems in successfully executing e-government programs, and it continues to trail considerably behind other Arab countries (Elgohary & Abdelazyz, 2020).

4.2. Egypt's ICT Profile

The Ministry of Communications and Information Technology (MCIT) was founded in 1999 with the purpose of advancing digitally Egypt (MCIT, n.d.). The objective of MCIT is to establish the digital economy via the use of ICT technology (MCIT, n.d.). Its goal is to encourage the growth of a society based on knowledge and a robust digital economy by promoting digital rights, an innovative, competitive ICT industry at home, and fair and accessible access to knowledge (MCIT, n.d.). Therefore, without the technological and institutional boom that the government has been putting in action since 2000, Egypt's incredible growth in ICT usage would not have happened (MCIT, 2017). The purposes of the Ministry of Communications and Information Technology were to create a thriving and open ICT sector, guarantee widespread

access to fast internet via a strong infrastructure that could draw investment and support the growth of the industry as well as the broader economy, and support the training required to enable citizens to adapt ICT tools and systems (MCIT, 2017). The expansion of the ICT industry in Egypt over the past several decades was an example of public-private sector partnership (PPP) through an alliance amongst the government and the private sector with an effective role played by the civil society (Kamel, 2021). This includes a number of ICT-focused non-governmental organizations (NGOs) who were involved and had a significant impact on the spread of ICT in Egypt (Kamel, 2021). Hence, table 1 briefs on the ICT achievements that were done in Egypt over the past years.

Table 1: Egypt's ICT achievements in the recent years

Year	ICT achievements
2019	Egypt's 2019 GSMA Mobile Connectivity Index score of 55.7 indicates its adoption of mobile internet, infrastructure, pricing, consumer preparedness, content, and services (2019). The launch of 4G technology in 2017 expedited infrastructure build-up, resulting in increased data use. Egypt is also preparing to launch 5G, a crucial component of the digital economy, facilitating the adoption of next-generation technologies and the Fourth Industrial Revolution (Oxford Business Group, 2020). The effects of digital transformation, combined with data-driven platforms like artificial intelligence and data analytics, could boost the global economy by USD 15 trillion (WEF, 2021, p. 26).
2020	Egypt secured over USD one billion in 2020 for digital transformation, with USD 3.19 billion allocated to support the private sector, particularly MSMEs (Ministry of International Cooperation, 2021). Katz and Callorda (2019) highlight the importance of faster and better broadband connectivity in digital transformation, as it creates new avenues for social and economic advancement. A 10% decrease in mobile broadband prices can increase adoption by over 3.1%, while the International Telecommunication Union (ITU) evaluates that a rise of 10% in mobile broadband penetration which may boost the GDP per capita by 2.5% in most African countries (Katz and Callorda, 2019, p. 16).
2021	With over 200,000 professionals working in Egypt's business process outsourcing (BPO) sector as of 2021, the country became a desirable destination for outsourcing, especially considering its relatively low attrition rates (estimated to

	be between five and 11 percent) in comparison to other nations (IDC, 2019). Egypt is now one of the world's fastest-expanding exporters of BPO services, according to the IDC (IDC, 2019). Prior to the epidemic, Egypt's ICT sector was predicted to employ 240,000 full-time equivalent employees (FTEs) and bring in around USD 6.9 billion in revenue in FY2020–2021, including USD 4.7 billion from BPO (IDC, 2019).

Source: The author of this Thesis

4.3. Different Government E-Portal in Egypt

In order to coordinate and integrate government information and services, Egypt has established several e-government central services portals (Abbassy & Mesbah, 2016). The user-friendly website, which offers services ranging from basic information to online payments, is geared toward locals, visitors, and businesses alike and is available in both Arabic and English (Abbassy & Mesbah, 2016). A birth certificate may be ordered online, as can phone payments and license renewals. More than 700 services are now listed on the platform, and officials say they want to add more in the future with the aim of making the vast majority, if not all, of government services available online (UN, 2014).

On account of the e-Egypt project, these e-government and eservice projects have improved communication between the general public and governmental institutions in the nation. The table below lists selected Egyptian e-services and associated sites.

Table 2: Egyptian e-services and associated sites

Name	Portal	Service	Portal Status
Ministry of Interior, Civil Status Sector	https://cso.moi.gov.eg/	• national ID card • Birth certificate • Death entry • Marriage document • Divorce document • Family record • Individual record	Working
Egypt Railways	https://www.enr.gov.eg/Ar/default.aspx	• Train ticket reservation service • Train timing schedule	Working

Department of Real Estate Registration and Documentation	http://rern.gov.eg/	• Real estate registry services	Working
Public Prosecution	https://ppo.gov.eg/webcenter/portal/PPOPortal#	• Traffic Prosecution Services • Personal status services • Family prosecution services • Criminal prosecution services	Not Working

Source: The author of this Thesis

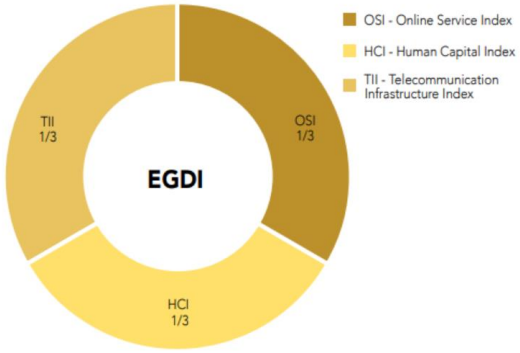
4.4. Egypt's E-Government Ranking

As of January 2023, Egypt's overall population became 111.8 million, out of which 80.75 million are internet users. According to Kepios, internet users in Egypt rose by 1.2 million (+1.6%) between 2022 and 2023. For context, these user numbers show that 31.09 million Egyptians did not access the internet at the start of 2023, implying that 27.8% of the population was offline at the start of the year (Kemp, 2023). Despite all of this population of internet users, Egypt's e-government is not as strong as the remaining of the countries, which is shown in the coming measurements: EGDI, EPI and CPI.

4.4.1. E-Government Development Index (EGDI)

The UN E-Government Knowledgebase established the E-Government Development Index (EGDI), which instruments trends in national website development. The E-Government Development Index represents how a nation is utilizing information technology to increase access and involvement for its citizens by considering access circumstances like educational and infrastructure levels. The three main facets of e-government – online service provision (OSI), telecommunication connection (TII), and human capacity (HCI) – are combined in the EGDI, as shown in figure 2 (*E-Government Development Index (EGDI)*, n.d.). The EGDI tries to rank national governments in terms of their performance in comparison to one another. It is predicated on a detailed online existence survey of the entire 193 UN Member States, that evaluates country portals as well as how e-government strategies and policies are used both commonly and especially sectors for the delivery of essential services (*E-Government Development Index (EGDI)*, n.d.).

Figure 2: The three elements of E-Government Development Index (EGDI)



Source: The UN E-Government Knowledgebase

After conducting the "Member States Questionnaire (MSQ) for the United Nations E-Government Survey 2022" (2022) with *Khaled ElAttar*, Egypt's Deputy Minister for Administrative Development, Digital Transformation and Automation, as well as the Information Infrastructure sector at the Ministry of Communications and Information Technology's Head (MCIT), Egypt was rated 103rd out of 193 countries in the world, with an EGDI of 0.5895, which is marginally beneath the world's average of 0.6102 (*Data center*, n.d.). Egypt's rank went up by 8 places comparing to 2020, due to implementing various digital initiatives, such as the "Supporting e-Government and Innovation in Public Administration – INNOPA" project, which will provide 8 million Euros to the Egyptian government's digital transformation process until 2025 society (*Member States Questionnaire et al*., 2022). In addition, for the period 2020–2021, MCIT has agreed to six agreements with French partners in the field of artificial intelligence, which may be used to a variety of fields such as government, health, capacity building, transportation, natural language processing, etc. Along with the National Project of "Moving to the New Capital," it entails relocating all governmental and representative organizations to Egypt's new capital in order to create a society that is entirely cashless, paperless, and digital (*Member States Questionnaire et al*., 2022).

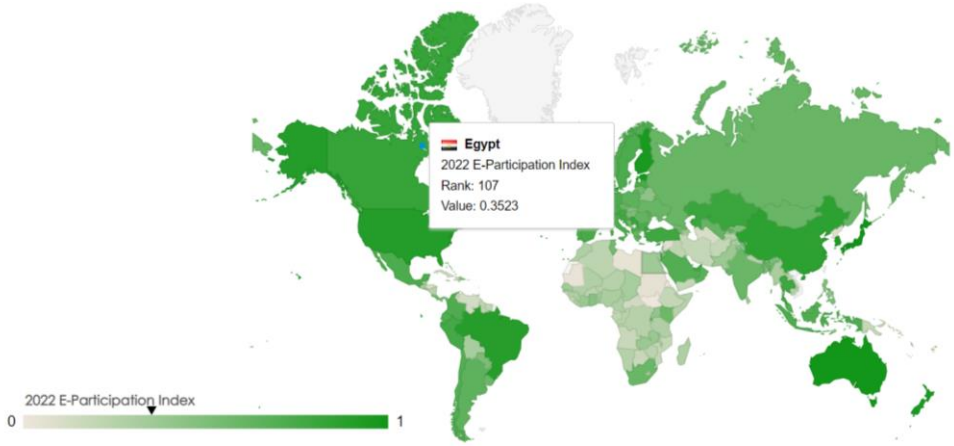
Figure 3: Egypt’s 2022 E-Government Development Index (EGDI)

Source: The UN E-Government Knowledgebase

4.4.2. E-Participation Index (EPI)

As a complement to the United Nations E-Government Survey, the E-Participation Index (EPI) is generated. In comparison to all other nations, a country’s EPI shows the government’s e-participation procedures (UN E-Government Knowledgebase, n.d.). This metric's objective is not to endorse any one strategy, but relatively to shed light on how various nations are utilizing online tools to foster communication amongst their citizens and their government as well as among themselves for everyone's benefit (UN E-Government Knowledgebase, n.d.). According to this survey, Egypt was rated 107th out of 193 countries in the world, with an EPI of 0.3523, which is marginally below the world average of 0.4450 (*Data center*, n.d.). Egypt’s rank went down by one place comparing to 2020, even though the Deputy Minister emphasized in the survey that the Egyptian Government's Digital Transformation Plan is centered on the demands and expectations of citizens, and its plan has a defined goal of achieving Egyptian citizen well-being and focuses on enhancing Egyptian citizen "Quality of Life" in order to attain "Citizen Happiness and Satisfaction." The strategy contained a segment on public involvement and engagement to ensure citizen satisfaction and thereby citizen well-being. (*Member States Questionnaire et al*., 2022).

Figure 4: Egypt's 2022 E-Participation Index (EPI)



Source: The UN E-Government Knowledgebase

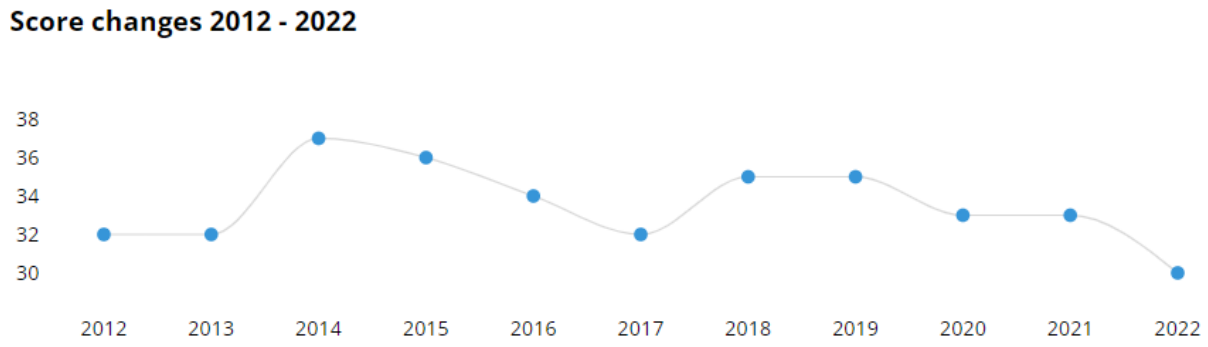
4.4.3. Corruption Perceptions Index (CPI)

The main research product of Transparency International, the Corruption Perceptions Index, has been measuring corruption in the public sector since it was first created in 1995 (*Corruption Perceptions Index: Country data Egypt*, n.d.). The index offers an annual assessment of the relative amount of corruption by rating countries and territories from all over the world. In order to enable year-to-year comparisons of ratings, Transparency International modified the methodology used to construct the index in 2012 (*Corruption Perceptions Index: Country data Egypt*, n.d.). The CPI sorts 180 countries according to how allegedly corrupt their public sector is. The findings are rated on a scale from 0 (extremely corrupt) to 100 (very clean) (*2022 corruption perceptions index - explore the results, 2022*).

As shown in Figure 5, Egypt's ranking decreased from 2021 to 2022, where it went from 117 to 130 out of the 180 countries, Transparency International assessed. Figure 6 illustrates Egypt's CPI score is 30 out of 100, which is below the global average 43 (Transparency International, 2023). In Figure 7, similarly, the Middle East and North Africa area is struggling to make real advancement in the battle against corruption, where its average score has dropped to a new 38 out of 100. Around 80% of countries are ranked lower than 50 and even the three Gulf states with index scores above 50, the UAE (67), Qatar (58), and Saudi Arabia (51), show symptoms of decrease in this year's CPI; as a result of corruption, authoritarianism, and insecurity fuel each other across the region (Transparency International, 2023, p. 13). The Arab Spring-inspired leadership changes have failed to demolish established power structures, resulting in

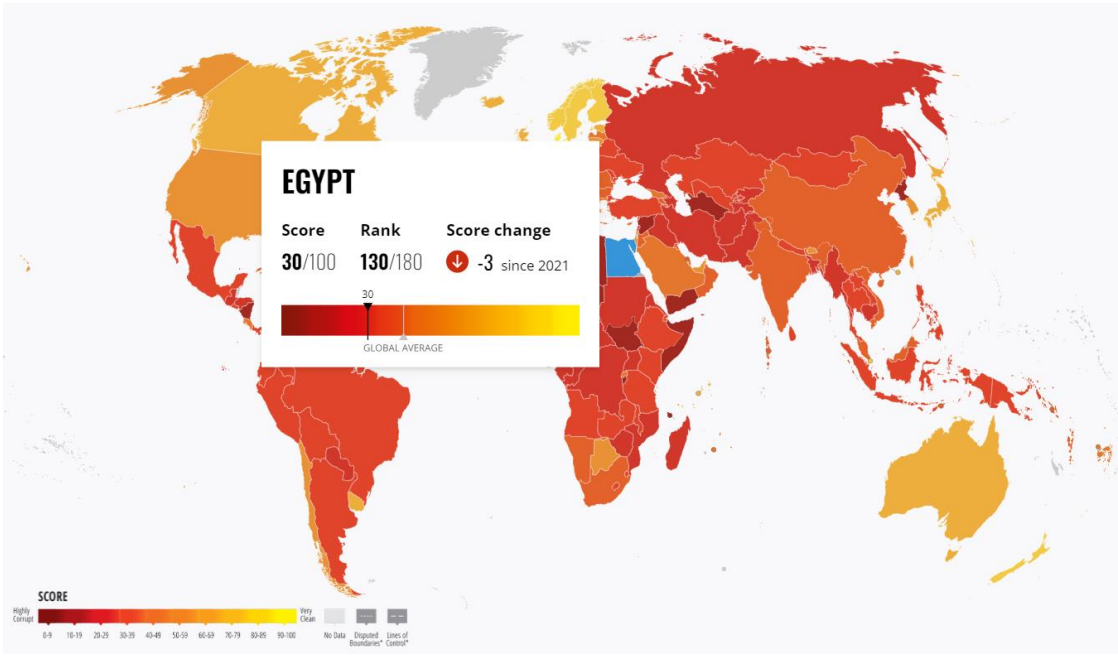
significant civil unrest and deadly conflict as people strive for their rights and to have their voices heard (Transparency International, 2023).

Figure 5: Egypt's CPI score from 2012 to 2022



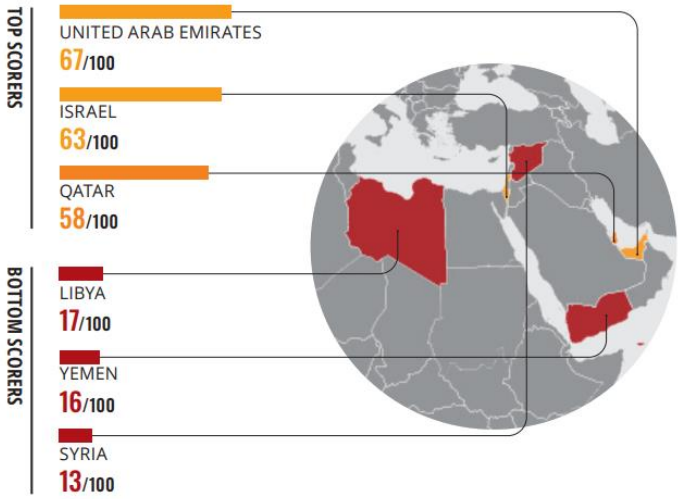
Source: Transparency International: The Global coalition against corruption

Figure 6: Egypt's 2022 Corruption Perceptions Index (CPI)



Source: Transparency International: The Global coalition against corruption

Figure 7: 2022 MENA's CPI scores



Source: Corruption Perception Index 2022 Report

4.5. Egypt's ICT Strategy 2030

Egypt launched its "Egypt Vision 2030" plan in 2016, promoting the usages of ICTs as it is one of its eight goals (MCIT, n.d.). Egypt's Vision 2030 is divided into three main areas:

- an economic area: focusing on inclusive development, transparency, and maximizing government effectiveness (Shahin, 2021; Kamel, 2021).
- a social area: focusing on enhancing human capital via investments in areas like social justice, culture, health, and lifelong learning (Shahin, 2021; Kamel, 2021).
- an environmental area: concentrating on environmental and urban development (Shahin, 2021; Kamel, 2021).

The ICT sector is a crucial and horizontally cutting-edge component of such a vision; it may significantly help to accomplish the desired goals by cutting across the three dimensions (Shahin, 2021; Kamel, 2021).

To support the expansion of the digital economy and connect with Egypt's Vision 2030, the MCIT introduced Digital Egypt in 2017 (Kamel, 2021). The plan is to improve the lives and means of subsistence for Egyptians by ensuring universal, egalitarian, and inexpensive access to ICT tools and applications (Kamel, 2021). The goal of Digital Egypt is to digitize 60 state-owned businesses, government services, and intellectual property, also it aims to provide a legal framework for data protection and governance (Kamel, 2021). The 2030 Vision and MCIT strategy set out to make Egypt's economy more competitive, resilient, and innovative as well as to promote

innovation, social justice, equality, and integrity as well as to combat corruption, safeguard cybersecurity, and strengthen Egypt's position both domestically and abroad (Kamel, 2021).

5. Chapter Five: Research Methodology

This study's data were accumulated through qualitative interviews. The reason behind choosing a qualitative approach was that most research was done through quantitative only. Especially that the qualitative method strengthened the thesis by including a real-world examination to comprehend social processes and depends on the direct experiences of human beings. For the qualitative approach, the interviews were based on in-depth interviews completed over four months using open-ended questions. There were two sets of interviews; one set was for people who have used the Egyptian government's e-portal at least once for the services of checking or paying the traffic fines, and the other set was for those who didn't use the e-portal at all to know the reason behind not using it. Details about the quoted interviewee's biography were given next to the first time they are quoted in the thesis. Some interviews were held over the phone due to the interviewee's preferences. The time limitation was an issue as the interviews were scheduled after working hours or during the weekends; however, this issue was mitigated since the interviews started five months prior to the thesis. The interviews were conducted in both Arabic and English based on the interviewees' preference and materials were transcribed verbatim.

The sampling depended on the nature of the questions asked, the availability of informants, the number of members involved, and the study's objectives. Other specifications are realistic constraints imposed by resources, time, depth, and intent of the study (Ambert et al., 1995). The interviewees were contacted via personal contacts and chain referrals (snowballing). This snowballing sample approach is used to analyze sensitive issues or subjects that people would rather not converse in public. This is generally caused by apprehension over the prospect of self-disclosure (Nikolopoulou, 2023). Sample size was determined based on the criteria that the interviewees used the e-portal for the services of checking or paying the traffic fines or did not use the e-portal at all. Any of the referred interviewees were filtered as part of this sampling exercise due to logistical constraints and their willingness to participate in the sample. With that being said, a small sample number gives an explanation for cause-and-effect interactions within the corruption and the trust in e-government system, but it cannot be generalized to broader groups. Hence, this study makes no claims about sample representativeness. In order to mitigate such issue, the twenty-four interviewees consisted of different categories: six below the age of 30 (from the range of 19-70 age), six above the age of 30 (from the range of 19-70 age), six well-educated, six illiterate citizens. All of these citizens will be divided equally between both genders: females and males.

Since this study focuses on the lived experience of individuals, the researcher might also claim that human activities cannot be comprehended until the meaning that humans ascribe to them is understood (Marshall & Rossman, 2014). Interview data were first analyzed, each sentence was classified into topics based on the emergent methodological themes and using an open coding method, resulting in three different themes of the study. This analytic approach based on inductive logic draws on the tradition of grounded theory. For data analysis, standard methods such as data extraction, coding, and analytic memos were used to interpret the social lives of the research subjects and translate the sentences, and behaviors, etc. Also, assessing the accuracy of study findings requires the researcher to make assumptions about the research's "soundness" in terms of protocol execution and appropriateness, as well as the consistency of the final conclusions (Creswell & Miller, 2000). In order to mitigate any limitations that might arise from the dishonesty in the answers, the researcher authenticated the findings through triangulations across informants and through a review of the literature and policies on the pertinent problems that have arisen from the sector, where the transcripts of the interviews were examined.

This study was conducted in a small community where gathering data on a representative sample of internet users was challenging. Since e-government is a controversial issue, gathering data on a representative sample of individuals who utilize it was especially difficult. As a result, convenience sampling strategies were examined in order to establish an appropriate sample frame for this investigation. While the majority of respondents had an information technology background and some are e-government users, they all represent a segment of Egyptian society. The interview was conducted individually to assure the respondents' sincerity and attention because, in accordance with the citizens' culture, it was so difficult to affect the respondents' attention to the importance of the interview and encourage them to take it seriously. The data was obtained at a certain time and could represent the opinions of the residents at that moment.

The procedures and ethics were developed with the goal of protecting participants and researchers, increasing the amount of good, ensuring trust, and dealing with new and difficult problems related to behavior. To ensure the ethical testing requirements were met, the interviewer adopted the Institutional Review Board (IRB)'s guide and analysis procedure by getting a consent form and informing the interviewees of the aim and risks of this study. The participant’s identities are anonymized by using pseudonyms or numbers, for ethical reasons. All of quotes do not to reveal any personal details or traces which could disclose the interviewees’ identities.

6. Chapter Six: Analysis and Discussion

E-government can help decrease corruption, however there are debates over whether digital government is truly beneficial in reducing corruption. ICTs do not always have a big influence on reducing corruption, and they may occasionally open up new avenues for wrongdoing. Although ICT has been used to combat corruption in industrialized nations, it is unknown if the same strategies would work in developing countries such as Egypt. Digital governance can serve to increase the efficiency and effectiveness of government performance and, in certain cases, prevent corruption, although it is not always appropriate. Using in-depth interviews, this study attempts to investigate the link relating e-governance and corruption.

This chapter addresses the themes that arose from the citizen attitudes toward local e-government, where some citizens are comfortable using the e-portal, and some others fear it. The circumstances listed in the interviews are allocated into two primary categories with a set of subcategories. The first category is E-government is an Effective Way to Promote Good Governance, with subcategories of 24/7 Access to Government Services, petty money-free and Eco-Friendly Process, where the citizens' interviewees explain how far e-government was beneficial to them. The second category is Fear of the Unknown, with subcategories of Lack of Digital Literacy, Lack of Access to Technology and Privacy and Trust Concerns, where the citizens interviewees explain the struggles and fears they faced that prevented them from using the e-portal and suggest the areas that need to be improved, from their perspective. Although these concepts are interconnected, they are explored independently for logical clarification in data presentation.

6.1. E-government is an Effective Way to Promote Good Governance

Corruption stifles social progress through distorting the market, undermining social stability, and distorting the appropriate usage of government resources. As a result, decreasing corruption has piqued the interest of executives and scholars throughout the world (Elbahnasawy, 2014). More and more areas are dedicated to their different anti-corruption operations, such as e-government projects, open government programs, and attempts to promote the transparency of data, and policy-making methods (Li, Wei, & Ma, 2021). Various e-government efforts have been launched by governments all over the world to improve their internal procedures and the caliber of online service. This is the main goal of e-government. By employing ICT, e-government may increase efficiency, accountability, transparency, and effectiveness in government administration

(Nam, 2018). E-government can also help to reduce corruption since a computer cannot accept bribes, and it saves both money and time (Sakib, 2019). Egypt has succeeded to implement e-government to some extent, as the citizens can access the government services 24/7, the process is now petty money-free, and it helps the environment by being a paperless process.

6.1.1. 24/7 Access to Government Services

Receiving public services in the past had a strong connection to showing up at a location at a certain time to connect with a certain public official. A public interaction no longer occurs in a public official's office but rather on an electronic tool thanks to e-government alternatives in the shape of digital public services (Lindgren et al., 2019). For instance, in Egypt, traffic penalties may be checked and paid online. Usually, a digital system will automatically determine if a user is eligible for services. Public authorities participate in the service process only in situations involving deviance or appeal. Also, digital offices, in contrast to physical ones, are open to the public every day of the week, even holidays and public health emergencies like the COVID-19 epidemic. Also, e-government services can handle applications and requests significantly more quickly than traditional paper-based services. This shortens the time it takes individuals to get essential services. Respondent 1, a grandmother, explains how beneficial the e-portal is for her and her granddaughters, noting:

> *My daughter is remarried to another man, but he does not like her kids … so I am taking care of them instead … I used to struggle to get to the police station to pay my granddaughters' traffic fines … lots of time I had to pay petty money to cut the queues *laughs* … now I use the e-portal to do everything from home but with my granddaughters' helps of course … one challenge I faced in the e-portal is that the website uses complicated words that are difficult to grasp, and it does not provide all of the necessary information so that is why I need my granddaughters with me when I open the portal (Respondent 1, 85 years old, interviewee, October 2022)*

Respondent 1 reveals her family circumstance, which forced her to take care of her grandchildren, one of which is paying their traffic tickets. She then expresses her dissatisfaction with how the police station operates, where she needs to go, and how she occasionally pays little money to expedite the procedure. However, her anxiety vanished when she began utilizing the e-portal with the assistance of her daughter, as she is unfamiliar with this type of technology. The use of e-portals by the elderly may present certain obstacles, but it may also provide several benefits.

However, the technical component of accessing e-portals might be a barrier because not all seniors are technologically savvy. It may take some time for them to learn how to use websites and applications, but once they do, they will appreciate the convenience and ease of utilizing e-portals. Furthermore, by executing their operations remotely, they can avoid any health hazards. Overall, e-portals may be a valuable resource for the elderly, making their life easier and safer. For sure, convenience is the primary element, which is commonly regarded as having 24-hour access and saving money on going to the governmental centers. Even in underdeveloped nations, convenience is frequently found to be a larger motivator than cost savings (Peña-López, 2012). E-government offers citizens with online services such as online applications and forms, which save the time and effort required for residents to complete and submit them in person. E-government services' availability reduced the need for residents to take time off work or change their schedules to reach government services. E-government services enable individuals to access services via a variety of platforms, including computers, mobile phones, and other electronic devices. This gives individuals the freedom and convenience to receive government services when and when they choose. Moreover, it responds to citizens' requests in real time, shortening the time it takes for citizens to obtain replies to their enquiries and requests.

E-portals have transformed the way everyone access information and services in today's technological environment. Citizens may now access a various collection of services and information from the comfort of their own homes. E-portals have made it simpler for consumers to do duties such as paying bills, filing taxes, and accessing government services without having to take a full day off from work. These portals are available from any internet-connected device, around-the-clock, seven days a week. Citizens have significantly profited from the availability and accessibility of these e-portals, particularly those who lead busy lifestyles and cannot afford to take time off from work. Needless to mention that most e-government initiatives bring governance (facilities) to residents' doorsteps. In the past, citizens were required to visit the various agencies and submit service requests to the authorities. The majority of people felt they had to pay bribes and kickbacks to speed up the procedure and prevent having to go back; yet, this one-on-one interaction gave officials the opportunity to demand such things. As a result, E-governance projects target the cause of corruption by decreasing opportunities for it to occur (Alam et al., 2023). Respondent 2 describes how using the e-portal changed his life to the better, noting:

The best thing that happened is when I got to know the e-portal … I finish all of my families' governmental paperwork online … at anytime I just open the laptop and with one click I am done, can you imagine!! … I don't have to take a day off from my work to finish my paperwork or even spend gas to go to the police station and wait for my turn … to be frank, it was not easy the first time I used the portal … I didn't know where to click or what are the steps that I should follow, but now I am expert and I do it for my whole family as well (Respondent 2, 29 years old, interviewee, October 2022)

Respondent 2 describes using the e-portal as one of the best things that happened to him. He points out that he does not need to take an annual leave from his work to visit the governmental center to finish his paperwork. In addition, he mentioned the other costs involved in visiting these centers such as the gas fee. Then he tackles his first time using the e-portal where he struggled a bit. Citizens who are new to e-portals frequently struggle to navigate the system and comprehend how to execute chores online. This might cause them to become frustrated and confused while attempting to access services such as online payments or government documents. As a result, governments must invest in education and training programs to assist individuals in navigating e-portals and fostering digital literacy. One of the primary benefits of adopting e-government is that it keeps consumers' time. If Internet bandwidth is sluggish, however, this may not be the case, and residents will continue to utilize old ways (Alharbi, Papadaki & Dowland, 2014). Nevertheless, many E-governance proposals have improved accountability by making data about the government and its representatives accessible to the public whenever they want it through tools like the internet. Technology infrastructure to improve public use of and access to government IT systems as well as technology improvements to enhance the provision of government services and activities. One of the primary gains of e-government is that it is available 24 hours a day, every day. However, services are occasionally unavailable or difficult to obtain. Many variables can impact service availability, such as the system's incapacity to handle many requests at once; this can cause services to run slowly or even cease entirely (Alharbi, Papadaki & Dowland, 2014).

The goal of e-governance is to increase value for all parties involved by transforming government operations and utilizing technology to improve citizens' access to and satisfaction with service delivery (HandWiki, 2022). For people, companies, and governments, e-government applications are immensely helpful. E-government applications improve the standard of these services by enabling customers, companies, and government entities to have access to government

information anytime they desire it (Alshehri & Drew, 2010). E-government has the ability to lower expenses for citizens by decreasing travel and administration expenditures as well as the requirement for third-party help, resulting in improved operational efficiency and savings for taxpayers. The lack of an e-portal user guide may be extremely aggravating for users. Users who are not properly guided may get perplexed about how to navigate the system, access certain capabilities, or fix difficulties. This can result in substantial effort spent attempting to figure out how to use the platform efficiently. Furthermore, in other circumstances, consumers may quit up and go to a new platform entirely. Respondent 3 enlightens her e-portal experience as a first-time user and how profited from it, noting:

> *At first I was not sure whether to use the e-portal or not cause I was not familiar with it and I could not figure out how to use especially that a there was no user guide to follow … once I got the hang of it and I could sense its benefits I did not stop using it ever since … especially that I can finish any service whenever and wherever I want rather than going to the police station or any governmental institution … definitely it saved me time, money and effort (Respondent 3, 24 years old, interviewee, November 2022)*

Respondent 3 hesitated first to use the e-portal as she did not have user guide at hand to follow; however, through trial and error she managed to use it. She stresses on the fact that she could finish her paperwork at any time and from any place she likes instead of visiting the governmental centers, highlighting its benefits where it is time, money, effort efficient. Self-service is a key concept driving the digitization of public services. Using IT artifacts, citizens may easily access government information and services from their residential home (or other locations). Another impetus motivating the digitization of services for the public was the need to improve efficiency in government entities by streamlining internal procedures. Therefore, the necessity to facilitate interactions between individuals and governmental entities served as the driving force behind this development (Lindgren et al., 2019). Internet-based technologies may now encourage contact and involvement through a number of channels (such as digital post, digital forms, e-mail, mobile applications, chat, and so forth). Additional capabilities have been introduced throughout time. Additionally, anyone can contribute information by filling out online forms and mailing them to a public organization, simulating the interchange of printed letters. Any device with an internet connection may now access information on various public services, and people can do information searches deprived of interacting with public servants or going to a physical place. As a result, the

methods of communication linking citizens and public authorities have changed because of the digitalization of public service delivery. Digitized public services are exciting because they change the environment of connections between individuals and public officials (Lindgren et al., 2019).

The Egyptian services portal is a big initiative that has taken three years to complete and is a significant viewpoint of Egypt's emerging e-government plan. The consolidation of all governmental services onto one online platform is undoubtedly a move in the right direction. During the study period and as of the writing of this article, there was no integration of the new website with the larger government's online exposure. Egypt's advancement in e-government maturity is definitely impressive, however by disregarding the best Practice of integrating the service portal into the wider government structure, Egypt inadvertently lost out on getting more points in the research. A user would need to be familiar with the portal in order to find or access the site; it certainly couldn't be done by visiting other governmental portals online (UN, 2004). Nevertheless, it has launched the enactment of several laws and regulations that help to the process of digital transformation and facilitating e-government services, such as Law No. 15 of 2004 about the organization of electronic signatures and Law No. 175 of 2018 concerning the reducing of information technology crimes (Abdel-Fattah, 2022).

6.1.2. Petty money-free

Bribes can be evident in important public-sector efforts like infrastructure procurement, whereas petty corruption is paid for by bigger groups of people or companies utilizing government services or in smaller amounts but potentially more frequently. These may seem like insignificant sums at the exact moment of transmission; nonetheless, they can accumulate up over time and be forwarded to senior government figures. In theory, government e-solutions like e-customs, e-procurement, and trade facilitation programs should reduce corruption on both a large and small scale (Aiolfi, 2017). Therefore, e-government is founded on the theory that by eliminating or replacing face-to-face interactions, e-government technologies cut the consequences of the public officials' bribery, hence lowering the possibility for bribery. Respondent 4 describes how he handled any governmental paperwork prior to his knowledge of the e-portal, where he needed to give money to speed up the process, noting:

> *Ughhh! You have no idea how much petty money have I paid till now to finish my family's governmental paperwork … they are small amount of money but when you count how many times, I have paid them, they would amount to a good sum … I am not proud of*

using such a method but in Egypt it is necessary to leave money for شاي and even sometimes the workers ask you blankly to give them money and if you refuse then هيزلوك to finish your papers … for sure I am not generalizing but some of the officials are like that … but now that I am using the e-portal I don't need to go through this whole hassle (Respondent 4, 46 years old, interviewee, December 2022)

Respondent 4 explains his dissatisfaction with the governmental process prior to the e-portal, where he indicates paying a decent amount of money to the officers to finish not only his paperwork but also his family's. He believes it was the only option to finish his paperwork as few officers even ask for petty money directly, yet he is not honored of following such way. Withal, after being introduced to the e-service portal, he has not used petty money as the process does not need interaction with the officials anymore. The overarching goal of e-government is the capacity to provide citizens with a greater variety of governmental services in a more efficient and cost-effective method. Streamlining these task processes will result in having transparency that will minimize the chances for corruption. When government procurement processes are open and transparent, for example, there is less space for bribes and other sorts of corruption, especially the minor bribes that range from "tea money" to large sums. Though, with the rise of contactless payments and the corresponding acceptance for small value payments, along with affordable and secure platforms to manage and control business expenses and payments, especially across large workforces in multiple locations, it's possible that the "petty cash tin" was all that was left. However, these factors have all but reduced the need for it. E-government development has not always been determined by policy intentions to avoid or minimize corruption. Nonetheless, a significant benefit of growing usage of good e-government technologies is diminished interaction with government personnel, beside improved recordkeeping. Such contacts are frequently classified as possibly posing heightened bribery risks, necessitating risk mitigation measures. Limiting or cutting back on personal interactions with government representatives is one alternative to such initiatives. It is believed that reducing in-person encounters with public authorities will lower the likelihood of bribery (Aiolfi, 2017).

According to Transparency International (2012), the exploitation of a public position, power, or authority for personal benefit includes extortion, nepotism, bribery, influence peddling, speed money, fraud, or embezzlement. A public official abuses their position by accepting, seeking, or demanding bribes for personal gain. Additionally, it is abused when people

purposefully pay bribes to go around laws and procedures in order to get an advantage over rivals and make money (Aiolfi, 2017). E-government relationship definitions should be considered in context: When citizens are provided with e-government services with outmoded rules and processes, the benefit to citizens and businesses may be limited. The instance of India's passport services computerization initiative, which led in both online and offline applicants for passports having to bribe police inspectors in order to proceed with the police verification stage (Aiolfi, 2017). Respondent 5 comments on his way to speed up any governmental process prior to using the e-portal, noting:

> *For me prior to my father's promotions, I did use petty money to speed up any long or complex process … I mean why would not I? The officials accept it … they are usually small amount of money so I would not call it bribe … it ranged from 50-200 EGP depending on the service itself … but I can say it now with clean heart that I do not use petty money anymore … ever since I started using the e-portal I did not need to do so (Respondent 5, 37 years old, interviewee, September 2022)*

Respondent 5 describes without guilt how he managed any governmental procedure, claiming that it was by offering tiny money to authorities. He explains his activities by stating that the cops tolerate them and that everyone is using the same strategy. Then he reveals the amount of money he uses. Regardless, he explains that after utilizing the e-portal, he has not paid any petty money to commemorate the end of e-government. According to this interview, greater degrees of bureaucratic decision are coupled with greater corruptibility. The bureaucrat acting as a guardian may decline, expedite, or amend the service based on whether an adequate bribe has been provided (Kalesnikaite, Neshkova, & Ganapati, 2022). A pervasive issue that is veiled in many areas is corruption. In underdeveloped nations, bribery predominates when it involves incentives from the government and other perks like business licenses and permits. The quantity of money involved and the industry in which it happens determine the type of corruption (Alam et al., 2023). Hence, adopting automated procedures removes public personnel' ability to influence results, hence reducing the chance to extort bribes from citizens, as it decreases direct interaction between citizens and officials, minimizing extortion potential. Egypt and other international organizations are responding to corruption by developing diverse measures to address the issue from various perspectives. The goals of such initiatives are to limit bribery opportunities while strengthening the rule of law and government institutions. The use of e-government portals and digital

technologies can aid to better openness, and as such, international organizations including the World Bank encourage them as vital aspects in reducing corruption in government services (Aiolfi, 2017).

Due to its increased information availability, ease of monitoring, and ability to hold the government and those in power accountable, e-government may be essential. The development of a secure network made possible by the internet gave the government the ability to pass laws and construct a system of governance that improves efficiency and combats a range of social and economic issues, including corruption. The efficacy of e-government alongside the way the e-tool is utilized are vital, it was highlighted in replies to e-tools that might accidentally promote bribery. Since the e-portal still only offers some services or just partial stages, using it in one government department did not decrease the likelihood that corrupt officials in another government department would demand bribes for the services that had access to the e-portal. Particular people who participated in the interview expressed worry about the dangers that marginalized groups would experience if they were incapable of utilizing the e-tool and had to depend instead on dishonest governmental officials. Additionally, e-government strategies can aid in lowering the risks of bribery solicitation linked with interactions with government employees. Assessments of the corruption risk in a nation should take into account the availability and effectiveness of an all-encompassing e-government strategy, as well as its maturity and implementation status. To stop future corruption, such assessments need to be carried out often (Aiolfi, 2017).

6.1.3. Eco-Friendly Process

Paper demand has expanded substantially throughout the years as a result of population growth and socioeconomic progress. Furthermore, the durability and flexibility of paper have made it important in our daily lives. The tree viewpoint is heavily influenced by the need to limit the use of paper in the operation of public and commercial companies. Continued reliance on paper will have a negative influence on the environment in the future (AbdulKareem et al., 2020). The idea for the switch to e-governance evaluates and supports its value by adapting and enhancing semantics to numerous EDRMS systems. This is done from an interdisciplinary standpoint. The outcomes of this work have implications for development activities in a variety of fields, including the introduction of paperless management in local governments equipped with EDRMS systems by establishing interoperability with state registries and the development of an implementation methodology for effective paperless management that takes into account the organizational change

factors (Pappel, 2014). Respondent 6 is explaining how she is contributing to an eco-friendly environment by using the e-portal, noting:

> *I have been using the e-service portal for a while now and let me tell you that the number of documents I had to fill, or print were ridiculously masses prior to it; however, now I just click on a button to either upload and fill any requested documents … so at least I know I am contributing in saving the environment by using the portal … and I am talking about all the e-services not just the traffic fines (Respondent 6, 44 years old, interviewee, September 2022)*

Respondent 6 is delighted as she describes that she does not need to fill or print a lot of documents anymore when she visits any governmental center, as now with just a click of a button she finishes her processes. In addition, she highlights how this helps the environment and the GO-GREEN campaign worldwide by means of she does not contribute to wasting paper any longer. For sure, using digital technologies such as the government's e-portal to finish any process not only helps be more efficient, save money, but also helps Egypt become more environmentally responsible. The digitalization of an organization's work operations is an initial stage in the transformation process, using paperless management as the foundation for e-governance.

First and foremost, this strategy is anticipated to improve the effectiveness of daily operations in local governments; second, it will alter services and reimagine those that are now provided in a conventional manner; and third, it will facilitate organizations' ability to adjust to technology advancements (Pappel, 2014). Another clear advantage of being paperless in any workplace not just the governmental sector is the effect it has on the environment. Or, more accurately, the absence of an impact. Paper production causes deforestation and has an influence on climate change since it emits greenhouse gases that trap heat and contribute to global warming. Furthermore, paper accounts for a lot of landfill trash, while ink and toner are manufactured from nonrenewable, environmentally harmful materials. Even if recycling paper might help, cutting less on paper use entirely is a better option for the environment. A paperless document management system may benefit government personnel, the community, and the environment.

By utilizing information and communication technologies, these policies' overarching goal is to strengthen government transparency, participation, and collaboration. The advantages of e-government have led to research on its link with corruption arising as well. All of them underline that the more e-government there is, the more possibilities there are for the public to carefully

watch government operations, which raises the danger of corruption (Li, Wei & Ma, 2021). This adds to the debate of whether or not an electronic government can lessen corruption. There must be greater investigation into the complex problem of corruption. There are other approaches to reducing corruption outside e-government and/or open government. According to some experts, corruption is a form of habit, and some behaviors that are considered corrupt in certain countries may be accepted as part of the culture in others. These factors make it difficult to develop objective behavioral standards for corruption (Basyal, Poudyal & Seo, 2018).

Finally, transparency is a key instrument in Egypt's battle against corruption. Transparency may assist limit potential for unethical behaviors and promote good governance by expanding access to information and boosting responsibility.

6.2. Fear of the Unknown

"One fear to rule them all, one fear to find them, one fear to bring them all and in the black box bind them" -The pastiche of Tolkien's text (1954)-, the term "fear of the unknown" (FOTU) refers to a person's predisposition to feel afraid when there is seen to be a lack of knowledge irrespective of consciousness or processing (Carleton, 2016). New scientific discoveries and breakthroughs have been achieved and continue to be made throughout history. Every new creation has been met with criticism because of concerns about the negative impact the technology may have on humanity. Nevertheless, technology can be thought to be universally terrible or suspicious. This is founded on an appeal to nature in its naturalness, with technology being perceived as a perversion of the pristine condition in its naive extreme form. A more nuanced viewpoint views technology as undermining the purity of existence. While the fear of the unknown might be unpleasant, the Egyptian government is encouraging the citizens to overcome it; however, Egypt must first address the lack of digital literacy, lack of access to technology and the privacy and trust concerns of its citizens.

6.2.1. Lack of Digital Literacy

In many nations, the cost and affordability of ICT is a foremost worry, but so is a deprivation of expertise and comprehension of the technology. Reports show that more than 40% of the world's population, particularly the older age, lacks access to computer instruction (Stoiciu, 2011, p. 33). This is the most challenging problem to solve since it calls for adjustments to both education and culture as well as financial expenditures in e-services. No matter the degree of

education, e-governance should be in charge of creating practical e-government technology. Some government websites are quite complex and challenging to access and utilize in terms of information. Governments may be encouraged to improve equal access to ICTs by implementing an integrated and citizen-centered policy (Stoiciu, 2011). Respondent 7 describes his digital knowledge along with his son's education that he received at his public school, noting:

> *The government didn't provide us with the bare minimal digital education. My son's public school does not even have computers, when the computer class comes, they just play around ... Yes, all of my family have Facebook, but we are not expert on the internet to pay through it as well … I just finish any مشوار حكومي with one phone call to my niece's husband, he is a solidary in the military, so he knows few people (Respondent 7, 36 years old, interviewee, January 2023)*

Respondent 7 is frustrated as he explains his son's teaching in his public school's computer class where they do not have computers or laptops to practice on, so he is shedding the light on the fact that the new generation is not getting enough education on the digital and technological tools for the government to want its citizens to convert their services to a paperless process. Nevertheless, he stresses on the fact that he uses wasta (someone internal he knows) to finish any paperwork he wants which contributes to corruption. E-government is ultimately a remedy for corruption, bureaucratic slowness and ineffectiveness, cronyism, nepotism, and absence of openness. The goals of e-Government are both internal and external, with an emphasis on executing administrative tasks inside and meeting public demands and expectations externally, as well as improving service delivery and empowering citizens (Belwal & Al-Zoubi, 2008). However, the government can first adapt the citizens to the digital world and provide them with the right education to be able to use the portal; hence, reduce corruption. The key to overcoming the digital gap is digital literacy. In order to preserve their sense of inclusion, people must have ever-rising degrees of digital literacy, which is reflected in the constantly growing nature of technology. Digital isolation is exacerbated by issues such as a lack of Internet access or poor Internet quality. Age, education, ethnicity, and wealth may all be used to forecast how people will utilize and accept new technologies (da Silva, Zitkus & Freire, 2023).

Older adults are the fastest-growing Internet users, although they are frequently overlooked in online design. In this regard, it is critical to regard them as consumers of a large scaled technology. The rising number of elderly individuals using the net highlights the necessity of

developing technology that caters to this user demographic. The elder users are drained by the generational technical divide and the general neglect of its characteristics in computer software initiatives. However, older persons must comprehend and learn to utilize interfaces in order to reap the benefits and enhance their quality of life. When it comes to technology, senior users encounter certain difficulties not shared by younger ones. Aging, which results in a decline in their bodily and mental abilities (such as decreased vision, memory, speech, motor coordination, and hearing), restricts and challenges elder people while using computers, is the root cause of many of these difficulties (da Silva, Zitkus & Freire, 2023). Respondent 8 describes his experience with the governmental centers and how is comfortable the way things are, noting:

> *I have heard a lot about the government portal from the TV, where there is an AD saying* ممیکن ممیکن*, but I never use it … Frankly, someone in my age would not know how to use it and none taught me how to ... I know the employees in my government center very well so whenever I go there, they don't make me wait in queues and finish my paperwork for me and my grandchildren quickly. I think they pity me, but I do not care as long as I finish everything in no time. For me, my age is a benefit, so why would I use the website (Respondent 8, 81 years old, interviewee, January 2023)*

Respondent 8 highlights that he knows about the government website through its advertising campaign on the television but refuses to use it still. Then he elaborates that he didn't get the proper training to do so and even if he did, it would be hard for him as an elderly man. He prefers using his old age as an excuse to cut lines and finish not only his but also his family's governmental paperwork. Hence, for him there is no motivation in using the website. Having a close relationship with the civil workers and cutting lines or using old age as a green card is a type of corruption in itself. The fast evolution of new digital technologies alters our communities and the planet we live in on a daily basis. For most individuals, even the elderly, this means accepting technology as a necessary component of daily life and constantly adapting to and integrating new digital technology into lifestyles and daily activities. To guarantee that people of all stages, sexes, ethnicities, economic situations, and geographic sites may profit from these benefits and advantageous technology improvements, significant social and political measures are needed. It is necessary to find policy solutions that take into account the assortment and diverse demands and welfare of elder people, make digital technology more available and affordable for people of all ages, and allow older populations to participate fairly in a digitalized world (Köttl, 2021).

The government ought to carry out development plans in both metropolitan and countryside areas of the nation. In the case of Egypt, this scenario should be more concentrated because most of the population resides in rural or village parts. So total growth is only feasible when progress occurs in all sectors of society. E-government is significant in this part because the practice of ICT at all levels, from affluent to poor, may bring about tremendous change in society. And the notion of "digital divide" in e-government may play a critical part in executing development programs at all levels of society (Sakib, 2019). In addition, to satisfy these citizens' actual requirements and assure barrier-free use, people with disabilities should be included in the digital technologies' design, as well as to reduce designers' possible stereotyped preconceptions about aging. Incorporating end users during the entire design phase, from requirements analysis to assessing and deployment of a particular technology, whilst preserving end-user variety, is the goal of participatory or co-design methodologies (Köttl, 2021).

6.2.2. Lack of Access to Technology Literacy

There is a significant digital gap. Poverty and the digital divide are closely related. 40% of the global population resides in developing nations (Stoiciu, 2011, p. 35). There are one billion individuals who lack access to ICT. The digital gap also shows up in a number of other ways. Studies demonstrate that the chance of Internet use is 10 times greater for someone in a developed nation than for an individual in a developing country, irrespective of how many information booths or tele-centers are set up in a developing country. This demonstrates how crucial education and changing ideas are to reducing the digital divide. To increase e-readiness, promote and teach ICT usage, and assist the enhancement of ICT abilities in a non-discriminatory modus, governments should take action by developing and implementing e-government technologies (Stoiciu, 2011). Respondent 9 describes her available mean of technology along with her digital knowledge in general, noting:

> *I still have a Nokia phone with buttons, and I sometimes struggle with it so how is the government expecting me to do all my governmental services through the internet? Of course, I will need to pay someone to do it for me but that would cost me a lot as well, so it is easier to go to the governments centers and pay a bribe if necessary (Respondent 9, 43 years old, interviewee, February 2023)*

Respondent 9 is irritated as she clarifies her only means of technology which is an old Nokia phone. Highlighting that even this old phone is out of her digital knowledge as she finds it difficult

to deal with sometimes. Since she does not have the means to access the government's e-portal, she would need to hire someone who has enough digital knowledge to finish her governmental requests instead. Yet, hiring someone would cost her money that she cannot afford; thus, she opts for going to the governments' centers herself and speeds up the process by paying petty money instead, as in her opinion it is easier and cost efficient. According to her testimony, Egypt confronts problems that impede the application of e-governance, the most significant of which is the digital divide at the local stage in the usage of ICT and net connectivity.

The "digital divide," or the disparity between those who understand and can access technology at a sufficient level and those who do not, has the potential to exacerbate socioeconomic and other disadvantages for communities who have previously received little attention. Governments should thus take the initiative in promoting the creation and deployment of understandable ICT content and accessible e-services. Furthermore, via legal frameworks, strategic directives, and government assurances, they ought to aid in establishing an acceptable and inclusive environment for e-government. E-governance, like guaranteeing cheap internet access, might become a similarly potent tool in bridging the divide (Stoiciu, 2011). This digital gap in Egypt and Africa as a whole is caused by inadequate utilization of ICT resources, as well as a lack of access to energy in some regions and extensive bureaucracy. Due to the integration of public libraries and government with the provision of public services by means of the net and the reduction of transmission costs, the use of e-governance should assist in the progress of an information society (Sharawy & Barakat, 2022).

Governments all around the world are up against a tremendous barrier when it comes to promoting e-government programs. They try for an appropriate degree of adoption in an environment where numerous variables contribute to make Internet access more difficult. Governments are encouraging individuals to access and use public services via the internet. To do so successfully, the Internet should be accessible to all types of individuals and enterprises. This point of view is connected to the digital divide. Many ideas and models have been presented to address this issue. The availability of such technology is the key barrier that hinders individuals from embracing it (Abu-Shanab & Khasawneh, 2014). Furthermore, the main factor contributing to the digital gap and people's exclusion from the information and digital service society is inequality in access to ICT skills because of developing countries' social and economic challenges. In Africa, residents' engagement and use of ICT remains low when compared to other areas such

as Europe and America (Abdulkareem & Ramli, 2021). Respondent 10, a hotel cleaner, describes her standard of living and how it is affecting her access to technology, noting:

> *I am a widow with 5 children, and I work as a cleaner in one of the hotels, so my priority is to have food on our table for my children to eat not to buy a computer to use the portal ... We struggle every time to complete any of our governmental. However, my elder son will join the police when he grows up Insha'Allah and by that all our governmental paperwork would be completed quickly because we would have wasta then (Respondent 10, 54 years old, interviewee, January 2023)*

Respondent 10 is ashamed as she describes that she does not have any means of technology to access the e-portal government owing to her level of income. She pinpoints on how she is already battling to provide the primitive needs like food to her family of 5 children, highlighting that her income cannot cover buying a computer or a laptop to access the internet. Then, she discloses her future plan for her elder son, where she wants him to join the police in order to finish all the governmental processes through his connections '*wasta'*. The adoption of e-government has made the use of computers and the Internet essential success factors, and the inability to do so may cause social exclusion or even marginalization. The "digital divide" refers to the possibility gap that exists between those with access to online resources and those who do not. People without access to the Internet won't be capable of using the online services. The digital gap means that not every one of the citizens are granted equal access to computers and the Internet. This could be due to the fact that some individuals lack the necessary resources, skills, or other elements. In fact, using e-government apps requires that users have computer literacy. The government should instruct its employees and residents on the basics of utilizing computers and the Internet to enable individuals to contribute in e-government development projects. The most significant hurdle to e-government growth was perceived to be a lack of Internet connectivity among some segments of the population. Indeed, a lack of access amongst helpless or low-income residents prohibits them from taking use of programs designed expressly for them (E-Spin, 2018).

The growth of e-government requires a well-developed technical infrastructure and environment. E-government development will be impossible without a solid technology foundation. As a result, governments must implement efforts to grant citizens access to a various ICTs to assure e-government development. Access to ICTs differs between developed and developing nations, and this digital gap has generated a culture of difficulties in ICT adoption in

underdeveloped countries. As a result, a solid technical infrastructure will be supplemented by giving citizens access to diverse ICTs. A country's technology infrastructure is therefore critical to its e-government growth, as ICT infrastructure acts as the e-government services' foundation. Nevertheless, the technological development is a prime driver of e-government development at the international/country stage, the impact of ICT access as a standalone component on E-government development has been largely disregarded (Adam & Alhassan, 2021).

6.2.3. Privacy and Trust Concerns

The term "information system security" describes the safeguarding of data and systems against unintentional or intentional disclosure, unlawful access, or unauthorized modifications or destruction. It speaks about securing the information architecture, which includes all related network, hardware, and software assets, as well as managing who has access to the data. Security may be divided into two categories: network security and document security. Firewalls and access control restrictions should be a part of maintenance and infrastructure protection. Additionally, in order to achieve security objectives in e-government applications, security technology, such as encryption and digital signatures, must be used to safeguard user IDs, bank account numbers, passwords, credit card numbers, and further similar data that is conveyed over the cyberspace and stored by electronic means. The first entails constant upgrading and improvements in order to remain ahead of crooks (E-Spin, 2018). Respondent 11 illustrates her worrisome in trusting the e-portal's her standard of living and how it is affecting her access to technology, noting:

> *Even though I use my credit card to shop online a lot. But when it comes to the government website, with all honesty I don't trust it to use it. Online shops have customer service that you can reach in case of any issue to raise a complain, but if any problem happened with the government website who can I raise the complaint to? The government? Is not that a conflict of interest? I am sure the government will not blame its people or system. So, what is the point of risking my money? (Respondent 11, 26 years old, interviewee, December 2022)*

Respondent 11 expresses her concerns about the e-portal by stating that she uses her cards for online shopping on all sorts of platforms where there is strong customer service, and she knows her money is safe. All stores, in particular, want to keep their excellent reputation, so she knows they would return her money if there were an issue to not risk their image. But then again, in the case of Egypt's e-portal, she believes they will not refund her money if she files a complaint, so

she would rather avoid the risk and pay her penalties in cash instead. The trust connection between citizens and governments cannot exist without security. Security issues may be the most major hurdle to the expansion of e-government services. As a result, safety regulations and guidelines that correspond to people' outlook are a critical step in tackling these concerns (Alshehri & Drew, 2010).

ICT morals and trust are worthy to the success of e-governance projects throughout the world, with the former acting as a watchdog on the dynamics of interaction between the powerful and the weakened, between the wealthy and the disadvantaged, and between those in good health and those who are ill. It seems to be the reason that any assessment of e-governance should start with identifying stakeholders, understanding their interests, and establishing how to support those welfares in an e-governance context. This is due to a stakeholder approach to assuring ethics seems to be the best way to promote such social inclusion. In a European Union study effort, one of the top seven impediments to e-governance was identified as a lack of confidence (Belwal & Al-Zoubi, 2008).

A privacy policy is a written statement of the terms under which information provided by users of a website will be collected and used. Visitors to the website are provided with explanations of how their personal information is gathered, its purpose, and its many applications in the privacy policy (Al-Jamal & Abu-Shanab, 2015). Due to the kind of interactions with e-government websites, people are required to submit more information about themselves. The quantity of information collected by government sites is growing, and consumers have no idea how safe and secure their information is. Users have several worries about providing such information via the Internet. One of these issues is the privacy of users' information. To protect users' privacy, e-government websites must have a privacy policy. Although privacy policies can ensure users' data protection on e-government websites, certain websites do not follow such policies. Even privacy policies cannot be successful if the country lacks privacy protection legislation, or a clear description of what privacy policies should include. The availability of a privacy policy on e-government sites might impact users' faith in them. There are still well-crafted and inadequate privacy policies (Al-Jamal & Abu-Shanab, 2015). Respondent 12 highlights his opinion on the e-portal privacy terms and conditions and compares it to social media platforms, noting:

> *I had a look at the privacy terms and conditions that protect the customer when using the portal and I found that the government can use our information in the case of ' عندما ينصح*

> *بحسن نية'. This sentence made me doubt using the portal because they didn't define good intentions. So, my assumptions are that they can use my private information when they see it fit. This of course made me not use the portal honestly… I saw how the USA are interrogating TikTok and Facebook about their privacy policies, so it is a shame that we don't have a clear policy of our own (Respondent 12, 27 years old, interviewee, August 2023)*

Respondent 12 demonstrates his eagerness as he looked for the privacy policy on the government's website. However, to his surprise he found a sentence, which made him worried about using the e-portal. The e-portal's privacy policy states that the government can use the users' information when they see it for good intentions. He even shades the light on the current congress debates with the social media application TikTok where they questioned the app's CEO regarding their privacy policy, which makes Respondent 12 frustrates as he do not see the same level of protection from Egypt. The frequency with which users use the service and return to the website determines their level of happiness. It has been discovered that providing people with safe and privacy-protected solutions boosts their satisfaction and faith in e-government. Therefore, people's privacy online should be maintained, as it is a vital component of e-government accomplishment (Al-Jamal & Abu-Shanab, 2015). High levels of e-service usage by individuals and corporations necessitate the privacy, secrecy, and reliability of public e-services. These aspects are crucial for developing trust in e-services since it is exceedingly unlikely that customers will wish to engage with government agencies through channels they do not trust. The need to preserve privacy is especially crucial when user-tailored services and user segmentation are utilized, which are based on the processing of personal, and sometimes sensitive, data. Investment is needed to develop a sufficient national infrastructure to meet these issues, as well as to notify citizens that the infrastructure providing privacy, secrecy, and reliability is in place. Hence, a complete set of privacy terms and conditions should explain to citizens how their private data is safeguarded and preserved private.

The trust of citizens is a significant barrier to governments in engaging individuals in democratic activity. It is seen to have been a crucial catalyst for citizens' implementation and use of government services online. The likelihood of using e-government services can be influenced by evaluations of credibility. In relation to trust, it is possible to examine the development of organizations, characteristic-based and cognitive-based history, and understanding of the procedure, the kind of prior contacts with the e-governance system, issues of cultural factors,

threat, management, and technological adoption (Belwal & Al-Zoubi, 2008). Additionally, according to researchers, customers in developing countries are hesitant to use e-government because they are concerned about data protection and privacy, remarkably at the contract stage. People are worried about providing the government with personal information (including name, date of birth, picture, ID number, and credit card information) via unsecure websites and applications (Samsor, 2021). Respondent 13 talks about her experience in using multiple e-portal platforms from different MENA countries and how her parents' opinion influenced her, noting:

> *I have recently moved with my partners to Egypt … we all have been doing all the government paperwork in person as it is safer ... Honestly, I have not tried using the e-portal myself, but my partners told me not to do so ... How would I know if I paid my traffic fines, my father's card information will not be stolen? Who can guarantee such thing? Egypt is so different than the UAE or Qatar, so we need to take care (Respondent 13, 21 years old, interviewee, December 2022)*

Respondent 13 gave a background about herself, where she used to live in the UAE and Qatar with her partners, and now she is living in Egypt. She then explains that she has not tried using the Egyptian e-portal, as per her parents' rules. She points out that her partners' worrisome and assumptions regarding the Egyptian e-portal are all based on their comparison with the rest of the MENA countries they lived in and some rumors they heard from their relatives. Hence, they prefer doing their governmental paperwork in person at the public centers instead. The ICT culture is regarded as a barrier to successful e-Government deployment. Most Egyptians have yet to integrate ICT into their daily life. Most respondents feel that ICT and e-Government are in their primitive phases in Egypt and that it would take time for ICT to become ingrained in Egypt's culture, so they would desire not use it. The preservation of personal privacy should be considered while implementing e-government. E-government privacy issues may require both technological and policy solutions to be resolved. The preservation of individual privacy can be a key hurdle to the growth of e-government. Furthermore, to boost the public's trust in the usage of e-government services, it is crucial to effectively handle privacy problems in e-networks. E-government applications depend on public confidence in the security of personal data communicated with governmental bodies. Citizens are also very worried concerning the confidentiality of their private information that they supply in order to obtain government services as well as the privacy of their daily life. They also stated that privacy and confidentiality must be prioritized while creating and

managing websites in order to ensure secure data acquisition. Since it is challenging to include privacy safeguards after an e-system has been developed, privacy issues must be considered all through the maturity and design of the e-government systems (Alshehri & Drew, 2010).

Almost two decades after the millennium's turn, there remains a widespread perception that government has fallen behind in the digital world. All levels of government are straining to match the service-delivery expectations of citizens who live in an Amazon and Netflix environment. Even meeting the government's internal digital demands for its personnel has proven difficult (Androsoff, 2019). Zaied, Ali and El-Ghareeb (2017) outline particular challenges that Egypt's administration is facing. These challenges include the security and privacy concerns, issues with electronic payment transactions (low credit card adoption and a lack of payment tools for common citizens), difficulty of delivery methods and their impact on the reputation of the quality of electronic services, computer illiteracy and low internet penetration rates, a lack of public knowledge, engagement, and research, apprehension and skepticism of automation, and an inability to modify workflows, and overlap amongst service providers, an absence of unified standards, and a lack of connectivity and information sharing between governmental entities. Hence, Privacy is critical in the establishment of e-Government. Many interviewees feel that they cannot trust e-Government without the Act-of-Privacy (AOP). Also, since e-Government systems based on several levels, such as business, presentation, and data, is essential to be protected so that everyone may be certain that their data is safely updated, then in order to gain public trust, ICT and e-Government should implement AOP to benefit users (Samsor, 2021).

7. Chapter Seven: Conclusion and Policy Recommendations

7.1. Conclusion

Corruption worsens the dilemma of the impoverished and has serious lasting macroeconomic effects, particularly as a barrier to economic progress. Corruption levels vary from one country to the next. Although African nations are the greatest frequently mentioned culprits, corruption is also pervasive and well-established throughout the Middle East. In spite of their topographical proximity and substantial social, economic, and cultural ties, the difficulties modeled by corruption in Sub-Saharan Africa and the Middle East and North Africa (MENA) differ in a few ways, according to the transparency worldwide website. The fundamental causes of corruption in the Middle East and North Africa region are not democratic political institutions mixed with slight opportunity for political society manoeuvre in the midst of sluggish, primarily state-managed economy (Belwal & Al-Zoubi, 2008). Like all modernization processes, changes in e-government are evolving through an act of compromise within what is technically achievable and what is socially desired. This is largely a political problem, because even slight changes can have comprehensive effects for public organizations' internal procedures and external contacts, altering power distribution and material resources. This clearly demonstrates that, including the continuous, huge dynamic range of technological innovation, The issue of e-government adoption in poor countries cannot have a ready-made answer. This is a problem that the donor society has only just started to confront.

Egypt is extremely driven to pursue digital transformation and has high ambitions for achieving efficiency and enhancing e-government services. Nevertheless, senior policy makers in Egypt realize that e-government is about not only making public services available online, and the country has invested in a number of e-government projects since starting its journey towards the Open Government Initiative in 2004. Similar to other developing countries, Egypt has serious issues such excessive government bureaucracy, excessive levels of corruption, and overstaffing in the government institutions. Due to this, successful adoption of e-government will result in less graded repression, fewer bureaucracy, and undoubtedly fewer corruption, which improves service supply to the public, which is the natural outcome of economic progress.

Despite the mixed results in these present literatures, the analysis finds there are solid theoretical reasons to think that e-government may be a crucial weapon in the fight against

corruption by altering the way regulations are applied, limiting officials' discretion, and enhancing transparency. Even though, government officials are more likely to be corrupt because the government has more control over data circulation than the general people. Monitoring government activities and educating people about bureaucratic processes are essential for bridging the void between the citizens and the government (Li, Wei, & Ma, 2021). E-government is built on an ICTs platform. It offers individuals with a flexible and easy methods of communicating with government entities and monitoring the government's performance personnel (Li, Wei & Ma, 2021).

The aim of this thesis was to explore the influence of e-government efficiency on administrative discretion in local governments in order to reduce corruption in Egypt via transparency. Interviews were conducted in order to uncover proof that the success of e-government had an effect on reducing the government's corruption, as e-government removes the bureaucrat from the day-to-day process and reduces some of the discretion involved with face-to-face communication. According to the interviews, individuals acknowledge that the e-portal assisted them in saving time, effort, and even money while completing any official form. However, this is only true for those who are digitally literate. People with no access to the internet or even understanding of this digital instrument, on the other hand, are unable to utilize the e-portal and perceive it as a burden. It is vital that authorities tap into this more available population and examine a range of techniques for enticing Egyptian individuals to use the e-portal more actively. With their engagement, Egypt's corruption rate will decline at a far faster rate.

Many changes must be accomplished before Egypt can attain lasting democracy, the most essential of which is public access to information, which allows genuine government accountability and the restoration of faith in the government. There is overwhelming evidence that open government frameworks, when effectively implemented and enforced, may promote a variety of advantages for governments and society. Greater access to information might enhance risk management, economic performance, and bureaucratic efficiency in governments, resulting in faster GDP growth, lower corruption, and, most importantly, improved standards in public administration and delivery of the service. According to studies of the effects of access to information legislature in numerous countries, knowing that material would ultimately be made public can be enough to push up standards of decision-making and record-keeping practices among public employees (Sherif, 2015). Egypt's present political change necessitates the correct

application of the Open Government concept. The results show that people and the Egyptian government share fundamental beliefs about information sharing and that both groups are typically at ease employing social media for exchanging information and opinions. The findings also demonstrate the necessity of a consistent representation of the actual citizen context in any open government effort in order to promote information sharing. Discoveries do, however, also demonstrate a meaningful need for aid and support in identification of the data and information supplied. Open access to related data and information, which is essential to the success of open government initiatives, should consider the informational needs of interested parties and other stakeholders. To find a mutual ground between citizens and governments and restore confidence and faith in the government, research on how such informational requirements may or can be acknowledged has not yet been conducted.

Although the Egyptian economy is progressively improving, more work has to be done to ensure an increase in government effectiveness and service supply. Since the people' usage of e-government is yet in the future, it cannot be regarded as a finished project. However, it is abundantly obvious from the interviews that the government workforces lacked the necessary skills to cope with the transformation management approaches and the e-government environment that is needed to foster acceptance of the project, which was mostly lacking. Every study has flaws that can be addressed in future studies. This research is not an exception. Since this research, for instance, solely examines the connection between corruption and e-government, it is critical to investigate whether other factors may also influence this link. The scope of the sample selection will also be widened in the upcoming study, which will examine the connection among corruption and e-government down to the municipal level of prefectures.

7.2. Policy Recommendations

Egypt's e-government concept is citizen-centered, with services presented in a citizen-centric manner. Egypt expanded its e-government program and achieved significant progress in e-participation. Yet, Egypt remains a step behind the other Arab nations, notably Gulf countries who have lately established e-government projects. Egypt is still facing several hurdles in properly implementing e-government programs. Open access to related data and information, which is essential to the success of open government initiatives, must consider the informational needs of interested parties and other stakeholders. To find a mutual ground between citizens and governments and restore confidence and faith in the government, research on how such

informational requirements may or can be acknowledged has not yet been conducted. To boost implementation and increase citizen adaptability in Egypt, e-Government aspects are offered. These elements are surrounded by governing, social, and information technology components:

- **Punishing the corrupted officials**, where the internet's broad reach may be utilized to distribute information about corrupt politicians. The Central Vigilance Commission (CVC) of India, for example, identities of dishonest officials are made public on its website. The result of such distribution would be to impose a significant non-monetary penalty (social or psychological) on perpetrators, which should minimize corruption (Ojha, Palvia & Gupta, 2008).
- **Enhancing the e-portal functionalities** ensuring that material placed on e-government sites is comprehensive and up to date; providing effective search engines; and providing timely email responses to citizen enquiries. A well-functioning (365 days a year, 24 hours a day) e-government system that experiences pre-announced outages (if found) would assist to reduce uncertainty. Also, the administrative and technological experiences of various nations should be analyzed in an attempt to learn from their expertise in the field of e-government implementation. Plus this, the workflows and processes must be examined to guarantee accessibility, simplicity, efficiency, and cost savings while using E-government services. An example of enhancing the e-portal is to unify the internet's home page operating policies and the basic criteria that will be tailed by government agencies to develop their webpages for easier connecting in the future.
- **Conducting a routine E-readiness assessment research** that enables stakeholders to comprehend the current state of the communications network’s infrastructure, the legal and regulatory framework, the number of human resources and skills, and the main bottleneck inside a country's borders.
- Egypt’s circumstance aggravates the irrational psychology of corrupt authorities and, to some extent, fosters the prevalence of corruption. As a result, it is a must that **educational initiatives** for the young generations be created to enable individuals learn how to use information technology to engage in the battle anticorruption. Investment in e-government initiatives might ultimately turn into a way for politicians to siphon off tax pounds if individuals are not adequately taught how to use technology.

- Reluctance to adapt digital processes is due to inflexibility or fear of change, especially for the elderly generation. Which means if individuals can't use the technology, they can't assume responsibility; thus, **elderly citizens training** is a crucial component of e-Government. It is necessary to develop and offer free executive training programs to aid people in accessing e-government services through kiosks, and community centers, such as IDCL, Internet Driving Computer License, to guarantee that most of the public benefits from e-services. Create pertinent e-content and training programs in collaboration with the private sector. Information produced by citizens should be pertinent to the community.
- A collaboration with the business sector is required to deliver excellent **government officials training** on the value of E-government and how its adoption would not damage their jobs, since people's competencies and skills are a foremost factor in the victory of e-initiatives. As a result, educational and training programs must be prioritized. To minimize the brain drain, incentives must be given to staff that aren't always monetary. Additionally, staff members must feel like they are a part of the administration through taking part in decision-making. Therefore, by ensuring that there are programs available for managing future technical and commercial improvements, Egypt may get ready for long-standing solutions to challenges. Along with that training programs in IT skills and customer service for its workers is essential to qualify them to connect with e-government sites, which would boost staff response.
- Introducing the idea of e-government to those working in the public sector through the media, as well as highlighting its advantages and the significance of its implementation. Also, there should be several **awareness initiatives** to educate the illiterate citizens on the advantages of e-government in order for them to completely accept and assimilate it into their culture. This can be done by organizing and carrying out marketing campaigns that use print (newspaper and magazine articles), broadcast (TV and radio shows), and online (e-media). Also, the government should put more of an emphasis on a number of issues, including using mobile platforms to deliver online services to the underprivileged, developing underdeveloped areas' infrastructure to better serve the underserved online and to spread awareness of the advantages of information technology among all government organizations, not just those in technology parks.

- The creation of content and the delivery of services via **mobile app platforms** require special consideration, so it is best to develop suitable apps that include audiovisual and textual components, as well as instructional activities, into e-government initiatives.
- Egypt must actively look for ways to increase the availability of broadband Internet to its people to encourage the usage of e-services inside its borders. To increase internet usage rates, however, only few countries organise free Internet access to government services via initiatives like booths, free Wi-Fi, or free PCs for students at schools and universities. Some nations, like Brazil, are working diligently to find a solution (da Silva, Zitkus & Freire, 2023). Public access points are effectively provided by the State Treasury of Bahia, enabling locals with no private Internet access to take advantage of the complete collection of online tax services. This illustrates that there are doable ways to increase people's access to broadband Internet so they can use e-services more effectively (da Silva, Zitkus & Freire, 2023).
- The government and banks must work together to expand fintech implementation forms in e-government and create innovative methods for connecting individuals to e-government. In order to manage all online transactions, a **separate e-payment system** linked to all Egyptian bank channels should be part of the Egyptian E-Government webpage.
- E-Government and e-Commerce apps will be widely utilized only if the general public trusts and believes that their transactions are dependable, secure, and that their personal information will not be exploited. Thus, an appropriate infrastructure should be established to ensure that **personal data privacy**, confidentiality, and dependability are always protected, such as developing of a framework for national security strategy, legislating to protect personal information; promoting of positive Internet usage and harmonizing of the present legislation to accommodate new ways of dealing via electronic media.

7.3. Suggestions for future studies

This thesis is limited to the Egyptian e-government case study that was supplied. It is anticipated that other cases will be properly investigated in the future. This will allow the model to be tested to see how useful it is. This study's additional projects include comparing Egypt's e-government efforts against those of other MENA (Middle East and North Africa) countries. This will assist us in identifying the major problems and barriers to e-Governance adoption in this area, as well as how to address them. At the conclusion of such study, a broad conceptual model for the whole MENA region can be developed. Such a model would be useful in building protections and

checks against e-government adoption in the MENA region, as well as analyzing whether or not the regional conceptual plan for e-government expansion is effective. It should be highlighted that this study overlooks the opinions of decision-makers in government and the private sector towards e-governance. Perhaps another survey will be done to find out what they think about the objective of e-governance initiatives. This will enable them to decide if they want to foster interactive discussion, consult the public, and include people in decision-making in order to establish e-democracy, or whether their goals are limited to providing information, enhancing the quality of e-services, and concentrating simply on efficiency. Every study has flaws that can be fixed in next investigations. This research isn't an exception. While the primary emphasis of this study is the connection linking e-government and corruption, it is crucial to determine whether other factors have an influence on this connection. Future studies will further broaden the region of sample selection and examine the connection between corruption and e-government at the prefecture and municipal levels.

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ANNEX 1: Interview Questions

Set 1 - For the people who have used the e-portal at least once:

1. Can you please state your age?
2. Can you please state your gender?
3. What is your highest educational degree?
4. Have you completed any services using Egypt's government portal?
5. Did you utilize it to have your traffic fines checked or paid?
6. How simple is it to browse the e-portal?
7. Why did you decide to use the e-portal?
8. Did you spend less time checking/paying your traffic fines than at the police station? Can you estimate the efficient time in minutes?
9. Did you have to pay bribes/ petty money to speed up the procedure of paying your traffic fines at the police station? Can you estimate the amount?
10. Do you believe the e-portal reduce corruption (e.g., bribes/ petty money)?
11. How would you feel if you couldn't use the e-portal anymore?

Set 2 - For the people who have not used the e-portal at all:

1. Can you please state your age?
2. Can you please state your gender?
3. What is your highest educational degree?
4. Have you completed any services using Egypt's government portal?
5. Why haven’t you used the e-portal before?
6. Do you believe the e-portal can reduce corruption (e.g., bribes/ petty money)?