Digitalization and Fighting Corruption: Evidence from Best Practices and Egypt′s Public Sector During Covide19

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ABSTRACT

Purpose: The main contribution is to analyze the link between digitalization and fighting corruption and to determine to what extent the public sector performance could be improved and benefit from this linkage, especially during the COVID19 period.

Design methodology/approach - The paper adopts an analytical descriptive methodology approach derived from different theoretical kinds of literature and empirical case studies to learn lessons to apply to the Egyptian case. In addition, this research is based on investigating the validity of a model that reflects the relationship between the two variables during the crisis period and the potential outcomes of that application.

Originality- This research provides a systematic assessment of digitalization's impact on corruption through a context-dependent evaluation. It guides addressing and mitigating corruption risks in the COVID-19 response at the state level, especially in the Egyptian case.

Findings- Although some studies provide evidence of how digital government contributes to reduced corruption, it doesn't ensure success in many cases. Digitalization is expected to affectDigitalization is expected to affect corruption significantly. A higher level of digitalization would result in a less corrupt government. Digitalization supports governments in fulfilling their responsibilities in a technologically enhanced way through well-prepared infrastructure. Digitalization could be seen in the context of the citizen's access to technology, the level of skill development to use the technology, and the actual use that will increase during any digital government initiative. The presence of a well-developed ICT infrastructure is vital for serving as transparency and anti-corruption tools, but at the same time, these do not mean success.

Keywords: Digitalization, E-Government, public sector, Corruption. COVID19.

Introduction

Corruption has traumatic effects on societies economically, socially and politically. It hinders the state's economic growth, lowering the individual living standard and negatively affecting economic efficiency due to the inefficient allocation of resources. Corruption also causes an unfair distribution of income and wealth in a society. Moreover, corrupt practices usually exempt the wealthy, increasing the gap between the poor and the rich. Thus, states and international organizations seek to eliminate this phenomenon. Egypt is at the forefront of these countries, as it has ratified the international, African and Arab conventions on combating corruption.

Corruption continues to be a severe problem all over the world. According to the World Bank, about $1 trillion is paid in bribes yearly. By this meaning, international organizations such as the United Nations, the World Bank, and OECD have made corruption control the main focus of their agenda. A noteworthy development in this regard was the United Nations Convention Against Corruption adoption in December 2003, where countries agreed on increasing cooperation levels in fighting corruption. (Goel R.K, et al. 2010: 433)

In times of crisis, Corruption emerges obviously. Pandemic outbreaks and natural disasters are considered fertile ground for corrupt practices. To fight the COVID-19 pandemic, governments need to act urgently to contain the crisis, which is the worst pandemic in a century. In the short term, managing the health crisis requires emergency authorities to procure medical supplies swiftly to save lives. This coincided with many corrupt practices across the globe in public sector agencies, especially the health care sector.

Many countries adopted the digital transformation of government as they believed that it would reduce corruption opportunities, cutting red tape through the automation of public service delivery. So, digital transformation allows service users to be part of the solution. However, another argument is the relationship between digitalization and corruption level as corrupt action is practised through a person inside the organization or government. When governmental services are digitalized, corruption shifts from an offline activity to an online practice.

One of the main goals of digital government is to decrease corruption. In the digital age, governments can use the information to reduce crime and increase government transparency, accountability, efficiency, and citizen involvement. Human rights advocates confirmed that the successful use of ICT in governance requires access to information and the ability to share information with citizens. (Oleksii, M. 2022:82)

Internationally, public administration and society are also influenced by technological transformations. Countries that do not prioritize the integration of digital technology at all levels will suffer. The digitalization of public services in developing countries sends an intense massage at all levels on the need for digital transformation to move towards an era of transparency, quality of public services, and the fight against corruption. The ongoing digital revolution has changed public administration by promoting new technological solutions for digitalization.

The most widely used tools are websites and mobile phone applications, extensive data analysis, newly emerging Distributed Ledger Technology (DLT), and artificial intelligence (AI). All these serve the fight against corruption by promoting access to public information, monitoring officials' actions, digitalizing public services delivery and enabling corruption reporting.

However, the provided content and user characteristics are essential to use these tools, as their existence and availability do not mean the best usage. The success of ICT interventions against corruption mainly depends on their appropriateness for domestic needs and contexts, cultural backgrounds and specialized experience.

This study highlights the relationship between Digitalization and combating Corruption in the crisis period (covid 19) through three main sections.

RESEARCH PROBLEM

Many researchers studied the role of ICT in service delivery. At the same time, some extant kinds of literature have increasingly examined the linkage between ICT development (digitalized government) and corruption, focusing on its positive effects in combating corruption.

It is often thought that ICT works as a positive tool making governments more transparent, accountable, and less corrupt. However, the evidence on this is often misunderstood, especially in crisis times, as the governments' responses to covid 19 pandemic have shown different areas of corruption risks, although the digital transformation processes and efforts in these governments.

Hence, the impact of digitalization on corruption is still unclear, as it can help promote transparency, accountability, citizen participation and realizing advocacy and closer interaction of government and citizens on the one hand. However, it can create new opportunities for corruption, especially in crisis times. So, though the influence of digitalization in ensuring transparency and fairness is confirmed, there is a limited theoretical understanding of how digitalization affects corruption, especially in crisis times and in the Egyptian case.

So, the main question is, *"**H**ow **could digitalization** act as an effective **anti-corruption** strategy in the Egyptian public sector during covid 19 in light of world practices?*

METHODOLOGY

The adopted research methodology in this study will be qualitative. A comprehensive literature review is made to understand the primary research objective derived from the analysis of the correlation between the two variables of the study. A theoretical review is provided to fulfil the goals proposed and answer the questions mentioned above, in addition to applying them to the Egyptian case study.

To answer the above guiding questions, the available literature on applications and other reviews of digitalization against corruption were systematically and comprehensively searched, filtered and assessed. This research adds to the literature by using cross-country data collected from reviewing the World annual reports focusing on 2020- 2022. This period coincided with intensive technology use, and digitalization implementation was more apparent due to the pandemic. Also, this study will investigate the provided in this regard.

The author provides a model Figure (1) and tries through the study sections to investigate whether the availability of digitalization infrastructure and requirements could lead to controlling and reducing corruption in terms of (increasing transparency, accountability, foreign investment opportunities, improving information accessibility and realizing national economic growth rate) or creating new opportunities for more corrupt actions, with focusing on crises periods (COVID19).

MATERIAL STUDIED

This paper includes three sections as follows:

Section I: discusses literature review and conceptual framework.

Section II- Fighting Corruption Through Digitalization During Covid 19 in best Practices.

Section III: Digitalization and Controlling Corruption in The Egyptian Case.

The last part contains the conclusions in which important contributions are provided.

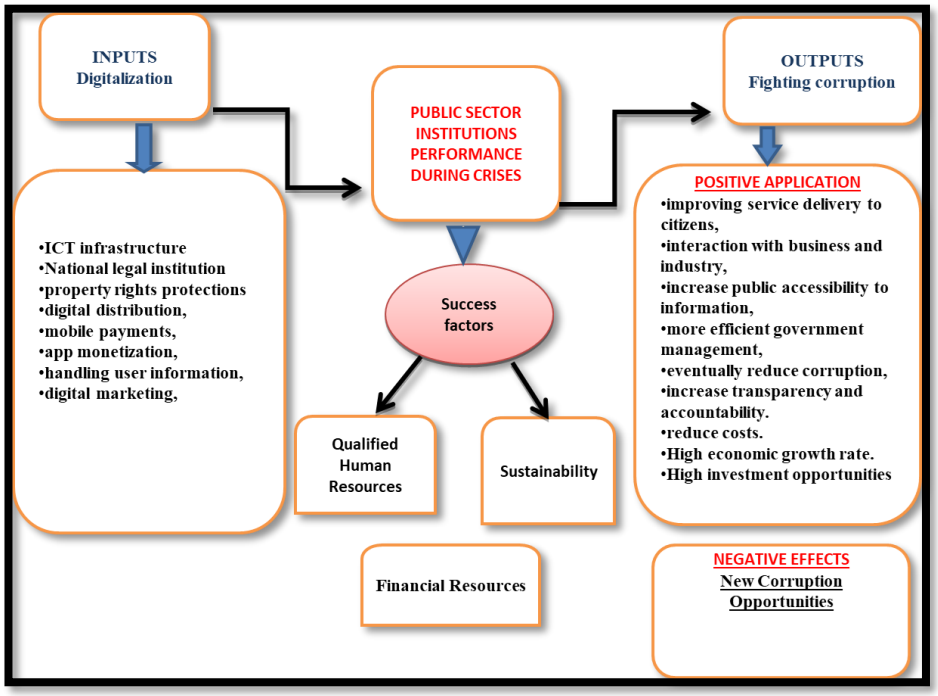

Figure (1)

Source: by the author.

The previous model tries to investigate whether the availability of digitalization infrastructure could lead to controlling and reducing corruption in terms of (increasing transparency, accountability, foreign investment opportunities, improving information accessibility and realizing national economic growth rate) or creating new opportunities for more corrupt actions, with focusing on crises periods (COVID19).

SECTION I- LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK.

This section will discuss three main points: firstly, a wide range of literature reviews the research variables' theoretical framework; secondly, the linkage between the two variables in the public sector institutions; and thirdly, the effect of the crisis on the two concepts of the study.

1.1. Understanding Corruption and Digitalization

Corruption does not have a unified definition. Some organizations do not even provide a detailed description of it. However, all its definitions include abuse, delegated power, and private gain. TI defines it as "behaviour on the part of officials in the public sector, whether politicians or civil servants, in which they improperly and unlawfully enrich themselves or those close to them, by the misuse of the public power entrusted to them". (Adel, S.:2021:5)

Based on this conceptualization, corruption has been developing into something more specific based on where and under what circumstances it occurs. Corruption as a phenomenon can be observed in all societies that have reached a certain level of complexity. At this point, the definitions of corruption should have some criteria that shape the definitions' essentialities. Moreover, some questions should be put, such as "Based on what do we decide whether an act is corrupt or not?" and "How can we determine the abuse of public office precisely?". (Telatar, A., 2019:16)

As such, the concept of corruption is used to include diverse phenomena in many contexts which differ in the prevailing norms of good conduct. Hence, many characteristics of corruption are context-dependent. In addition, corruption can take many forms, including bribery, fraud, embezzlement, extortion and nepotism. (Adam, I. et al. 2021:1). By this meaning, some excessive governmental regulations in different nations have created perfect environments for public officials to get bribes from citizens. (Relly, J. 2012:336)

In this way, the main drivers of corruption can be seen in economic, political and cultural factors. Corruption has resulted in power monopoly and a lack of transparency and accountability. Given these causes, research has recently been conducted on how digital government could act as an anti-corruption strategy. (Adam, I.,2020:1)

The high and low corruption index in the research owned by each country resulted in two main factors: bad bureaucracy, extortion, bribery, wastage of the budget by state officials, and constraints on access to information. (Asni, N. 2022:1)

There are different types of corruption. Petty bureaucracy is the most obvious and usually characterized by low-level administrative crime, and the last is massive political corruption, typically grand in nature. (Adam, I. et al 2021:1)

Petty corruption is significant. According to Transparency International Anti-Corruption (TIAC), it is everyday abuse of delegated power by public officials in their interactions with citizens, who often are trying to access essential services or goods in places like hospitals, schools, police departments and other agencies (Telatar, A.: 2019:16). Corruption is also seen as "the misuse of public office for private gain. This definition understands corruption within a bureaucratic context and associates corruption with bribery of public officials, in other words, petty corruption. It often refers to street-level bureaucrats being corrupted during public service delivery (Adam, I. et al. 2021:1)

On the other hand, grand corruption is defined as "the abuse of high-level power that benefits the few at the expense of the many and causes severe and widespread harm to individuals and society.". In contrast, political corruption is the "manipulation of policies, institutions and rules of procedure in the allocation of resources and financing by political decision-makers, who abuse their position to perpetuate their power, status and wealth.". (Telatar, A.: 2019:16)

Corruption has severe repercussions at a state's economic, social, and political levels. Economically it affects economic growth due to inefficient resource allocation, and, as a result, it affects the state budget and causes an unfair income and wealth distribution. It also discourages local and foreign investment as it increases the costs and risks of investment, as no company would want to invest in a corrupt environment. (Adel, S.:2021:5)

Additionally, corruption increases social inequalities and undermines trust in the state, institutions, and public administration by diminishing their ability to provide appropriate public services and to ensure a favourable environment for private sector development. In extreme cases, corruption can lead to a failure to recognize the state's legitimacy, causing political and economic instability. (Androniceanu, A. et al. 2022:6)

There are three main required conditions for corruption to flourish. Firstly, public servants must have a specific authority to administer, change or design regulations. Secondly, when someone has discretionary authority, he must be able to get money or gifts into his account through the rules set by the institution. Lastly, controlling the institutions must be weak, with low incentive to work without corruption. (Haafst, R.2017: 4)

Hence, corruption can grow as soon as an institution becomes weak, and civil servant has an incentive to create or extract gifts by using their discretionary authority.

Given this background, corruption has four determinants with economic and demographic factors. If salaries are low, people are more vulnerable to crime. Second is civic involvement in politics. If civic involvement is intense, the tendency to corruption is higher. The third group, the judicial and bureaucratic factors, includes the rule of law and the effectiveness of the government. If the rule of law or the government's efficacy is low, there is increased corruption. The last group comprises geographical and cultural factors. Variables included in this group are, for example, the geographical location of a country or the primary religion of a nation. (Haafst, R. 2017:7)

As for digitalization, scholars have recently distinguished between digitalization and digitization. Digitalization is using digital technologies and data to create revenue, improve business processes and create an environment for digital business. Digitization is the technological environment needed for digitally related social change, and digitalization is the actual change. Others identified Digitalization as transforming all information types (text, sound, visuals, video and other data from various sources) into digital language. Digitalization of products and services shortens distances between people and things and increases mobility. (Reis, J. et al.2020:448)

Digitalization has three different concepts which are closely linked: digitization, digitalization, and digital transformation. Digitization is about conversion, and then, after conversion, stage two is digitalization, which means access to a digital form. Finally, phase three is referred to as the actual digital usage, as shown in (Figure 2). (Haafst, R. 2017, p. 8)

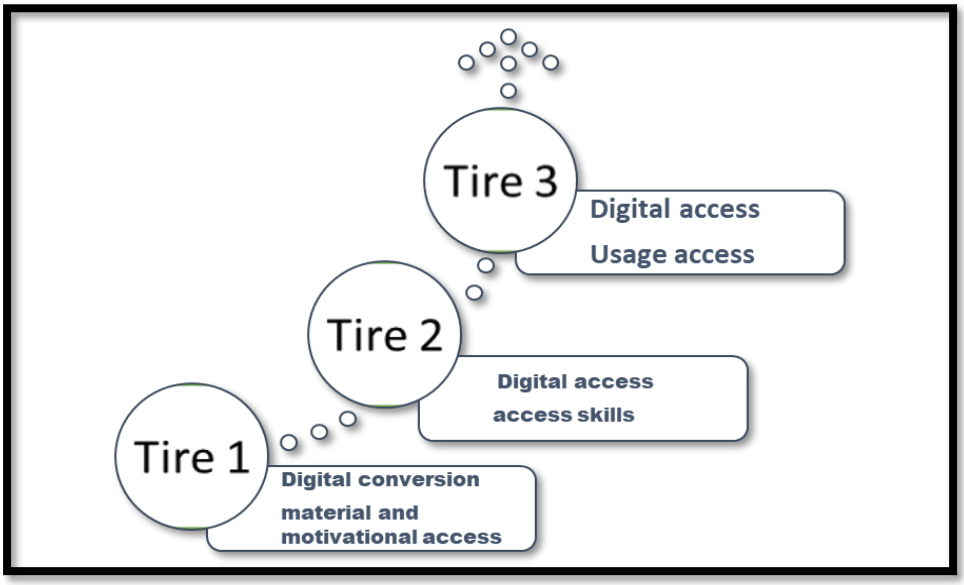

Figure (2)

Source: Haafst, R. 2017, p. 8

Hence, infrastructural access is still critical for digital inclusion. Internet access is crucial for inclusion and can open new advanced services for different groups with different needs, which has to be considered in each development planning phase.

A crucial part of advanced digital government is to provide citizens with integrated public e-services. It becomes critical to maintain the legitimacy of government by ensuring that all citizens have the tools to access public services. (Wihlborg, E. et al. 2017:2549)

Digital Divide focuses on demographic and socioeconomic differences between adopters and nonadopters. Many required skills are needed to access government services which have increased with digital government emergence as social and digital inclusion are interrelated. Digital and "offline" literacy have been highlighted as complementary aspects to be addressed to avoid creating new obstacles to digitalization. (Wihlborg, E. et al. 2017:2553)

There are four digitisation capabilities: **S**ervices, **P**rocesses, **D**ecisions, and **D**ata **S**haring. **S**ervices, Digitization of touchpoints Consolidated online access platforms, Citizen and business portals, Messaging platforms, and Payment platforms are considered examples. **P**rocesses contain the Automation of transactional operations—decisions including sensors deployment as mass transit and cloud-based data storage. In **D**ata **S**haring Unified, open public registers and peer-to-peer data sharing could be found. (Corydon, B. et al. 2016:3)

In line with these categories, The more the advent of new ICT, the spread of access-to-information laws, and the growth of many more citizen and news media voices, the more public knowledge of corruption. (Relly, J. 2012:336)

As such, Corruption issues become more apparent to the public with the new ICTs advances and the spread of access-to-information laws. It is an illegal action regarding its definition of exploiting public power for private gains. So, the deviation from general duties and responsibilities for realizing personal interests is essential to the concept. Such a relationship is going to be thoroughly discussed in the next part.

1.2. The relationship between digitalization and corruption in the public sector

There are different definitions of Digital government. One definition is ‘‘public sector use of the Internet and other digital devices to deliver services, information, and democracy itself”. Another definition is ‘‘the process of connecting citizens digitally to their government so that they might access information and services offered by government agencies”. Additionally, the mechanisms through which digital government works to reduce corruption are straightforward: e-government reduces contact between corrupt officials and citizens and increases accountability and transparency. (Andersen, T.B.2009:202)

The ICT use through e-government can contribute to corruption reduction activities such as bribery by making more information available to the public and increasing transparency in public sector transactions. (Fan, Q.et al.2021:498)

By this meaning, Digital technologies can fight corruption by enhancing public supervision by improving trust, transparency, and accountability by sharing information with the public.

Typically, information is only available to a limited number of stakeholders, and transparency ensures that the data are widely available to the public and supports the creation of accountability by providing the public with information about what is happening inside the government. This enables the prevention of corruption. So, being accountable implies responsibility for one's actions and their consequences. (Salam, D. et al.2021:17)

Contrariwise, Although ICT is commonly studied as an anti-corruption tool, it can also create corruption. It can provide new corruption opportunities through cryptocurrencies or misusing well-intended technologies through the dark web. Some studies focus on the possible adverse use of ICT for corruption. Similarly, investment in ICTs can be corrupted, representing a negative impact. Such examples underline the fact that ICT is not per se a solution against corruption, and it can also end in benefits and gains for corrupt officials. However, it is yet unclear under which circumstances ICTs facilitate rather than prevent crime. (Adam, I. et al. 2021:2)

Hence, digitalization may decrease or increase corruption depending on the type of intervention, impact channels, and context (Bhattacherjee, A. et al. 2018: 705). It can reduce corruption by providing easier access to more information and improving the transparency of government transactions with stakeholders. By increasing public visibility and strengthening monitoring, corrupt bureaucrats seeking to engage in corruption face a higher risk of getting caught. (Fan, Q. et al. 2021:496)

One important aspect of digitalization is to offer a more user-centred approach where citizens and businesses become the focus as the receivers of services. Digitalization encourages citizen participation in governance. It provides a tool to reduce the distance between decision-makers and those suffering consequences. It assists in overcoming underhand transactions and agreements between public officials and other stakeholders. (Laze, D. 2021:12).

As mentioned above, technology advent is a Double-edged weapon as it has a dual role which could reduce corruption by enhancing interaction between governments and citizens, as many researchers suggest. The development of Internet-based technology enhances transparency and minimizes the degree of information inconsistency, thereby mitigating corruption.

In local public administration, digitalization increases accessibility and efficiency and reduces corruption. Digitalization requires public spending on digital investments and the training of civil servants. In the medium and long term, it creates efficiency by reducing public spending on bureaucracy, enhancing working time, and improving communication and general service quality. (Shkarlet, S., et al. 2020:122)

To recap, the public administrations responsible for fighting corruption should have the capacity to follow up. The public might be unable to find and process the data due to overload information. Technologies might help to overcome this problem in the future by using AI algorithms for the automated detection of corruption, which enables one to couple with data from multiple sources to detect crime.

1.3. The effect of the (COVID-19) crisis on digitalization and corruption

A novel and exceptionally infectious disease emerged at the end of 2019, which had a profound global impact. The new coronavirus spread rapidly and took over the planet. There have been more than 213 million confirmed cases and close to 4.5 million deaths as of August 2021. Countries implemented containment measures to limit the spread of the COVID-19 virus, such as social distancing, economic effects and psychological costs. (Farzan Egan, M.R., et al:2021:1)

Digitalization increases effectiveness in service delivery from the public authorities to the stakeholders, such as citizens and improves the overall performance of the public administration. It was strongly presented as a tool for dealing with the last two years due to the restrictions imposed by the COVID-19 health emergency. The intensive adoption of digital infrastructure, tools and channels became essential in providing continuity of socio-economic activities and keeping stakeholders engaged and informed. (Laze, D. 2021:21).

During the pandemic of (Covid-19), governments worldwide have imposed quarantine through the lockdowns of cities and economies. Governments had to launch initiatives in terms of food and basic medical supplies to mitigate the pandemic effect. (Tijjani, F, 2022:13)

Corruption thrives in times of crises, and pandemic outbreaks are fertile ground for corruption. To confront the COVID-19 pandemic, governments had to act urgently to save lives which required emergency power in managing the health crisis to procure medical supplies implementing standard procurement rules. Responding to the economic and social consequences of the health crisis led to deploying tremendous amounts of resources in a short time to protect the vulnerable, save small businesses and reactivate the economy. (Santiso, C.: 2020:4)

Additionally, to confront the COVID-19 pandemic, technology was the best solution in the face of corruption. Technology and data-based anti-corruption solutions are essential to mitigate the corruption risks of emergency response. Open data are crucial in emergency medical supplies procurement during the pandemic and as a part of the government's economic response to confront the economic and social repercussions of the crisis. (Santiso, C.: 2020:4)

The COVID-19 crisis was a natural accelerator to the digital transformation of governments and the urgency to implement fully digital public services. The pandemic was a “stress test” on a global scale measuring the digital flexibility level of our economies, societies and governments. Tech solutions are critical to corruption-proof, the public health crisis response, and the recovery packages governments are designed to mitigate its economic and social consequences. Tech-based and data-driven transparency is becoming more urgent to realize integrity in crises. (Santiso, C.: 2020:6)

Accordingly, Covid 19 affected the corruption level in different ways. The supply shortage of COVID-19 vaccines creates opportunities for corruption throughout the world. (Farzanegan, M.R., et al:2021:1)

This means there are dangerous effects on public corruption in crises (COVID-19). Countries with health sectors that suffered from corruption before the problem could be less effective during the COVID-19 pandemic. The level of corruption is positively and significantly associated with COVID-19 death rates across countries.

Other countries have imposed restrictions on speech and information flow to contain the spread of rumours. So, they consider that adopting technologies threatens to undermine institutional balances, weakening the authority and independence of accountability institutions and decreasing civic space in the long term. (Anderson, J.et al. 2020:3)

There are six pillars to enhance the anti-corruption effort during COVID-19, which are using simple processes as much as possible, Balance discretion with transparency and accountability by increasing agility; clear communication and creating direct links for the public, focusing on where the money is by Applying a risk-based approach, delivering services is a people business, and people are an asset and a liability, Praise exemplary work but report on taken anti-corruption actions and sanctioned individuals and firms, reviewing what is working and what is not. (Anderson, J et al..2020:2)

Technology has been intensively used during COVID-19 to ensure Efficient, Transparent and Accountable Resource expenditure. The extensive availability of technological tools in financial resource management during times of crisis has allowed the world to manage large amounts of financial resources in an efficient, transparent and safe way. In the context of the COVID-19 situation, creative solutions have been considered, including preventing, containing, diagnosing and treating COVID-19 infections. Transparency and accountability of government institutions also have been enhanced during the pandemic, including open contracting policies, data platforms, and digital payment platforms. (United Nations: 2022:16)

To recap, Countries should, therefore, seek to make use of such tools to promote effective management fully, efficient expenditure and control of crucial financial resources to employ its limited resources effectively during the crisis and accordingly could control the corrupt actions and activities practiced by public officials which thrives in such times.

SECTION II- FIGHTING CORRUPTION THROUGH DIGITALIZATION IN BEST PRACTICES DURING THE COVID-19 PANDEMIC

To fight corruption to ensure sustainable development worldwide by 2030 and beyond, the Sustainable Development Agenda approved in 2015 by the United Nations, which includes seventeen goals, underlines in goal 16 some points that address the corruption issue *(target 16.5: Substantially reduce corruption and bribery in all their forms)*. (Emara, A.2020:574)

To measure the level of corruption in a country, the CPI is used as an indicator using a scale of 0 to 100, where a value of 0 indicates that the government is very corrupt, and a value of 100 indicates that the country is immaculate (Asni, N. 2022:1)

Worldwide ICT spending is projected to total **USD 4.1T** in 2021; this level of significant investment needs effective digital strategy and leadership for digital transformation. (Ghoneim, A. 2021:4)

Worldwide, there are many success stories where using an Ombudsman helped fight corruption and promote effective service delivery. Complaint boxes should be put in all outlets to allow people to communicate with the Ombudsman. A study showed that 76.4% believed that in case of reporting a corrupt official, either the reporter will be harmed or nothing will happen therefore appointing an Ombudsman who has deputies in each outlet of the Authority and who is given the authority to punish the corrupt official on the spot is essential for fighting petty corruption. (Kamel, I.et al. 2021:16).

In line with covid crisis, some standard public procurement procedures were applied, and new reporting requirements were introduced to ensure transparency and accountability. Several organizations made use of these reporting requirements to account for public institutions. This resulted in the detection of procurement irregularities and even the resignation of senior government officials leading the government's COVID-19 response. (Canares, M., et al. 2021:4)

2.1. The best practices in fighting corruption before COVID-19

Before COVID-19, many countries achieved an unprecedented level of digitalized government, which assists in avoiding the pandemic's negative impacts by using advanced analytics systems.

Singapore set up a nationwide network of sensors that will stream data for all agencies in this regard. Denmark was able to create an algorithm for classifying newly registered businesses. Now, more than 98 per cent of the tasks involved in registering companies take place without human effort. Using a digital tool to link more than one billion data items from 30 sources, the UK tax authority has claimed an additional £3 billion in tax revenue since 2008. The United Kingdom also launched its digital transformation program by digitizing 25 essential services. (Corydon, B. et al. 2016:1,3,5)

The government of India embarked in November 2016 on a demonetization intervention, during which over 80% of currency notes were removed from circulation due to the role of cash in enabling corruption and black-market actions. Although India's demonetization led to a significant and lasting increase in digital payments, it remains unclear how the moving to digital payments affected corruption. (Setor, T. K., et al. 2021:2)

In Pakistan, the entire tax department restructured ICT systems through which contact between tax collectors and taxpayers was reduced. The Department of Budget and Management has established an online e-procurement system that allows public bidding for suppliers, which has increased transparency in transactions. In the Indian state of Andhra Pradesh, 214 deed registration offices have been computerized, making the process transparent. (Andersen, T., B. 2009:201)

2.2. The best practices in fighting corruption during COVID-19

In South America, Peruvian and Argentinian officials and their families received vaccinations before officially being eligible. There have also been reports of corruption scandals related to the COVID-19 vaccine in **B**razil and **V**enezuela. (Farzanegan, M.R., et al:2021:1)

In the case of **G**uatemala, government institutions are pushed to publish complete data for all COVID-related procurement into the public sector. This eliminates current procurement flows, which were hindered by incomplete and irregular procurement publication data. So, procurement data dissemination becomes more effective and valuable as those in power seek to exhibit their commitment to supporting the people of **G**uatemala during an unprecedented crisis because of the undiscriminating virus. (Canares, M., et al. 2021:4-5).

In **B**razil, the pandemic brought different opportunities for corruption. There is a significant concern that the public and private agents may appropriate large public funds and eliminate the movements to slow down the spread and contain the pandemic in the country. Brazil could combat corruption during the period of covid 19 crisis and enhance transparency and accountability tools in the public procurement process through industry self-regulation in collective action projects. (Costa, L.2022:133)

In the ASEAN region, investments in human capital helped to reduce corruption, and it is expected that (AI) can fast the automated detection and prevention of corruption. These technology types look promising, but policy and institutional measures might likely be needed to make them effective. (Salam, D. et al. 2021: 27).

In May 2021, Iran showed significant mortality rates due to COVID-19 and slow vaccination progress; it has been noted that over-invoicing of imported vaccines by private firms is up to 12 times higher than the actual price of the vaccines. These firms are argued to over-invoice their imports and sell the additional amounts in the black market for foreign exchange at a high rate. In addition, some manufacturers of the COVID-19 vaccine were accused of bribery before the pandemic. (Farzanegan, M.R., et al:2021:1).

In the case of the **P**hilippines, procurement data were not published during the crisis. To prevent data flows, allow scrutiny of procurement activities potentially controlled by corrupt practices, and hold government officials to account. While there have been claims of over-priced procurement during the pandemic, as well as the awarding of contracts to black-listed suppliers. (Canares, M., et al. 2021:5).

Vietnam had to eliminate corruption to improve **its** position in the United Nations' digital Government ranking. A platform for data integration and sharing between central and local information systems should be built to effectively ensure the use of these national databases, the National payment gateway, and the interconnection system to send and receives electronic documents. The linkage between the government's specialized digital signature authentication systems and public digital signatures ensures that data and information are uninterrupted at all governmental levels. (Nga, p.2020:342).

Typical examples are seen in the Online Procedures Enhancement (OPEN) system in Seoul, **K**orea (Asni, N. 2022:1). The Korean Independent Commission against Corruption also promotes the reporting of any public official involving an abuse of power or position of violation of the law in connection with official duties to seek benefits for himself or a third party". The Asian Development Bank adds "officials in the public and private sectors" as well to its definition of corruption. (Adel, S.:2021:5).

African **c**ountries are increasingly considering digitalization as an essential tool for fighting and mitigating corruption as it reduces direct human interactions with public officials. For instance, adopting digital tools could increase indirect tax collection at the border by up to 2 % of GDP per year (Ouedraogo R., Amadou N.R., 2020:9). Rwanda is considered an excellent example of the implementation of digital government reforms which enables economic growth (Santiso, C. 2020:6).

In **A**frican countries, adopting digital tools is associated with reducing corruption perception and trust in governmental officials. A study on tax officials found that a higher level of digital adoption is negatively correlated with a lower perception of corruption of governmental officials. Finally, the successful promotion of ICT by the government strengthens the positive effect of digitalization on corruption. (Ouedraogo, R.et al.:2020: 6).

In **N**igeria, the government, individuals and the private sector donated to distribute palliatives to the poor during Covid-19. Anti-corruption Commission and the Kano State Public Complaints have charged and arrested a Local Government Chairman- Kumbotso in one of the Nigerian states- to the court for misdistribution of Covid-19 palliatives for the needy in his Local Government. (Tijjani, F. 2022:17).

Corruption has remained one of the most complicated problems hindering Nigeria's development. It is increasing because most people who are supposed to carry out digital responsibilities don't possess the necessary digital skills, and others are not IT serving, which means the need for training to adapt to the new trend. (Nwozor. A. et al. 2022: 856).

Zimbabweans have witnessed different challenges during COVID-19, such as corruption. The corruption situation in Zimbabwe has deteriorated during the pandemic due to the lack of accountability in using and distributing COVID-19 expenditure and equipment. The Minister of Health and Child

Care was fired and exposed to prosecution for awarding procurement contracts for protective equipment and medicine worth US$60 million at an inflated price. He is accused of recommending a company to supply government masks at the cost of $28 each while globally similar quality masks could be bought at less than $1. At the same time, essential workers are asked to work without providing protective equipment. The former minister has since been released on a cash bail (Z$50 000, US$2000). (Maulani, N. et al.: 2020:3)

Over 90% of **K**enyans have transformed into mobile money, and the total value of mobile money transactions now surpasses the national GDP. Moreover, as part of inclusion, mobile payments have been integrated into public programs to provide millions of vulnerable people with benefits effectively. Although it has not gained scholarly attention, the relationship between digital payments and corruption reduction has attracted attention in policy-making circles. (Setor, T. K., et al. 2021:2)

As mentioned above, Corruption is considered a disaster during the COVID-19 pandemic and is hindering efforts to stop the spread of the virus. Therefore, digital transformation offers the opportunity to use ICT for public sector efficiency. Those in charge of this should possess the necessary digital skills. In addition, some government officials don't want it to work successfully, which is one of the limiting factors in applying digitalization.

Although the **EU** has shown the best performance in the world in reducing corruption during the last years, the corruption costs for the EU economy are estimated at EUR 120 billion per year. (Androniceanu, A. 2022:6)

Corruption may have an impact on both national and EU policies and funds. A recent study estimates the annual cost of public procurement corruption in the EU member states at € 5.33 billion. This means that corruption has become a systemic problem in European countries and requires significant changes on multiple levels, such as management capacity, education, monitoring and corruption control institutions legislation, and clear criteria for access to political and public positions. (Szeiner et al., 2020:200).

Local mayors in **Spain** received access to vaccine doses before they were widely available to the general public. In **Italy**, there were vaccine sales on the grey market (Farzanegan, M.R. et al.:2021:1). Although people living in Italy have access to digital devices and innovative technology, a digital divide exists, which is most familiar with the generation gap due to not only the demographic factors but also the socio-economic ones. It represents a social challenge due to inadequate infrastructure, education/ digital illiteracy or cost. (Laze, D., 2021:10)

Ukrainians don't trust anti-corruption bodies. According to a survey conducted in the summer of 2021 by the Razumkov Centre, almost 70 % of respondents do not trust the National Agency for Prevention of Corruption and the National Anti-Corruption Bureau of Ukraine. 8.5 % said that ordinary citizens should fight corruption. Corruption remains a serious moral problem. Ukrainians mostly tolerate routine corruption rather than grand corruption, as 39 % of respondents admitted that they personally or their relatives or friends had experienced corruption over the past 12 months. (Vallee, V. 2022:5)

As for the Post-COVID-19 pandemic, the strength of European democratic institutions has been tested as the post-pandemic recovery fund is a part of the enormous budget of the EU and will be a root cause of political manipulation and corruption as well. In that regard, various considerations have been taken as using existing tools, like European Investigation Orders, to start anti-corruption investigations in countries that do not belong to the European Public Prosecutor. (Martínez, C. 2021:2)

Corruption may damage the government's response to the crisis, as shown during the pandemic and certainly hinders people's access to the public health system and get vaccines. So, citizens in some experiences willingly give bribes, and such loyalty to bribery does not contribute to the elimination of corruption but, on the contrary, feeds and inspires it.

SECTION III: DIGITALIZATION AND CONTROLLING CORRUPTION IN THE EGYPTIAN CASE

This section focuses on the Egyptian government's efforts to combat corruption, the role of digitization in fighting corruption, especially during COVID 19 and how Egypt implements it in its various strategies.

Firstly, The United Nations have attempted to put a particular legal framework for corruption combat processes within the tools to assist developing countries in eliminating it. This was reflected in the United Nations Convention against Corruption (UNCAC) adopted by the General Assembly in October 2003 and ratified by 119 countries till 18th June 2008, among them 14 Arab countries. Egypt was among the first forty countries to approve it on 9th December 2003. (Puddephatt, A., 2012:3)

Additional to international commitments, Egypt became a state party to the United Nations Convention against Transnational Organized Crime (UNTOC). Since July 2014, Egypt is also a state party to the Arab Convention to Fight Corruption, a pan-Arab anti-corruption instrument issued by the League of Arab States. (Wickberg, S.2015:7).

Egypt has a relatively robust legal framework to fight corruption, despite the different challenges it faces in this regard. The most critical issue is the implementation of existing legislation. Numerous institutions play a role in fighting corruption, but their lack of coordination creates interrelated responsibilities. On anti-corruption day 2014, the government announced the launch of an anti-corruption strategy. (Wickberg, S.2015:1).

In this regard, Egypt has been issued laws and legislations to provide an excellent environment to protect the privacy of data, institutions and individuals from hacking acts and to encourage investment in the field of ICT for the digital, knowledge-based society. These legislations are The Data Privacy Protection Law of 2020, The National Council for the Artificial Intelligence of 2019, the Law of Combating Information Technology Crimes 2018, The National Payment Council Law 2017, The Supreme Council for the Digital Society Law of 2017, The Supreme Council for Cyber security 2017, Investment Law of 2017, Electronic Signature Law 2004. (Ghoneim, A. 2021:6).

Egypt has several types of corruption: grand, petty, political and administrative. Petty corruption means ordinary citizens paying bribes, is quite widespread in Egypt. Health services are the public services' most prominent example of corruption. Petty corruption in Egypt is a tool to get things done, not to take anything extra. This is what is called “need corruption”. This kind of petty corruption can be attributed to the high level of centralization, discretionary power and lack of control. As for grand corruption, it can be observed when people need to get permits, mainly for construction and in relation to infrastructure. (Emara, A.2020: 579).

The national Anti-Corruption strategy aims to combat corruption based on the policies of the various conventions. One of the strategy's most important policies is the digitisation policy, which focuses on the digital transformation of government institutions and public services as a measure to reduce corruption. The Egyptian government has succeeded to a large extent in implementing digitization in various institutions and services. (Adel, S.:2021:3).

The vision of the Egyptian Digital Transformation Strategy is a digital government connected, participatory and sustainable, and increasing competitiveness through building an integrated digital society. The message is empowering the government, citizens, and industry sustainably through Strategic goals and initiatives. (Ghoneim, A. 2021:2).

Based on what was mentioned above, the Egyptian National Anti-Corruption Strategy 2014-2018 has achieved most of its goals in the first stage. Its first objective was to improve the performance of the government and the improvement of public services by supporting digital transformation. It started the Completion of the automation process in different areas of public services delivery, such as the launching of 239 traffic units -Online-for the services of inquiring about irregularities and the payment of penalties country-wide, the automation of the work system with 171 traffic units to provide licensing Services, Signing and activating the tender for the unified purchase of medicines and medical. (National Anti-Corruption Strategy 2019-2022,9).

According to the International Monetary Fund, Egypt was experiencing a positive economic trend before COVID-19, with a GDP growth rate of 5.5% in 2018/2019 and more positive estimations of 5.9% for 2019/2020 and 6.0% for 2020/2021 were expected. Estimates from the Egyptian Centre for Economic Studies indicate that the effects of Covid-19 on the Egyptian economy are likely to be felt up to June 2021 due to declining travel and tourism, lower domestic consumption, capital outflows, and reduced remittances. Weaker global trade is also expected to reduce Egypt`s exports and earnings from the Suez Canal. (OECD, 2020:5)

As a result of covid 19 and despite the outstanding efforts of digital transformation, Transparency International's Corruption Perceptions Index decreased Egypt's score in 2020 to 33/100, and its rank also reduced from 106 to 117. The drop in Rank due to Covid-19 and the challenges imposed after improving in the ranking in 2018, which increased from 32 to 35, and this indicates that Egypt was on the right track in its war against corruption, but it decreased again. Corruption had increased during the pandemic, with officials taking advantage of the panic and desperation of people. There were also more cases of corruption in the healthcare system. (Adel, S.:2021:9)

Egypt's performance in the past TWO years was better on the global index, but its ranking was not better. The following table provides comparisons of Egypt's indicators according to the international classification.

Enormous efforts have been exerted to develop a system for linking national databases to support the state's orientation towards the digital transformation system, such as cooperation with the Higher Council of Universities to integrate the (109) University Hospitals with the unified purchasing system to rationalize public spending. Applying the policy of functional rotation of the most vulnerable jobs to corruption in some units of the administrative body of the state, establishment of specialized centres in many governorates. (National Anti-Corruption Strategy 2019-2022,9)

As part of Egypt's Digital Transformation plans and efforts, the government established an integrated system for secured and smart documents in the NEW ADMINISTRATIVE CAPITAL, which will be issuing all Government documents and certificates at a high level of security via a unified central system. In this regard, the Egyptian government invested

USD 1.9 Billion to develop digital informational infrastructure, create technological innovation pools in the governorates, and establish Hi-Tech industries in the economic zone of the Suez Canal, where most of the submarine cables that carry communications and internet between Asia and Europe pass through the Suez Canal. The Egyptian ICT sector growth was 17% in Q2 of FY 2020/2021, and its contribution to the GDP was 4.4% in 2020. and expected to reach 8% in 2024. (Ghoneim, A. 2021:2)

As part of its agreement with the international monetary fund, Egypt committed to publishing all COVID-19-related expenditures; publishing procurement plans and awarded contracts, including the names and beneficial ownership information of companies awarded contracts; and conducting an audit, including ex-post validation of delivery and publish the results including anticorruption requirements that go beyond COVID-19 spending. The government published several procurement documents, which cover $280 million spent on COVID-19 tests, medical supplies, and other COVID-19-related materials and include the names of companies awarded contracts, the contract amount, and the entity receiving the goods, which is the Health Ministry. The total amount covered is far less than the US$2.3 billion allocated to health spending. (Transparency International, 2021)

To summarize, The Recent Egyptian Efforts of Combating Corruption by Using Digitalization is a sustainable strategy and a non-stop process, as after the end of the first phase of the national strategy of combating corruption, Egypt approved another strategy for the period from 2019 to 2022 based on what has been achieved during the first strategy.

Finally, despite the positive implications of fighting corruption and reducing perceptions of corruption through using digitalization, Egypt still faces some societal challenges.

CONCLUSION

From the previous analysis, we can draw several concluding remarks that can be used as guiding principles for policy recommendations. Although the various international and regional agreements that aimed to combat Corruption, it has a great impact on societies with its various practices and types especially during crisis. The study concluded that:

a) The challenges and risks posed by corruption have only increased during the crisis of COVID 19 Pandemic.

b) Data and information are a critical component in a more effective and inclusive emergency response. the publication of procurement activities and results can foster transparency and encourage accountability, especially when users of procurement information have the skills to analyse the implications of published data to procurement results.

c) Egypt government coped with the COVID 19 repercussions by digital transformation in different critical sectors such as health and education as these were the most affected sectors by the crisis and the most vulnerable to corruption.

d) Although the positive implications and perceptions of reducing corruption through using digitalization, Egypt still faces many different societal challenges which have been reflected in its ranking and score through the past two years of the crisis.

e) there were periods of recovery and increased stability in the post-pandemic world. So, it was very critical for countries to make choices on how to foster flexibility and recover better for the future crises as COVID 19 as it creates unprecedented shocks.

f) Countries have already taken important steps in enforcing anti-corruption measures across response and recovery plans, by engaging all sectors and sections of society.

g) Reducing the risks of corruption and increasing the impact of the global response to similar crisis to the COVID 19 by using digital technology is a main conclusion.

h) Digitalization brings benefits in local public administration both for civil servants and public institutions and other stakeholders.

i) Digitization of public administration streamlines the interaction between local public administration and citizens and reduces corruption by the way.

j) A digital government has core capabilities supported by organizational enablers to build up its immunity towards strengthening its digitalized system in face of corrupt actions.

k) In an environment of incomplete information and crisis, digitalization can help reduce costs, widespread and transferring information in a cost-effective way and tackle the problem of monitoring public sector officials.

l) Digitalization can also create new opportunities for corruption through cybercrime or the misuse of well-intended technologies as Digital public service systems can be controlled by corrupt public agents with high IT skills.

m) The results also showed that most world experiences have faced different challenges in digitalization implementation during covid crisis as digital divide, Weakness and absence of some Laws and legislation, Implementation of plans of digital transform, Cost & Budget pressures, Lack of bank accounts for the population, Lack of enough HR specialized in ICT, and finally the need for big ICT investments and *all these elements were introduced through the provided model prepared and designed by the author and proved its validity across the research sections.*

n) Internet is a critical anti-corruption technology but in the same time it is not internet or digitalization that influences corruption, but rather the bureaucratic procedures and those who use internet that affect the digitalization advantages.

o) Any country Government can engage anti-corruption institutions and local communities to track, monitor and update information concerning potential corrupt actions across the country to ensure the government is aware and can respond appropriately.

p) There are other relevant non state actors such as Media, Civil society and business which are involved in fighting corruption whether directly or indirectly by acting as monitors for tracking all actions and contracts done by the government so as not to lead to any corrupt actions.

q) a new public-private partnerships is provided to assist data availability as a priority. Also, an analysis of the level of data capacity should be created and strengthened, with the aim to perform predictive functions, track public expenditure and measure the impact of public response on all communities by using digital technology.

r) During crisis, institutions have an important role starting from establishing A platform that allows users to track the status of all public contracts related to crisis management as showed during COVID-19

RECOMMENDATIONS

To develop recommendations and improve the relationship between the digitalization and combating corruption and to provide more workable learned lessons for Egypt and different world countries especially during crisis periods, the author provided some recommendations as follows:

For government decision makers and public institutions

a) To complete the national fundamental databases, especially on population to build a platform for data integration and sharing between central and local information systems; linkage between the government and the public digital signatures among all levels of Government.

b) To improve investment efficacy and make use of resources to implement the tasks of digital Government development, and adjust the investment tools for the public information technology. At the same time, it is necessary to organize education, training, exploitation and use of information systems, use of online public services and research and develop incentive tools to attract talents to participate in building and developing digital Government.

c) To fighting corruption, it's important to promote professional ethics in different fields to enhance the knowledge of public staff regarding the rules, regulations and laws governing their respective fields of work; enforcing more strict sanctions; creating committees to monitor the allocation of resources to ensure that they are wisely employed; and

d) To align the goals for digital transformation with the government's overall priorities. evaluate regularly whether digital programs are performing well and to adjust them as conditions change. Governments

should also be aware that digitizing services can make those services less accessible or usable to certain groups.

e) Within agencies, cross-functional collaboration can be the key to successful digital. So, projects. One department can be put in charge of setting strategies and assigning responsibilities. central units help multiple departments work together on some digital-transformation programs. Leaders can also push governments to mobilize technical workers and implementation specialists, both by investing in their own human resources and by drawing on external support.

f) Government should, from the very beginning of any crisis, make procurement data publicly available, with a comprehensive and timely publication that allows for the tracking of procurement processes from advertisement to delivery

For stakeholders

a) Raising awareness campaigns, HR Capacity building plans, Developing the online interactive education, more support for creativity and innovation centres, Developing Laws and legislation, Supporting R&D, all these requirements should be implemented and monitored by all different parties to ensure accelerating integration of digital transformation and Digital Economy plans in face of combating corruption.

b) Increasing socialization to bring into full implementation public - private integration in such work

c) Government, civil society, the media and other stakeholders, as part of a social compact, should cooperate from the very beginning of any crisis to ensure efficient and effective use of public resources in response to the crisis.

d) All stakeholders should always be mindful that emergencies such as COVID-19 impact different people differently and should ensure that response takes into account the different circumstances, location, and intersecting vulnerabilities of people, in particular by promoting participation of traditionally excluded and vulnerable groups in the planning of the response.

For citizens

a) To have the willingness to engaged in and join training programs aimed at improving communication, awareness of digital government, digital infrastructure through the implementation of communication programs to raise awareness of changing behavioural habits, creating the consensus of all parties on digitalized government development.

b) Increasing public awareness by using mass media to educate the general public about corruption prevention.

FUTURE AGENDA

The author at the end of his research recommended some further research topics related to this one such as the role of civil society in combating society, the role of public values in reinforcing the digitalization transformation process, The effect of digitization socialization on the effectiveness of digitalization transformation process. The role of AI in combating corruption.

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التحول الرقمي ومحاربة الفساد:

أمثلة من أفضل الممارسات الدولية والقطاع الحكومي المصري خلال فترة كوفيد- ١٩

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الملخص:

يتمثل الإسهام العلمي الرئيس لهذه الدراسة في تحليل طبيعة العلاقة بين التحول الرقمي ومكافحة الفساد في القطاع الحكومي خلال فترة كوفيد-١٩.، وتحديد إلى أي مدى يمكن تحسين أداء الحكومات من خلال الاستفادة من نتائج هذه العلاقة خاصة وقت الأزمات.

تبنت الدراسة منهجًا تحليليًا مستمدًا من تحليل الأدبيات التي اشتملت على حالات تطبيقية للعلاقة بين مؤشرات المتغيرين في العديد من الخبرات الدولية مع التركيز على فترة الأزمة (كوفيد-١٩) والوقوف على أهم الدروس المستفادة ومقارنتها بمثيلتها في الحالة المصرية، والاستفادة من النتائج للعلاقة بين المتغيرين في حالة الأزمات. كما تهدف منهاجية الدراسة إلى التحقق من صحة النموذج الذي قدمه المؤلف والذي يعكس العلاقة بين المتغيرين خلال فترة الأزمة والنتائج المحتملة لهذا التطبيق.

يقدم هذا البحث أيضًا تقييما منهجيا لتأثير التحول الرقمي على الفساد من خلال تقييم يعتمد على السياق البيئي، من خلال الإشارة إلى معالجة مخاطر الفساد والتخفيف من حدته في الاستجابة لجائحة كوفيد-١٩ على مستوى الدول، وخاصة في الحالة المصرية.

كانت أهم نتائج الدراسة، أنه على الرغم من أن بعض الدراسات تقدم أدلة على كيفية مساهمة الحكومة الرقمية في الحد من الفساد، إلا أنها لم تضمن النجاح في كثير من الحالات برغم أنه كان متوقعًا من خلال التحليل التقييمي للعديد من الخبرات الدولية أن التحول الرقمي يؤثر على الفساد بشكل كبير، بمعنى ارتفاع مستوى الرقمنة من شانه أن يؤدي إلى حكومة أقل فسادا، إلا أن هذا الأمر أثبت عدم فاعليته من خلال هذه الدراسة خاصة في فترات الأزمات وهذا ما أسفرت عنه النتائج ، إلا أنه لا يمكن إنكار أن الرقمنة تدعم الحكومات في الوفاء بمسؤولياتها بطريقة معززة تقنيا من خلال بنية تحتية جيدة الإعداد.

الكلمات المفتاحية: الرقمنة، الحكومة الإلكترونية، القطاع الحكومي، الفساد، كوفيد-١٩.