

The Impact of Governance Mechanisms on Combating Corruption In Light of Digital Transformation (A Field Study on the Egyptian Business Environment)

تأثير آليات الحوكمة على مكافحة الفساد في ظل التحول الرقمي

"دراسة ميدانية في بيئة الاعمال المصرية"

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Abstract

Purpose– This research aimed to identify the impact of governance mechanisms on combating corruption in light of digital transformation, and the research addressed monitoring some of the potential effects of governance mechanisms on combating corruption.

The study hypothesis states that: - The first hypothesis there is no statistically significant relationship between governance mechanisms and combating corruption in the light of digital transformation. The second hypothesis: - there is statistically significant relationship between governance mechanisms and combating corruption in the light of digital transformation.

Design/methodology/approach–The methodology adopted was survey method to collect primary data using a structured questionnaire. A total of 100 copies of questionnaire were distributed with 69 answered correctly and fully retrieved. Data was analyzed using statistical package for social science (SPSS) was used to measure the influence using governance mechanisms on combating corruption in light of digital transformation at 95% confidence level.

The study results and statistical findings show that applying transparency using artificial intelligence contributes to the fight against corruption, digital governance works to combat corruption, and digital transformation contributes to enhancing transparency in institutions and reducing corruption. There is statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation. The Study recommended that publishing new standards and regulations to govern using the information

technology on fighting the corruption in all economic sectors for reducing costs, save time, and provide additional information for decision makers.

Key Words: Governance Mechanisms, Corruption, Digital Transformation.

ملخص الدراسة

هدف البحث - يهدف هذا البحث إلى التعرف على أثر آليات الحوكمة في مكافحة الفساد في ظل التحول الرقمي، وتناول البحث رصد بعض التأثيرات المحتملة لآليات الحوكمة على مكافحة الفساد.

تنص فرضية الدراسة على ما يلي: - الفرضية الأولى لا توجد علاقة ذات دلالة إحصائية بين آليات الحوكمة ومكافحة الفساد في ضوء التحول الرقمي. الفرضية الثانية:- توجد علاقة ذات دلالة إحصائية بين آليات الحوكمة ومكافحة الفساد في ضوء التحول الرقمي.

منهجية الدراسة - المنهجية المعتمدة في الدراسة هي استخدام استبيان لجمع البيانات حيث تم توزيع ما مجموعه ١٠٠ نسخة من الاستبيان، تمت الإجابة على ٦٩ منها بشكل صحيح وتم استرجاعها بالكامل. وتم تحليل البيانات باستخدام برنامج الحزمة الإحصائية للعلوم الاجتماعية (SPSS) لقياس تأثير استخدام آليات الحوكمة في مكافحة الفساد في ظل التحول الرقمي عند مستوى ثقة ٩٥%.

أظهرت نتائج الدراسة والنتائج الإحصائية أن تطبيق الشفافية باستخدام الذكاء الاصطناعي يساهم في مكافحة الفساد، والحوكمة الرقمية تعمل على مكافحة الفساد، كما يساهم التحول الرقمي في تعزيز الشفافية في المؤسسات والحد من الفساد. توجد علاقة ذات دلالة إحصائية بين استخدام آليات الحوكمة ومكافحة الفساد في ظل التحول الرقمي. وأوصت الدراسة بنشر معايير وضوابط جديدة تحكم استخدام تكنولوجيا

المعلومات في مكافحة الفساد في كافة القطاعات الاقتصادية لخفض التكاليف وتوفير الوقت وتوفير
معلومات إضافية لمتخذي القرار.

الكلمات المفتاحية: آليات الحوكمة، الفساد، التحول الرقمي.

Introduction

In the last decade of the 20th century, corporate governance gained high importance and discussed not only in the finance literature, but also in other academic literature in terms of ownership structure of the company, economic efficiency and product market competition, international context, and general discussion (Kim, 2011).

Corporate governance arises when the firm faces agency conflict between the shareholders and managers. The efficient contract between the two parties is not enough to remove that conflict of interest (Martani & Saputra, 2009). Corporate governance is a vital tool used by companies' leaders to solve the conflict of interest by convention.

The philosophy of corporate governance depends on the disclosures and transparency that improve the trust in firms by increasing public confidence in those companies. Sound corporate governance refers to a trend toward greater and more binding corporate responsibility, as well as conducting a business as per the acceptable ethical principles and standards of the country (Abels & Martelli, 2011). As a result, firms safeguard stakeholder's rights and focus on better operational and financial performance.

Corruption overcomes chronological constraints. According to Erie (2019), corruption endures in diverse forms throughout nations and at varying stages of economic growth and political systems.

The study's use of the term "Digital Transformation" (DT) comes from the business-centric perspective. According to Matt et al.(2015), DT refers to strategies that center on transforming organizational aspects, processes, and

products as a result of organizational adaptation to currently available market technologies and the integration of digital technology in these companies (Panisson et al., 2023).

In this context, the theoretical concept of digital transformation (DT) is linked to the necessity of companies to change to the use of new technologies in order to stay competitive in the age of the Internet and knowledge (Mergel et al., 2019), as well as a means of reestablishing models with the help of new technologies (Berman, 2012), enhancing the value of companies (Chanias & Hess, 2016), and/or investigating new business opportunities that arise from the utilization of digital technologies (Verhoef, 2021).

2. Literature Review

The study of (Radzi et al., 2021) aimed to examine the effects of governance on digital transformation by scrutinizing the implementation of an electronic CRM system in a Malaysian petrochemical company. An exploratory study was initiated by interviewing key people in the company, which led to the adaptation of an investigative questionnaire. Data were collected from 295 employees at various levels of management. Correlation analyzes were performed based on parametric data. The study found that governance significantly affects digital transformation awareness, implementation and quality. These results demonstrate the importance of governance in supporting strategic decision-making to deploy digital transformation in the manufacturing sector of an emerging economy.

The study of (Alaa & Misko, 2022) aimed to examine the digitalization and corruption and analyzing from the available resources the influence of digitalization on combating and eliminating the corruption. In last years, many governments in all over the world have made a lot of efforts to improve the level

of disclosure and transparency in their actions by using the information and communication technology (ICT) which includes: the internet, mobile applications and the social media. And the main target for this transformation is not only to improve the disclosure and transparency, but also to combat corruption. The study was initiated by interviewing key people in the company, which led to the adaptation of an investigative questionnaire. The study concluded that the digitalization efforts by governments have led to improved levels of disclosure and transparency in their actions, facilitated by the use of ICT tools like the internet, mobile applications, and social media, digitalization has a positive influence on combating corruption, as governments leverage technology to increase accountability and reduce opportunities for corrupt practices. Digitalization may have resulted in efficiency gains in anti-corruption efforts, making it easier to track and monitor government actions and financial transactions.

The study of (Ali & Khan, 2022) aimed to examine the relationship between; accounting information, corporate control mechanisms and corruption. The study used a critical evaluation of the relevant literature that interrogates the contribution of good corporate governance of the financial accounting information as the use of externally reported financial accounting data in both direct and indirect ways. The study concluded that corporate control mechanisms are the most effective tools for reducing corruption from the supply side. These mechanisms are essential for improving the operation of securities markets, which in the uncertain environment of this era seek accurate and reliable information based on transparent financial statements.

The study of (Bianchi et al., 2023) aimed to analyze the IT Governance Mechanisms that influence digital transformation in a Higher Education Institution based on eleven dimensions of digital transformation in HEIs. A

case study was carried out in a large and public university in the Republic of Kazakhstan. The study identified how IT governance mechanisms may impact each one of these eleven dimensions and how these mechanisms can foster DT in a university. The study revealed that mechanisms related to innovation, tests and experiments of solutions, sharing knowledge, training, are some examples that contribute to the university enhancing DT.

The study of (Kybatko et al., 2023) aimed to examine the impact of economic and digital factors on anti-corruption policy. The study considered the main causes of corruption, its negative impact on social processes and political stability, and ways to overcome it. It was emphasized that corruption weakens the economic growth of countries, reduces citizens' trust in the government. Bribery, its scale, dynamics and specification are a consequence of political, social and economic problems of countries, and the world has not yet come up with a single recipe for fighting corruption. The study used the methods of theoretical and practical research were used, including the method of the panel data analysis. The study concluded that digitization can significantly increase the openness, publicity and transparency of public administration, identify corrupt connections, schemes and relationships, optimize anti-corruption activities of law enforcement agencies and limit the opportunities for corrupt officials. In the period of a post-war recovery Ukraine will need significant reforms, especially in the anti-corruption sphere, so there is an objective scientific and practical demand for a comprehensive study of anti-corruption issues. The empirical results proved that the promotion of digital economy can significantly minimize corruption. For example, the digital economy can help tackle corruption by enabling greater transparency, reducing opportunities for corrupt practices, and empowering citizens to participate in the fight against corruption.

After reviewing all previous studies, researcher concluded that: -

- They are related to the research topic including governance mechanisms on combating corruption in light of digital transformation. This study is one of the first studies that addressed the impact of governance mechanisms on combating corruption in light of digital transformation.
- The scarcity of researches conducted in developing countries regarding the impact of governance mechanisms on combating corruption in light of digital transformation.
- Most previous studies have covered various aspects of business digital transformation, while this study specifically investigates the impact of governance mechanisms on combating corruption in light of digital transformation.
- This study examines three variables governance mechanisms, combating corruption, and digital transformation, which have not been collectively studied before to the researchers' knowledge.
- This study represents one of the initial attempts to the impact of governance mechanisms on combating corruption in light of digital transformation through using questionnaire distributed to accountants, external auditors, financial managers, university professors and internal auditors.
- Digital transformation refers to cognitive abilities to perform augmenting or simulating human thinking and is more and more present in daily life of people.

3. Study problems

Monitoring some of the potential the impact of governance mechanisms on combating corruption in light of digital transformation in their economic, social and environmental dimensions, at the levels of the public and private sectors

**The research problem can be summarized on the following question:
In what extent governance mechanisms effect on combating corruption in light of digital transformation**

4. Hypotheses

To achieve the goals of this study the following hypotheses will be tested:

The first hypothesis: - there is no statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation

The second hypothesis: - - there is statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation

5. Study Objectives

The main objective of this research is examining the impact of governance mechanisms on combating corruption in light of digital transformation.

6. Methodology

An Analytical Study: -through the analysis of what was mentioned in books and periodicals, which deals with measures are analytical and that helps for obtaining information and evidence sufficient to enable us to carry out an analytical study for using digital transformation and governance mechanisms on combating corruption .

An Empirical study: - adopted was survey method to collect primary data using a structured questionnaire. A total of 100 copies of questionnaire were distributed with 69 answered correctly and fully retrieved. Data was analyzed using percentage, tables and spearman rank order correlation techniques and with statistical package for social science (SPSS) was used to test the regression analysis was employed to measure the influence of using digital transformation and sustainable developments goals, at 95% confidence level.

7. Research Structure:

Introductory section: introduce introduction, the literature review, the study problem, the study objectives, the hypotheses, methodology and the research structure.

- **The first section** deals with the Theoretical background
- **The second section** deals with the empirical study.
- **The third section** deals with findings, recommendations and future studies

The first section

Theoretical background

(A)Governance Mechanisms

1. The concept of the corporate governance:

There are narrow and broad concepts of corporate governance (Pandya, 2011; Rahim & Alam, 2014). In a narrow concept, corporate governance includes a set of relationships among the company's shareholders, board of directors, management, auditors, and others (Pandya, 2011). In the broad concept, corporate governance is the extent to which firms are run in an honest and open manner, which is important for the efficiency of capital allocation, overall market confidence, and development of the overall wealth and welfare of the countries (Pandya, 2011). Both concepts result in efficient and effective allocation of resources (Pandya, 2011).

Corporate governance includes the rules, regulations, and mechanisms a company's managers adopt to manage interests and conflicts of corporate outsiders (customers, suppliers, shareholders, society, state, peers) and insiders (employees, managers, executive directors), company value maximization, and aiming agency conflict minimization (Syriopoulos & Tsatsaronis, 2012).

Stronger rule of law and investor protection are related to corporate governance practices and company performance (Darweesh, 2015). The sound and proper corporate governance may prevent controlling shareholders and misbehavior of company management and reduce the risk to small investors.

2. The definitions of corporate governance:

Corporate governance is defined as a system of rules and regulations that

are likely to be institutional market in the area arising or pursuing different categories of management, shareholders, stakeholders, customers, personnel dependent public, and so on (Bostan & Grosu, 2010). The company leaders must practice sound corporate governance to get a better financial return in the future.

Another definition, which is the most widely used one, is that OECD defined corporate governance as distribution of rights and responsibilities among different levels in the firm, such as (a) shareholders, (b) managers, (c) directors, and (d) other interested parties in the company performance; identifying the rules and procedures improves the right decisions on firm's activities and affairs. Thereafter, OECD (2004) defined corporate governance as a key element in enhancing and improving economic efficiency, and growth, as well as enhancing investor confidence in firm performance.

3. The principles of corporate governance:

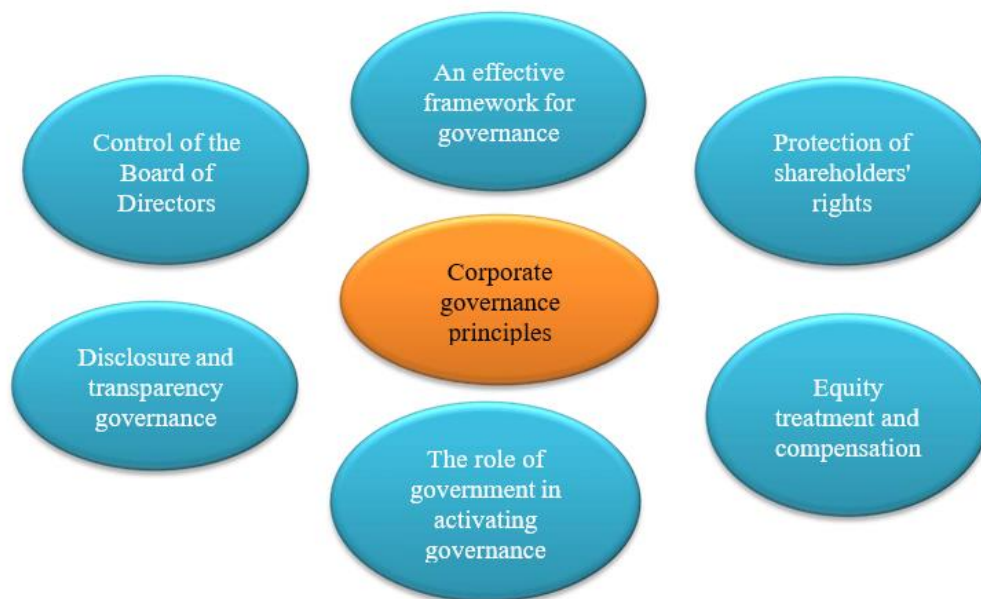


Figure (1): principles of corporate governance

4. Corporate Governance Mechanisms:

Much of the solutions built on the effective corporate governance mechanisms in order to protect investor rights and their wealth (Kumar & Singh, 2012). These mechanisms are designed to reduce the inefficiencies arising from adverse selection and moral hazard (Vintila & Gherghina, 2012).

There are two types of mechanisms: Internal audit mechanisms and external monitoring mechanisms. All the companies' activities are monitored and controlled through internal mechanisms, while external mechanisms comprise the control exercised over firms by external stakeholders (Vintila & Gherghina, 2012). Corporate governance utilizes internal monitoring mechanisms (Ngoungo, 2012). However, both types of mechanisms could be used to align the interests of stakeholders and managers (Vintila & Gherghina, 2012).

The corporate governance mechanisms are:

Board size. The board of directors is the top executive unit of a firm and responsible for laying down the strategies and policies, and monitoring the company activities (Maztoul, 2014; Pandya, 2011). The board is seen as a team of members with fiduciary responsibilities of directing and leading company activities with the key objective of protecting the interests of company's shareholders and other stakeholders.

The board is assigned with three critical functions: Agency theory responsibilities, resource dependence responsibilities, and legal responsibilities (Brédart, 2014; Pandya, 2011).

Under agency responsibilities, the board is responsible for protecting the

stakeholders' interests by ensuring the decisions taken for the company benefit, rather than the self-interests of executives, thereby the board becomes the guardian of the owners' interest. Under resource dependence responsibilities, the board is responsible for acquiring resources for the company based on its relationship with other companies. The legal responsibilities are a fiduciary responsibility; thereby the board fulfills a particular requirement to represent the legal rights of all stakeholders. These responsibilities include the hiring of the CEO and the evaluation of company performance (Stanwick, 2010).

Board size affects the extent of supervision, controlling, monitoring, and decision making in a firm. The scholars have not concurred on one optimal size for the board of directors. Some scholars concluded that the small board can help enhance firm performance (Vintila & Gherghina, 2012). From the agency perspective, small board is more likely to allow members to engage in genuine interaction and debate (Reddy & Locke, 2010).

Also, these scholars argued that a large board may lead to a significant and negative impact on the future investment return (Tai, 2015). When the board members grow too big, boards become more symbolic, while a small board mitigates the agency problem and become more effective in the management process (Vintila & Gherghina, 2012). The incremental cost of poor communication may exceed the benefit associated with a large board. The difficulties in communication and coordination may increase when the board size increases.

Alternatively, fewer scholars concluded that a larger board may provide greater management supervision, increased pool of experience, and access to a wider range of resources (Brédart, 2014; Reddy & Locke, 2010). Consistent with this perspective, the dependence theory assumes that larger board size may

result in higher profitability and market value because of the different expertizes knowledge and skills of board members (Anum, 2010; Habbash & Bajaher, 2014). However, the effect of board size on performance and market value may differ for different types of organizations (Habbash & Bajaher, 2014; Nicolaescu, 2012).

Board independence. Most the efforts exerted by countries regulators have focused on the issue of board independence for reducing the CEO's influence over the board of directors (Joseph, Ocasio, & McDonnell, 2014).

These regulators have required a minimum fraction of the board members to be independent. The rationale of these regulations is that if directors are independent of the executives, they are more likely to protect and defend shareholders and other stakeholders' interests (Ahmed & Gábor, 2012).

The independence of the board is a crucial mechanism, because outside directors represent true controls and can discipline the management to achieve firm objectives (Ongore & Kobonyo, 2011).

From the agency theory perspective, external or independent directors are more valuable than the insider directors, because they are less committed to the firm's management and its goals (Ivashkovskaya & Stepanova, 2011; Misangyi & Acharya, 2014).

In addition, the insiders may be beholden to the CEO for their jobs; thereby they would not be keen to raise the sensitive issues of CEO actions and performance. Outside directors or independent directors are those board members who do not hold a large percentage of a company's shares, or they do not have professional relationships with the company they monitor (Syriopoulos & Tsatsaronis, 2012). The outside directors bear the same legal responsibilities

as the inside directors, but they accomplish the effectiveness by influencing company decisions, rather than monitoring and controlling operations.

However, outside directors face difficulties in performing their responsibilities as they are not directly associated with the management (Pandya, 2011).

The independence protects shareholder interest, and conducts control and monitors functions in a better way to align managers' interests and stakeholders' interests. Therefore, to reduce the agency cost, the board is required to include a majority of independent directors, because they make the strategic planning role and monitoring role of the board more effective (Bouchareb, Ajina, & Souid, 2014).

Board committees. One of internal corporate governance mechanisms is board committees, which ensures that managers behave in the best interest of the stakeholders, including shareholders (Reddy et al., 2010). Suitable number of board committees is created according to the firm circumstances and requirements to help the board of directors to do its duties and responsibilities in an efficient and effective manner. These committees are formed in accordance with the policies, rules and procedures laid down by the board, showing the responsibilities, duties, powers, and duration of each committee, as well as the manner in which the board controls and monitors its duties and responsibilities. Each committee should comprise sufficient numbers of the independent and non-executive members that are concerned with activities and actions that might contain a conflict of interest, such as determination of remuneration, appointment of CEO, and integrity of financial and non-financial reports.

Ownership structures. Ownership structure is one of the most important factors in corporate governance mechanisms, which shapes governance system of any country, as this factor identifies the nature of the agency problem. Ownership structure is important in laying down the discipline of managers, company's objectives, and shareholder wealth. Corporate governance rules both shareholders and managers to have unified goals and objectives of maximizing company performance and value (Ibrahim & Samad, 2011; Liao et al., 2014). There exist two important aspects of firm ownership structure as composition and concentration. Ownership composition determines who the shareholders are and who belongs to the controlling groups (Mang'Unyi, 2011; Sáenz González & García-meca, 2014).

The degree of ownership concentration in a company identifies how power and authority are distributed between the managers and shareholders. Concentrated ownership considers the proportion of the company shares owned by the greatest shareholders, which may tend to exert pressures on managers to adopt a corporate behavior maximizing their wealth (Vintila & Gherghina, 2012).

The ownership concentration enables the shareholders who have a significant stake in a company to appoint and fire managers that will hinder them from external control mechanisms. Therefore, ownership concentration intensifies the conflict of interest between minority and majority shareholders (Leung & Horwitz, 2010; Soltani, 2014). The check and balance of ownership is very important governance mechanism in solving the ownership concentration debate and improving firm performance (Mang'Unyi, 2011).

The check and balance of ownership exists when many large shareholders share the control and monitor for a firm. Accordingly, no one major shareholder

of the firm can solely monitor the business and the process of decision making, rather, the decision making is done through the coordination and negotiation among several large shareholders, leading to good performance (Mang'Unyi, 2011).

Previous studies found that firms with a higher portion of foreign shareholders disclosed significantly more operating and financial information in their annual report in order to attract more investors (Anum , 2010).

Executive compensation. Executives with no or little ownership stake in the companies they run have little incentive and motivation to manage the company in a manner consistent with the owners interests. This conflict is essentially contractual in nature that can be solved through executive compensation combined with board of directors and capital market oversight (Carney et al., 2011). Executive compensation is a tool designed to strengthen the ability of board and shareholders to control management actions (Campbell, Ghosh, Petrova, & Sirmans, 2011). Executive compensation can include basic salaries and variable compensations, such as share options, dividends, and bonuses, as well as fringe benefits (Lin, 2010).

Shareholders can use compensation schemes for rewarding the managers financially to align company interests with shareholder interests. The schemes include plans where executives get shares, mostly at a discount price.

A significant portion of executive compensation must be “locked” in for a period ranges from 5 to 10 years and based upon the achievement of long-term success of the firm (Alam et al., 2014). Such schemes hinder short-term managers’ actions, which can be detrimental to firm value (Syriopoulos & Tsatsaronis, 2012). Thus, firms can resolve agency problems and maximize their values via compensation systems (Lin, 2010).

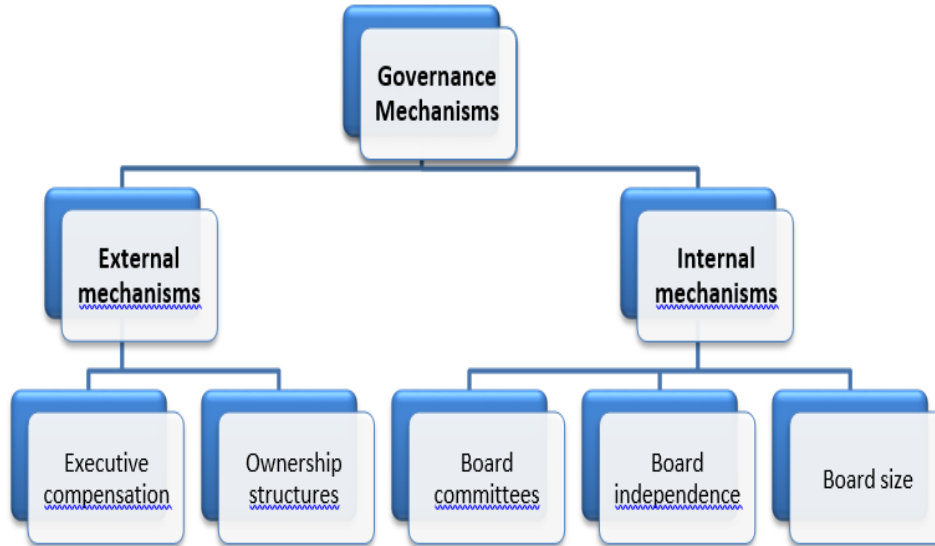


Figure (2): Governance Mechanisms. **Source:** (Lin, 2010).

Researchers believe that the impact of governance mechanisms extends across several areas and levels, whether in the public or private sector, and greatly affects how institutions are managed and decisions are made in them. Among the main effects: enhancing transparency and accountability, improving performance and efficiency, attracting investments, building confidence, strategic direction, and reducing financial and legal risks. In summary, it can be said that governance mechanisms have a significant impact on the stability and growth of institutions, and contribute to improving overall performance and building confidence among the parties concerned with them.

(B) Combating Corruption

It is well-established that corruption has a number of consequences on society. Because it takes money away from programs and services meant to help inhabitants, it tends to erode public confidence in government and undermine the rule of law and public institutions. It may also deter investment, lead to inefficiencies in the economic system, and exacerbate income inequality. In contrast, the term "corruption" is applied to a wide range of occurrences in a variety of settings with varying standards of acceptable behavior (Adam, Fazekas, 2021).

Corruption is defined differently by different people, but it is generally understood to include actions taken when a public position is utilized (abused) to further the private objectives of an elected representative at odds with the office's policies and the interests of the nation (Khan, et al., 2021).

In addition to financial gains, corruption can also take the form of bribery, extortion, embezzlement, fraud, nepotism, favoritism, and opportunism. Three categories have been commonly recognized as including it: (1) small-scale businesses corruption, (2) state capture, and (3) large-scale corruption. The term "petty bureaucratic corruption" refers to unethical behavior at lower echelons of the public sector executive management. When consumers use public information and services provided by hospitals, police, schools, and other government agencies, it often involves corruption that they encounter on a daily basis (Transparency International, 2020d; Khan, et al., 2021).

According to Transparency International (2020b), state capture is the process by which powerful entities—whether they be individuals, organizations, institutions, or groups—within or outside of a nation undemocratically shape its legal system, public policies, and economy in order to further their own agendas.

In conclusion, big corruption transpires when political elites misuse their authority to formulate economic policies that optimize their individual benefits. According to Transparency International, 2020d; Khan et al., 2021, it describes systemic corrupt behavior in politics involving high-ranking public officials, such as ministers, and substantial misappropriation of public funds or resources that results in grave and serious violations of human rights (Alaa & Misko, 2023).

According to, Aidt (2003), the impacts of pervasive corruption are multifaceted and numerous, and over time, the degradation of this political ecosystem results in lower capability for governmental governance, political instability, and economic waste. Because of its widespread occurrence and many effects on society, corruption has garnered consistent, interdisciplinary attention in academic circles. In summary, researchers think that the main causes of corruption's widespread existence are flaws in institutional design and organizational structure.

More opportunities for officials to seek rents and increase the space for corruption are generated by government intervention and market control (Nye, 1967); 2) The failure of governmental leadership may cause "decentralized corruption" to slowly transform into "centralized corruption"; 3) The imbalance between a strong state and a weak society leads to corruption and more serious bureaucracy; 4) The absence of a regular mechanism for raising public officials' wages advocates them to engage in corrupt activities (Graeff, 2004).

Both the political economics view and the sociocultural perspective offer an explanation for the individual motive for corruption. According to the political economy perspective, which is predicated on the rationally calculating individual, corruption is typically seen as the act of government officials giving

illicit benefits to their clients in violation of the law or the principal's rules based on cost-benefit analyses (Schweitzer, 2004). In therefore, corruption leads to from the subject's decision-making process within institutional and normative constraints (Porta et al., 2014).

As an alternative, the socio-cultural approach contends that it is improper to reduce people to unrestrained metazoan individuals and that it is overly basic and reductive to attribute corruption to individual rationality, particularly with regard to monetary concerns. The sociocultural perspective contends that social norms, regulations, values, customs, and culture all have a significant impact on people's behavioral decisions. According to Xiao (2004), these factors internalize actors' intrinsic values and constrain their behavior; in other words, internalized values constitute the "moral costs" of actors. In this regard, corruption is a phenomenon of moral or responsibility deficit (Xu & Chen, 2022).

Researchers suggest that combating corruption is vital to achieving sustainable development and social justice. Here are some ways in which corruption can be combated: enhancing transparency and good governance, enhancing awareness and legal education, enhancing the independence of the judiciary, enhancing oversight and monitoring, and adopting effective laws and legislation. Combating corruption requires sustained multilateral efforts at the local, national and international levels, achieving which is an ongoing challenge but necessary to ensure justice and sustainable growth.

(C) Digital Transformation

In accordance with Warner and Wager (2019), digital transformation is a technique of leveraging new digital technologies, such mobile, cloud, block chain, artificial intelligence, and the Internet of Things, to significantly improve

business operations, improve customer experience, and develop new business models. Companies which fail to respond to these technological shifts risk being surpassed or even replaced by new competitors who use digital technologies (Verhoef et al., 2021). Numerous studies demonstrate how the digital revolution will benefit long-term corporate development economically. According to Ferreira et al. (2019), managers' adoption of new digital procedures boosts their ability to compete.

According to About-foul et al. (2021), digitalization has a direct and beneficial influence on financial performance of corporations. Furthermore, a number of academics have investigated how DT affects the innovation and business models of firms (Abou-foul et al., 2021; Ferreira et al., 2019; Usai et al., 2021; Verhoef et al., 2021).

The driving behind the Digital Transformation process is digital technology, digital competition, and digital consumer behavior. DT is split into three stages by Verhoef et al. (2021): "digitization, digitalization, and digital transformation." When labor duties are converted into digital data for efficient resource allocation, it's referred to as digitization. Examples of this include the use of digital apps for internal financial reporting and digital forms for ordering procedures. The term "digitalization" describes the process of changing current company procedures. Examples of this include increasing finished product rates through data collection using industrial robots and other equipment, and lowering customer communication expenses by using online web platforms. When a firm adopts digital technology to modify its basic business model and implement new value-creation activities, it is said to be undergoing digital transformation. Consequently, DT is a lengthy procedure that takes time to complete (Huang et al., 2023).

The terms "digitization," "digitalization," and "digital transformation" must first be defined and identified in order to completely understand the concept of "digital transformation." This is because most researchers use these terms interchangeably, regardless of the fact that there are important distinctions between these three terms, which refer to three distinct stages of the process of continuing from an analog to a digital organization.

According to, Mahraz et al., (2019) which is as follows, clarify the differentiation between these three concepts:

- Digital transformation is the procedure of transforming items from analog to digital format and making any necessary modifications (in processes, communication, or linked information units, for example). At this point, the company starts to implement digital forms into workflows, do research on digital networks, or employ apps for internal communication and/or financial record preparation. Generally, "digitization" modifies documentation procedures both internally and externally but does not affect value generating activities;
- Information and communication technologies serve as stimulants for process changes in established businesses, putting traditional (analogue) organizations on the path to a strategy of transition to digital organizations. Digitalization is used to define more precisely the kinds of digital data and technologies that companies use, as well as to automate data handling and enhance business activities. This change entails the creation of innovative digital artifacts that would not have been achievable in the lack of digital technology. The current phase involves optimizing corporate processes to enable more effective coordination and the generation of extra value for the client by enhancing user experiences;

- Digital Transformation This more detailed stage delineates a company-wide transformation that culminates in the creation of novel business models. This transformation affects the organization as a whole and its operational procedures, in addition to improvements to tasks and basic organizational procedures (digitization and digitalization). It rearranges the procedures in order to modify the logic of value generation, as per the digital transformation traverse model put forward by (Verhoef et al., 2021) in **Fig. 2.**

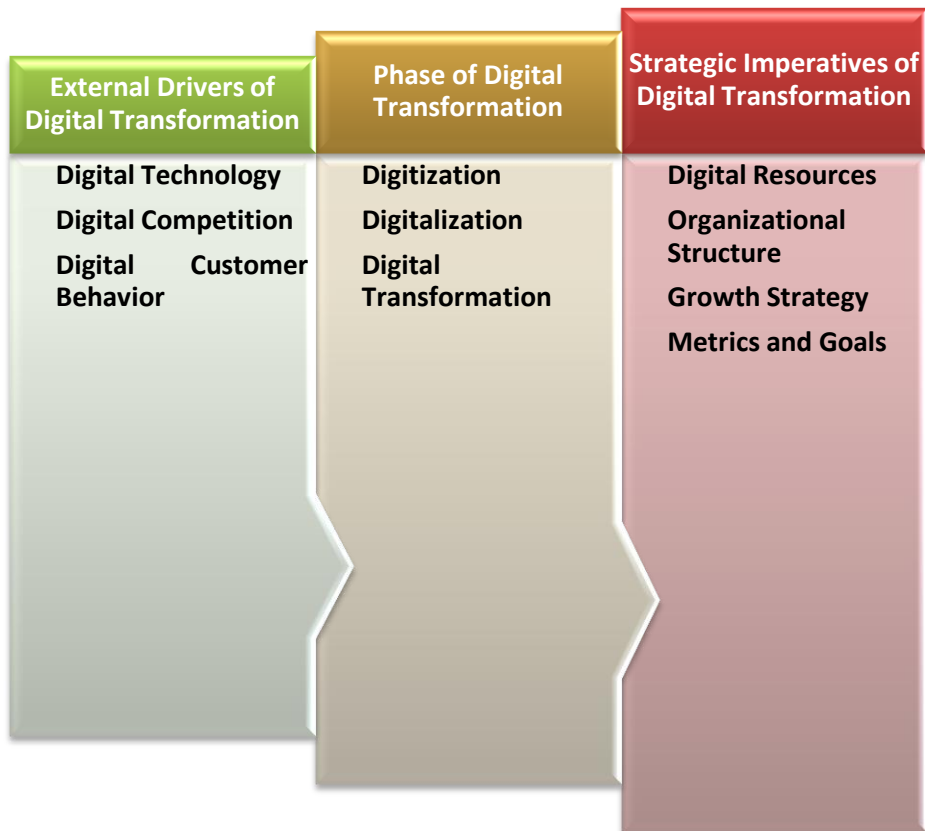


Figure (3): Digital Transformation Flow Model. **Source:** (Verhoef et al., 2021).

Researchers observed that digital transformation refers to the process that aims to use digital technology comprehensively in all aspects of economic, social and cultural life. Here are some of the key aspects of digital transformation and its impact: improving efficiency and productivity, improving user experience and customer services, enhancing innovation and creativity, enhancing access and inclusion, improving data management and smart decision-making, and improving cyber security. Achieving digital transformation requires comprehensive strategies that include technology, organizational culture, training, and stimulating innovation.

(D) The impact of governance mechanisms on combating corruption in light of digital transformation:

Researchers concluded that governance mechanisms play a crucial role in combating corruption in light of digital transformation, as these mechanisms can enhance the effectiveness of efforts to reduce corruption and enhance transparency and accountability. Here are some ways governance mechanisms can impact the fight against corruption in the context of digital transformation:

(A)Enhancing transparency and accessibility: Digital transformation can provide data and information faster and more comprehensively, increasing the transparency of operations and making them less vulnerable to corruption. Therefore, governance mechanisms can enhance this transparency by setting standards for accessibility and ensuring the availability of vital information to the public.

(B)Enhancing accountability and accountability: By using digital technology to manage records and transactions, governance mechanisms can accurately document and track processes, making it easier to detect any corrupt practices and hold those responsible accountable.

(C)Develop effective control mechanisms: Massive analytics and artificial intelligence can be used to monitor operations and verify compliance with conditions and laws. Governance mechanisms can develop sophisticated oversight systems to detect and intervene in patterns of corruption before they escalate.

(D)Improving reporting and protecting whistleblowers: Technology can be employed to develop safe and secure whistleblowing platforms, which protect the identity of whistleblowers and facilitate the process of receiving complaints and reports, thus encouraging more people to report corrupt practices.

(E)Providing training and skills development: Training and skills development must be provided to employees in using digital technology effectively and safely, including examining and validating data and using analysis tools effectively.

In short, governance mechanisms in conjunction with digital transformation can enhance the effectiveness of anti-corruption efforts by improving transparency, enhancing accountability and accountability, developing effective oversight mechanisms, providing safe means of reporting and protecting whistleblowers, and developing the skills needed to use technology effectively.

The second section

An Empirical Study

The previous sections dealt with the theoretical background of the study by referring to the various literatures. This section covers the field study, which includes a description of the study methodology and the study population and sample, as well as the study used the methods of preparation and the validity and reliability tool. This section includes a description of the procedures carried out by a researcher at the codifying of the study, implementing, and finally statistical treatments adopted by the researcher in analysis the empirical study and showing the results.

Objectives of the field study

This study aims to examine the association between using governance mechanisms on combating corruption in light of digital transformation.

Study Hypotheses

The hypotheses are based on the theoretical part of the study as follows:

The first hypothesis: - there is no statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation.

The second hypothesis: - there is statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation.

Study Population and Determination of Sample Size

The type of data used in this study is the primary data source; the technique of collecting data is by distributing a questionnaire statement and received responses. In this study, the questionnaire was filled with: internal auditors, external auditors, accountants, university professors and financial manager.

Determine The Population size & selecting the sampling

The difficulty countless study sample either: internal auditors, external auditors, accountants, university professors and financial manager, so it was determined the sample number as one hundred respondents were used the following formula used to calculate the sample size to get proper estimates and to estimate the allowable error, namely

$$n = \frac{z^2(p(1-p))}{e^2} = \frac{(1.96)^2(0.50)(0.50)}{e^2} = \frac{(1.96)^2(0.50)(0.50)}{(0.01)} = 100$$

Whereas:

N: Refers to The sample size;

E: Refers to The amount of allowable error;

Z: Refers to Standard degree with 95% Confidence;

P: Refers to Availability Population assumes that 50% of the community.

It is the formula the researcher finds that the size of the sample that was used, one hundred respondents lead to get the correct estimates are consistent with rates in the community 95% confidence level .

Analyzing Characteristics of the Sample

It can clarify the classification of the sample in the light of the valid responses for statistical analysis, which has been obtained; the researcher has the characterization of the sample which is to Job title variables, the number of years of experience, and educational level. This is also evident from the following figures and tables as following:-

Distribution of sample items by Career are illustrated by the following table

Table (1)

Statement	Number of Distributed and	Percentage of Number of valid
External auditors	19	
University	10	
Internal	13	18.8
Financial managers	15	21.8 %
Accountants	12	17.4 %
The Total	69	100

Source: Prepared by researchers

Through the above table is study sample consisted of 100 respondents that which represents the questionnaires that have been distributed to the study sample; but what has been recovered from these questionnaires is 69 questionnaires which represent 69% of the number of questionnaires, it has been discussing what was in it from Information about the study sample were

processed and analyzed and enter data into the statistical program in order to complete the study and in the light of the above table also shows that good lists rate for statistical analysis of each category of the study groups is the appropriate rate, which can be relied upon to test the research hypotheses.

Table (2) Distribution of sample items by The Scientific Qualifications

Statement	Number of responses	Percentage of Number of responses
Bachelor's degree	20	29%
Diploma	11	16%
Master's degree	16	23 %
Doctorate	8	11.6%
Professional Certificates	14	20.4%
The Total	69	100%

Prepared by researchers

Distributed sample study on the respondents in terms of professional qualification where the researcher finds that the largest proportion recorded was Obtaining from bachelor degree total number of members of the 20 respondents the equivalent ratio of 29%, followed by master degree and their number were 16 respondents, equivalent to the proportion of 23%, followed by professional certifications, which represented the number of 14 respondents, equivalent to 20.4% ,followed by diploma total number of members of the 11 respondents the equivalent ratio of 16%,, and finally and followed by doctorate degree with a total 8 per person equivalent to the proportion of 11.6%, due this difference to the diversity found in the sample of the study in terms of academic certificates.

Table (3):- Distribution of sample items by years of experience

Statement	Number of responses	Percentage of Number of responses
Less than 5	18	26%
From 5 to 10	20	29%
More than 10	31	45 %
Total	69	100%

Source: Prepared by researchers.

The study sample and the degree of experience of the sample have differed as shown in the previous table, which shows that the largest proportion of experienced registered for the category experience more than 10 years total number of members of the 31 respondents the equivalent ratio of 45%, and then followed by the category experience from 5 to 10 years ,the equivalent ratio of 29%, finally by a category ranging by experience less than 5 years and represents a 26% ratio.

After reviewing the survey forms, the data encoding, and enter their answers on a computer using Statistical Package for Social Sciences program Version23 (SPSS). In order to make a statistical analysis of the field study data, and it was also rely on the Excel program. The researcher used the following statistical methods:

Statistics Reliability:

It is the methods that are interested in the extent of the reliability of the results of the survey based data analysis, in the sense of how homogeneous the respondents answers between them and the possibility of circulating the results to the community, through the reliability coefficient tests and coefficient of honesty. It was relying on the Cronbach's alpha coefficient (Cronbach Alpha) and the more factories increased from 0.5 indicates that the stability of coefficient in the community and the possibility of circulating the results to the community.

Validity

In order to verify the Validity of the apparent scale submitting it to the research supervisor intent to modify or cancel some paragraphs within the questionnaire, making the questionnaire more accurate and objectively measurement.

Stability

In order to make sure of the reliability of study tool, Cronbach's alpha test (Reliability Analysis) was used.

The researcher based on Cronbach's alpha coefficient, one of the reliability Statistics methods that are interested in the extent of the reliability of the results list data survey analysis of the sense of the extent of the homogeneity of the answers between the respondents of them and the possibility of circulating the results to the community, through consistency and Validity coefficient tests. The results of coefficient as follows:

Table (4) Summary results of Cronbach's coefficient alpha for study sample

the dimension	Number of Questions	Cronbach's Alpha
Includes statements measuring the effect of using governance mechanisms on combating corruption in light of digital transformation.	12	.761
The Total	12	.761

Source: prepared by the researchers by relying on SPSS program outputs.

Consequently, the researcher finds that the Cronbach's Alpha coefficient results about (.761) which indicates the relative validity of most of the answers to the hypothesis of the laboratory use.

The following is a presentation of the results of the descriptive statistical analysis of the data, which is the value of the arithmetic means, the standard deviations, the arithmetic relative importance of all dimensions of the study and the paragraphs constituting each dimension, taking into account that the scale used in the study should be included as follows:-

Strongly Agree	Agree	Neutral	dis Agree	Strongly dis Agree
5	4	3	2	1

Based on this, the values of the arithmetic averages reached by the study will be dealt with to interpret the data as follows

High	Medium	Low
More than 3.5	2.5 - 3.49	1- 2.49

Accordingly, if the arithmetic mean value of the items is greater than 3.5, then the level of perceptions is high, and this means that the sample members agree on the item. But if the value of the arithmetic mean is 2.5-3.49, then the level of perceptions is medium, and if the arithmetic mean is less than 2.49, then the level perceptions is low (Hawamdeh 2006)

Analysis and testing of data related to the study hypothesis

H₀: there is no statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation.

H₁: there is statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation.

To accept the null hypothesis or alternative hypothesis, the researcher used to means, standard deviations, and the importance of the paragraph, as shown in the following table :-

Table (5)The dimension includes statements measuring the effect of using governance mechanisms on combating corruption in light of digital transformation

Serial	The dimension includes statements measuring the effect of using governance mechanisms on combating corruption in light of digital transformation	Mean	Std. Deviation	Materiality of Paragraph	Materiality
1	Evaluating the role of accountability using expert systems to enhance governance in combating corruption	3.97	1.03	6	High
2	Applying transparency using artificial intelligence contributes to the fight against corruption	4.01	1.03	3	High
3	The presence of an effective supervisory system that uses artificial intelligence mechanisms reduces the chances of corruption	3.98	1.06	5	High
4	Expanding the scope of community participation in decision-making using digital technology contributes to the fight against corruption	4.10	.98	1	High
5	Digital transformation contributes to enhancing transparency in institutions and reducing corruption	3.99	1.11	4	High
6	The use of information technology mechanisms improves accountability procedures to confront forms of corruption.	3.91	1.12	8	High
7	The use of technology in administrative processes reduces the chances of corruption	3.85	1.09	10	High

8	Increasing the level of security and privacy in the digital systems used reduces corruption	4.03	1.00	2	High
9	Digital governance works to combat corruption	3.62	1.23	11	High
10	Continuous training of employees on the use of modern technology contributes to the fight against corruption.	3.94	1.02	7	High
11	The use of digital technology helps increase stakeholders' confidence in the company's ability to continue under competitive conditions, protect information, maintain backup copies for use when needed, and reduce the risk corruption	3.86	1.18	9	High
12	AI technologies have communication channels between those responsible for sustainability and stakeholders to coordinate work between them and examine internal and external communication protocols.	3.97	.98	6	High
The mean of the arithmetic mean of the total questions		3.93			

Source: prepared by the researcher by relying on SPSS program outputs.

The dimension includes statements measuring the effect of using governance mechanisms on combating corruption in light of digital transformation., ranging averages between it (3.62-4.10), compared to The arithmetic mean of all questions Where it reached (3.93), where paragraph which states” **Expanding the scope of community participation in decision-making using digital technology contributes to the fight against corruption.**” came in first place with a mean (4.10) and a standard deviation was (.98) compared with the overall general average mean and general standard deviation. While paragraph “**Digital governance works to combat**

corruption.” got on final place with a mean (3.62) and a standard deviation was (1.23) compared with the overall general average mean and general standard deviation.

The researchers find that this is a clear indication of the respondents through sample survey responses that there is agreement between the respondents in the questionnaire

that governance mechanisms in light of digital transformation combat corruption

, because the arithmetic mean of the questionnaire questions is greater than 3, and also that the mean of the arithmetic mean of the total questions of the first dimension is equal to 3.93 is high so **researcher accepted the alternative hypothesis that there is statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation.**, and rejected the null hypothesis.

The third section

Findings, recommendations and future studies

After presenting the theoretical side of the study and according to the data collected through the previously analyzed questionnaire and after testing the hypotheses of the study, the researcher will present this section through the following point's findings, recommendations and future studies.

Findings

After discussion of the theoretical and empirical aspects in this research, the researcher reached to important findings for both theoretical and practical fields as follows:-

1. Empirical study and its results are consistent with the theoretical study that using governance mechanisms effect on combating corruption in light of digital transformation; it provides better understanding of business intelligence processes and creates competitive advantages for adopter.
2. Applying transparency using artificial intelligence contributes to the fight against corruption, digital governance works to combat corruption, and digital transformation contributes to enhancing transparency in institutions and reducing corruption
3. Using the information technology plays an important role in enhancing the quality and reliability of information in financial statements and helps verify the complete data of an organization.
4. Using digital technology play an important role in improving the quality, reliability, and overall efficiency of processes, and helps in detecting errors and misstatements

5. The use of digital technology helps increase stakeholders' confidence in the company's ability to continue under competitive conditions, protect information, maintain backup copies for use when needed, and reduce the risk corruption.
6. The use of digital technologies improves the company's performance and competitive position and increases its ability to achieve its goals.
7. Accepting the alternative hypothesis that there is statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation.
8. Rejecting the null hypothesis that there is no statistically significant relationship between using governance mechanisms and combating corruption in light of digital transformation.

Recommendations

Based on the results of the study, the researcher suggests the following recommendations:-

- (1) Activate the use of information technologies and artificial intelligence in all sectors, to use them in data analysis and reduce corruption
- (2) The Egyptian government must pay more attention to technology industry, innovation, research and development.
- (3) Publishing new standards and regulations to govern using the information technology and artificial intelligence applications on fighting the corruption
- (4) Egyptian government must improve digital infrastructure and an infrastructure to improve Internet speed.
- (5) Using artificial intelligence in all establishments for reducing the costs

- (6) Training programs should be design and implemented to qualify accountants on applying the artificial intelligence and to keep up to deal with new developments.

Research Orientations and Future Studies

Based on the results and recommendations of this study, the researcher suggests the following future studies:-

- 1- The effect of digital governance on corruptive practices small and medium-sized companies.
- 2- The effect of information technology on the firm continuity.
- 3- The effect of artificial intelligence on firm performance.

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