1. Introduction

The governments of Iraq and other Middle Eastern countries have been working tirelessly for years to remove corruption, protect the integrity of their institutions, and build strong institutions for administering their countries. Governments in these countries are aware that corruption can thwart reforms and undermine public trust. Reforming their constitutions and laws, as well as adopting the United Nations Convention Against Corruption, have been effective ways for certain countries to rid themselves of corruption. Others, on the other hand, work to improve integrity and combat corruption throughout the Middle East and the rest of the world. Proactively managing corruption risks, increasing legal guarantees for integrity controls on government spending, and boosting accountability actors like internal and external financial reporting and anti-corruption authorities are all important to protect public sector integrity. According to the study, this is the case. As outlined by the Organization for Economic Cooperation and Development (OECD), transparent and responsible governments require excellent risk management and independent internal audit operations [1].

In the research, the importance of information technology (IT) in the corporate financial reporting under financial risks by applying a current strategy is explored. It is essential for the company to have up-to-date accounting information systems that are able to meet its standards in order for it to be able to produce an accurate external financial report. In the current investigation, the utilization of accounting information systems (with a focus on Relevance, Reliability, and Information Security) helped to reduce the potential for monetary loss. A questionnaire was developed and distributed to the research sample, which included personnel who worked as financial managers, sales teams, internal auditors, and employees working in the information systems departments of the company. This was done in order to meet the objectives of the study and fulfill the requirements of the research sample. There have been no instances of delayed projects as a result of administrative or financial corruption, and a Denominator-based variable that is pertinent to this assumption is that there have been no such delays (0.33). Both Err’s standard deviation (00) and the primary score are under tight control at the level of financial reporting (Logic processing) that we are now operating at 3.061. Utilizing a statistical tool allowed for the examination of data as well as analytical hypotheses. According to the findings of the study, there is a significant impact on the effectiveness of accounting information systems due to the risks posed by computerized financial reports. According to the findings, additional research ought to be done on methods that can boost accounting control efficiency, and asset protection programs in order to minimize control risks.

Keywords: information technology, computerized method, information system, risk assessment, financial reporting

of electronic financial reporting was evaluated using a computerized method.

Thus, employing a modern approach in the application of information technology (IT) in the financial reporting of the information costing under financial risks by the implementation of modern systems is of scientific relevance [2].

2. Literature review and problem statement

Financial reports should play an important role in government units managing public spending and preventing illegal practices by local government administrations, which is why this study is so important: it demonstrates the necessity of monitoring public expenditure and the impact it has on the federal budget. An in-depth look at the most pressing issues facing internal audit departments is presented here in an effort to alert key players to the need to improve the efficiency and effectiveness of these departments in their efforts to safeguard public monies from corruption.

Regardless of whether the business is public, governmental, or private, financial reports are a crucial tool that departments can use to assist them to reach their goals. In order to achieve its objectives and those of the organization it serves, financial reporting must adhere to professional standards and avoid conflicts of interest. Corruption has been rampant throughout Iraq’s ministries and units since 2003, despite the defunct Coalition Authority’s decision to form the Integrity Commission and the offices of Inspector General Nos. 55 and 57, as well as provincial anti-corruption committees. There are no ideal solutions, yet corruption is still an issue. Numerous academics in this field believe that the lack of a genuine desire by political elites to deal with this failure is the reason for the continued rise in public spending between 2003 and 2020, particularly for the referral of general contracting and strategic projects without the presence of tangible services on the ground [3].

Regulatory agencies’ ability to detect financial irregularities and a concerted effort to identify and diagnose the causes of corruption are two of the most critical tools in the fight against financial and administrative corruption, both of which must be developed as part of a comprehensive strategy. What is the role of financial reports in government units monitoring and limiting the level of corruption on public funds Iraq’s financial reporting procedures and the most significant obstacles to public finance regulation and the reduction of illegal abuses by local government administrations in the governorates are at the center of this investigation. This takes into account the need for a steward who is capable of dealing with this situation in accordance with the theory of the agent’s self-interest. When it comes to describing how an auditor interacts with a company, we currently accept the stewardship model [4].

There can be no private sector ownership or management for a company to be recognized as public sector; rather the federal government has to set it up and run it on behalf of the general public. The public sector is made up of organizations whose operations are regulated by the federal and state governments, respectively. Because profit is not the major motivation, the public sector strives to provide services to the public for free or at a minimal cost. Public sector success can be difficult to measure, notwithstanding the absence of economic incentives and the difficulty of measuring intangible services [5].

Governing bodies and all agencies and organizations that are subject to public scrutiny or financed by the public sector are included in the IIA Guide 2011. Public goods and services can also be provided by a wide range of organizations. To help define the public sector as a notion that encompasses more than just the government, specific criteria must be defined. The core of the public sector is the basic government, which then comprises public agencies and institutions. In the middle of the circle are government-funded contractors and publicly owned businesses, but they are not part of the public sector [6].

With regard to Wegrich’s definition of the public sector, it includes all levels of government and state-owned enterprises, but excludes private businesses and volunteer organizations. Public sector work involves all aspects of government ownership and control, including the use of public power and the implementation of policy. Central and sub-national government entities provide the most fundamental public service [7]. Some authors claimed that authority over state property has been known since the Babylonians. Anyone who tries to steal from a deity or palace, even if it’s just a small amount of money, will be put to death. The assets of temples and palaces are owned by the people who use them, as they are public institutions. Because of this, the punishment was terrible, resulting in the death penalty for anyone who snatched from God’s property. Article 6 of the Constitution, according to some experts, is the first piece of legislation to apply the Constitution’s prohibitions on the use of public funds [5].

Internal audit is an independent evaluation function within an organization to review activities as a service for all levels of management. It is envisaged that the internal audit unit will carry out audits and verify the methods used to preserve and verify assets and report on their results as part of its duty in ensuring the efficient use of the organization’s resources. The budget execution authorities’ responsibility for current and capital expenditures and cash flow and procurement procedures are the subject of financial control. When conducting an internal audit, the goal is to provide management with an in-depth look at all of the activities they have been responsible for managing. To ensure the long-term viability of any business or organization, internal audit units are given the authority to independently verify compliance with the laws and regulations in place at the institution [8].

According to the Institute of Internal Auditors (IIA), financial reporting is an objective and independent activity that confirms the level of control through operations, as well as making recommendations for improving operations and providing value to a company. As an added assurance of proper financial control in the public sector, it is required that each ministry and quasi-governmental entity, in addition to a government, to ensure the financial health of the company, will be responsible for conducting a comprehensive investigation of all accounting records to look for evidence of fraud and correct any mistakes that are discovered [9].

As stated by the Institute of Internal Auditors, financial reports provide an objective and independent means of evaluating and improving the efficacy of risk management, control, and governance processes while also adding value to and benefiting the business as a whole. Management and the audit committee receive information from internal auditing about the organization’s risk management practices. It performs the role of internal consultant in a variety of fields.
of expertise. Internal audits also add to the efficiency and effectiveness of governance, risk management, and control activities if they provide objective and adequate assurance. Internal audit adds to [10] through the review and formulation of recommendations.

According to the findings, the public needs access to government financial statements in order to hold the government responsible. In government institutions like the military, police force, and the departments of transportation, health, and education, it is essential to maintain transparency when it comes to linking funding with program outcomes. The job of the internal auditors is to make sure that the company complies with all applicable laws and regulations. However, even though they are subject to internal audit, staff financial reports on accounts, departments, and regions of the federal government not associated with a region and their programs are subject to scrutiny by the Federal Office of Financial Supervision to see if laws passed by Congress and instructions issued by federal ministries or local governments have been followed [11].

As internal auditors are required to have the information and skills necessary to fulfill their duties, the more efficient internal auditors are, the more likely they are to grasp the elements that lead to and indicate managerial bias in accounting entitlements and how they can be moderated. In addition, if management has reason to believe that the competent IAF is examining its accounting decisions, it has less incentive to aggressively manage earnings. Executive management in the public sector must have reasonable assurances that the internal control system can prevent or discover any large inaccurate transactions, according to SAS No. 65 [12]. However, if it is incomplete or not permitted, it can be deleted. Asset protection, risk management, and the establishment’s policies are all examined for faults. As highlighted by [13], the complexity of the internal control system is directly related to the scope of government internal audits. Internal control systems can also help to ensure that the organization’s aims and objectives are met, as well. In 2003, the Board of Governors of the US Federal Reserve System adopted a supplementary policy statement on the internal audit function and outsourcing. Internal audits should identify significant overall control concerns as part of risk assessment processes and analyze the overall impact of such issues on the enterprise risk profile in order to provide assurance that the facility will comply with rules, instructions, laws, policies and plans. Additional audit coverage is expected in the business operations that represent the largest risk to the company [14].

Internal control was initially described by the American Institute of Certified Public Accountants (AICPA) as a strategy, means, and other coordinated methods of the institution to safeguard its assets and ensure the confidentiality and reliability of data, as well as to improve its effectiveness and ensure stable management policies. As a result, control’s meaning has changed over time. Internal control systems have been referred to as a means of safeguarding the integrity and growth of the institution’s assets as of today. The COSO model was introduced in 1992 and deals with risk and internal control concepts. It was not only accounting errors and the application of methods to prevent them that were covered by the concept of internal control, but also areas of management and other control procedures [15].

Internal control and internal audit specialists’ professional development. Auditing professionals in the Middle East and North Africa need to have their competence validated by professional organizations and other activities aimed at enhancing their skills. Specific procedures must be implemented in some countries in order to deal with the issues of high turnover of employees and a lack of technical experience in audit methods. Observers and auditors in the public sector must be recruited through specialized channels and compensated appropriately if they are to maintain their current levels of expertise and advance their careers. When it comes to financial reporting, internal auditors need to keep up with the newest advancements and adapt worldwide financial reporting standards and methodologies to reflect local norms [16].

Performance audits that focus on economics, efficiency, and effectiveness, government policies and programs aimed at finding deviations from defined targets, as well as detecting fraud and corruption concerns, are examples of areas where professional judgment is crucial. The Organization for Economic Co-operation and Development (OECD) released a report in 2017. Internal audit and control are not always sufficient management tools, and this must be recognized. Accounting and governance systems are only as good as their ability to account for them. Internal control and audit functions must be integrated with organizational governance reforms such as strategic planning, accounting, budgeting, a medium-term spending framework (such as capital expenditures), procurement, and reporting [17].

In the corporate world, there are various versions of the public sector. Since the transition from the communist system to the market economy has led to a shift in the activity of internal control over the activity of public institutions, there is no market economy outside of the public sector. Unlike external auditors, who are hired from outside the company, an internal auditor is an employee of the company’s management team. The internal control system has been examined by an independent department created by the company’s management. In order for internal audit to be effective, it must be manned by persons who are well-trained and well-funded.

General budget directives provided by the Ministry of Finance upon the passage of the state’s general budget are implemented by the government machinery in all state ministries, regardless of whether it is a current or investment budget. To create current accounts with government banks, Iraq’s local governments, sovereign ministries, and their subordinate units must first receive approval from the Ministry of Finance to deposit funds from their respective budgets, according to Al-Awad (2019). Pre-disbursement audits by the internal audit guarantee that funds are spent in accordance with the approved allocations and that regular records are maintained, as well as that the monthly and final audit balances are accurate [18].

Regardless of whether they are local governments or federal ministries, all government entities receiving financial support from the federal government must open current and investment accounts, as well as income and trust funds. The primary units’ current and investment accounts are funded by the Accounting Department – Monetary Affairs Department. According to the branches’ current system, the major units provide funding to the sub-units. Then, the sub-units transmit their monthly accounts, which are combined into a consolidated monthly account, which the Accounting Department receives and tries to match with the state’s monthly account [19].
Transparency in the government’s budget is a necessity, but it is not sufficient in and of itself to improve government accountability. Stakeholders’ ability to hold the government accountable for policy goals may be limited by the limited involvement of the cabinet in the examination and approval of budget standards, and by the comparatively limited focus of the legislature during the budget negotiations on the extent to which budget allocations are tied to government programs. There must be accountability for participation in the budget process in order to guarantee that the budget not only reflects local needs, but also participation in monitoring and assessment [20].

The development of systems and methods for monitoring and compiling financial data is linked to financial and administrative corruption. Its mission, examination and financial reports are not simple, but rather require vast armies from all state and society organizations, as well as proper accounting systems that are defined by accurate management of accounting [21]. The allocation of available resources with the maximum possible efficiency and an effective tool to limit the manifestations of corruption and therefore achieve economic development are two important aspects of corruption by passed financial reports. Inadequacy and excess are hidden in the financial data and reports that are traditionally scrutinized, which could prevent scarce resources from being distributed rationally and hinder the achievement of economic unit and state objectives. Because of its overall budgets since 2003, Iraq has suffered from administrative and financial corruption in the public sector, particularly in the local governments in the governorates.

Therefore, the main problem of the current study is to analyze the incorporation of financial reporting based on information technology.

3. The aim and objectives of the study

The aim of the study is to analyze the financial reporting under financial risks using the technical method (IT) along with the mathematical model.

To achieve this aim, the following objectives are accomplished:
– to investigate the reliability based on the modern method of financial reporting;
– to predict financial risks based on the IT approach;
– to explain the information technology and its role in the general risk assessment;
– to analyze the corporate financial reporting (Logic processing).

4. Materials and methods

4.1. Programmed model based on information technology

For the current study, both the user and the indicator for the financial reporting are aware of what \( q \) is. The equation that is used to compute the public key is as follows, with \( d \) standing for the scalar variable. The data that has been provided will be examined in accordance with the following model. Two separate numbers, namely, \( X \) and \( Y \), are utilized to compute that signature with the suitable derivation of integer LOG from a basis of comparison \( P(x, y) \) and random number \( K1 \):

\[
P(\text{Variable})=K1X+K1Y2+\text{LOG}(G).
\]

\( K1 \) and \( K2 \) have been considered to be used as the main constants of the variables. Since the \( G \) value has a large value thus it has been used as LOG. The process has been done due to the two axes \((X, Y)\).

4.2. Computerized modeling methodology of financial risk based on the information system

Fig. 1 shows the mathematical model that uses computer programs to investigate and explore complex systems and an algorithmic approach. The current study consists of the input data of the internal financial reports, and the second stage is going to Analyzing based on computing. At the final stage, all given and gathered data are verified based on information technology.

![Fig. 1. Computing process based on information technology](image)

According to what has been mentioned, the findings of this investigation will proceed via three primary stages. It began with the date of the financial reporting input and ended with the verification of the results. During that time, it is subjected to a suitable algorithm for processing.

5. Results of the implementation of information technology (IT) in financial reporting under financial risks

5.1. Reliability based on the modern method of financial reporting

To assess the reliability, the study tool for the pilot test, Cronbach’s Alpha was employed and the findings confirmed a Cronbach ‘s alpha coefficient was 0.001 for all elements, and the values of computerized comparison range from 0.45 to 0.37, which implies that the findings are reliable. The computerized relative values of the study’s variables are shown in Table 1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Factors</th>
<th>Computerized relative values</th>
<th>Cronbach's results</th>
</tr>
</thead>
<tbody>
<tr>
<td>electronic</td>
<td>Reliability of financial reports based on electronic systems</td>
<td>0.45</td>
<td>0.001</td>
</tr>
<tr>
<td>electronic</td>
<td>Impact of financial reports based on electronic systems</td>
<td>0.37</td>
<td>0.004</td>
</tr>
<tr>
<td>electronic</td>
<td>Audit risk based on electronic systems</td>
<td>0.54</td>
<td>0.003</td>
</tr>
</tbody>
</table>
5. 2. Financial risks based on the information technology approach

The output of the monitoring system and the communication system are shown in Table 2. In addition, the high coefficients of consistency and stability across all survey domains (above 90%) show that the results are reliable. In order to make sure that it would be reliable, the questionnaire was given to a broad group of people and then analyzed based on their responses. The results that are shown in Table 2 were based on the people who responded to the survey. The results indicated that it has the highest value of relative importance of 0.663 with a standard deviation of 0.44, and the main score of 1, the best variable on the first axis is numerator-based and relates to the existence of adequate control and transparency in the announcement of government tenders in accordance with the instructions in force (00). This shows that there is a lack of proper control and transparency in government procurements, which is problematic. For the variable Denominator-based related to (no delayed projects exist because of cases of administrative and financial corruption) and with an F-statistic of 00 and the main score of 0.33 indicating that the sample members agree on the existence of government projects that are lagging due to cases of administrative and financial corruption, the lowest relative importance value is 0.43.

<table>
<thead>
<tr>
<th>Main factor</th>
<th>Numerator-based</th>
<th>Denominator-based</th>
<th>F-statistic</th>
<th>Value of ( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring system output</td>
<td>0.55</td>
<td>334</td>
<td>0.44</td>
<td>0.33</td>
</tr>
<tr>
<td>Communication system output</td>
<td>0.7</td>
<td>213</td>
<td>0.00</td>
<td>0.34</td>
</tr>
<tr>
<td>Monitoring incorporation with communication</td>
<td>0.9</td>
<td>322</td>
<td>0.44</td>
<td>0.43</td>
</tr>
</tbody>
</table>

Regarding the third axis, the best variable within the axis was X54 and related to (there are sometimes pressures from members of the Governorate Council on the internal audit team to pass the contractor’s predecessor despite the presence of legal violations) because it has the highest value of relative importance, which is 0.798 with a standard deviation of 0.9362 and the main score of 3.988, which indicates that the sample members agreed that there were pressures from the members of the Governorate Council on the audit team to pass the contractor’s advances despite the presence of legal violations. As for the minimum value of materiality, it is 0.768 for the variable X56 related to (some governorate councils intervene to transfer the members of the audit team when objecting to legal and financial violations) and with a standard deviation of 1.0712 and the main score of 3.841 indicating that the sample members agree on the question.

5. 3. Information technology and its role in the general risk assessment

In terms of the fourth axis, the risk based on general control and financial reports-based risk was the variable. The internal audit team reviews the accounting records to ensure that the accounting entries were recorded accurately in terms of proof and amount due, and this risk is based on detection, which has a value of materiality of 0.092 with a standard deviation of 0.12 and the main score of 0.12. (00) shows that the sample members agreed that these processes should be carried out by the internal audit. According to the maximum number of repetitions, (9) is the lowest value of materiality (there is continuous cooperation between financial reports and integrity to reduce waste in public expenditures and combat administrative and financial corruption). Collaboration with oversight authorities to promote anti-corruption initiatives is supported by the sample members with a standard deviation of 0.03 as shown in Table 3.

### Table 3

<table>
<thead>
<tr>
<th>Factors</th>
<th>Standard deviation</th>
<th>Repetition</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk based on general control</td>
<td>0.03</td>
<td>3</td>
<td>0.09</td>
</tr>
<tr>
<td>Risk based on internal financial reports</td>
<td>0.12</td>
<td>9</td>
<td>0.99</td>
</tr>
<tr>
<td>Risk based on detection</td>
<td>0.002</td>
<td>8</td>
<td>0.102</td>
</tr>
</tbody>
</table>

The four primary criteria of risks have been processed and presented in Table 3, which is based on the mean, the standard deviation, and the repetition.

5. 4. General computerized analytics of the corporate financial reporting (Logic processing)

Because it has the highest relative error value of 0.03, a standard deviation of 0.6, and the main score of 3.2, which indicates a lack of agreement, the best variable on the second axis is standard deviation, which is related to (the procurement, maintenance, and fuel committees are formed from three or more employees in accordance with the instructions for implementing the federal budget). Because they disagree on whether or not there is appropriate control over Err’s standard deviation (00) and main score (3.061), the sample members agreed to a number of people on procurement committees as shown in Table 4.

### Table 4

<table>
<thead>
<tr>
<th>Items</th>
<th>Variables</th>
<th>Standard deviation</th>
<th>Error</th>
<th>G-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Internal financial reports</td>
<td>0.03</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>2 Information system</td>
<td>0.06</td>
<td>0.03</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>3 Logic detection</td>
<td>0.56</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>4 Error detection</td>
<td>0.00</td>
<td>0.00</td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td>5 Customize internal control</td>
<td>0.34</td>
<td>0.05</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>6 Programmed software</td>
<td>0.03</td>
<td>0.09</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

A statistical technique was taken, and it was used to analyze these six primary parameters. This inquiry also takes into account standard deviations in addition to standard er-
ror. In addition, G-values have been taken into consideration for each of these factors.

6. Discussion of the implementation of information technology (IT) in financial reporting under financial risks

Both the reliability based on the current system of financial reporting and the expected financial risks based on the IT approach have been explained and examined in the appropriate manner. This was done in order to ensure that the appropriate action is taken. In addition to the anticipated financial risks based on the IT strategy based on the logic processing.

An examination into the reality of the situation using the method of computerized financial records is shown in Table 1.

Table 2 presents the results of financial reports calculated using the denominator function and the numerator function. The fundamental information pertaining to the electronic general financial risk systems is presented in Table 4.

The findings of the study are restricted to offering solutions to issues concerning the manner in which financial reports are prepared. The proposed technique has been modified to do an incremental analysis of the input.

This study has a number of potential drawbacks, such as the fact that the suggested solution can only be applied to the particular issue that is associated with financial reporting.

The process of examining the data to determine the level of financial risk posed by the implementation of financial reporting has been met with a number of obstacles. In addition to that, utilizing a novel strategy by adopting an IT-based approach presents a significant obstacle.

The application of information technology (IT) in the financial reporting of the information costing under financial risks: utilizing a current methodology is the basis for the proposed solution i.

When weighed against the findings of other studies, this one has a number of significant advantages. It has been decided to use an innovative new approach that makes use of many forms of information technology.

The scope of this study is constrained to the examination of the particular test that will cover the risk assessment for the current study. In order to do analysis on the data that were provided, a particular method and a fresh model were used.

When the data from the current study are analyzed, one can identify a number of problems, and a summary of these drawbacks can be provided as follows: implementation of the raw data within the proposed algorithm, which requires more than the trial in order to obtain the results with a minimum value of the error.

7. Conclusions

1. The modern method of financial reporting has been investigated using Cronbach’s Alpha indicator and it was 0.001 for all elements, and the values of computerized comparison range from 0.45 to 0.37, which implies that the findings are reliable.

2. The financial prediction of the risk by using the IT approach has been employed and tested using Numerator and Denominator methods. The final results show F-statistic (00) and main score (0.33) indicating that the sample members agree on the existence of government projects that are lagging due to cases of administrative and financial corruption, the lowest relative importance value is 0.43.

3. The role of information technology in the general risk assessment has been done using repetition and mean for the main criteria (Risk assessment). As well as the accounting records to ensure that the accounting entries were recorded accurately in terms of proof and amount due, and this risk is based on the detection, which has a value of materiality of 0.092 with a standard deviation of 0.12 and the main score of 0.12.

4. The corporate financial reporting (Logic processing) has been investigated using Err’s standard deviation with a value of 00 and the main score with a value of 3.061.

References


