



Internal Auditing in light of Big Data Technology as a starting point for achieving Quality of Accounting Information.

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Abstract:

This study aims to determine the effect of internal auditing on the accounting information quality by the moderating role of big data.

The study relied on the survey list directed to the employees on the Egyptian listed companies, The study sample is 392 observations.

The Survey Study concluded that there is statistically significant relationship between Internal Audit and Quality of Accounting Information, There is statistically significant relationship between Big Data Technology and Quality of Accounting Information and there is statistically significant relationship to the impact of big data on the relationship between Internal Audit and Quality of Accounting Information.

The study recommends the need for institutions to pay attention to new cloud computing technologies (fog computing, edge computing) to improve the storage, processing and maintaining the integrity and confidentiality of big data, the need for institutions to commit to the Egyptian Stock Exchange to follow up on updates in the field of data, Big data and its application, modifying the courses of accounting departments in Egyptian universities to accommodate the phenomenon of big data and developing new courses and programs in the field of big data analytics.

Keywords: Internal Audit, Accounting Information Quality, Big Data, Cloud Computing, Fog computing, Edge computing.

1. The general framework of the study.

1.1 Introduction :-

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The internal audit profession seeks to meet the changing needs of institutions, At first, it focused on accounting problems facing institutions, but now it has become a powerful tool for risk assessment and management (Munteanua&Zahariab, 2014:2239)

Internal audit helps obtain additional value through the implemented activities (evaluation of the internal control system and analysis of risks associated with the activities subject to audit and recommendations recorded in the reports prepared and submitted for the purpose of achieving the objectives of the institution). The internal audit activity is based on a widely accepted and flexible frame of reference, in compliance with the rules governing the various sectors of activity. The internal audit cannot achieve the objectives of the institution except through the existence of an organized internal control system consisting of standards, professional rules and procedural guides (Ib.cid:2241).

The importance of the quality of accounting information has increased in recent years due to the financial crises that institutions are exposed to and that affect the users of financial reports Despite the availability of large amounts of data at the present time, it represents a challenge for accountants and decision makers. Big data is one of the challenges that institutions face due to the difficulty of analyzing and benefiting from it. Therefore, big data analytics need more studies and analysis (Younis, 2020, 884) .

The concept of big data and big data analytics has spread recently, many institutions use big data analytics in order to maintain the profitability of institutions , achieve a competitive advantage and help internal auditors and external auditors to obtain a greater amount of information and benefit from it in audit functions and risk management (Sharma et al, 2015:1). It also helps the auditors improve their ability to communicate the results of the audit , by increasing the ability of client to understand and increase the value(Salijeni et al,2019:11),reducing the cost of the audit process(Ib.cid: 20)

Institutions are interested in the quality of accounting information to provide accounting information to stakeholders, which reduces the consistency of information for the parties that use the information and help them in making economic decisions. Institutions are keen on the availability of an effective internal control system to ensure the accuracy of the quality of accounting information (Wang, 2022:1).

1.2 Research problem:

Internal audit faces many challenges resulting from the successive changes and rapid development in information technology (Handoko, et al 2020:2906). The concept of quality of accounting information is linked to internal auditing to help the accounting unit obtain high-quality financial statements (Al-Chahadah et al, 2018,157). Big data analytics collects and processes large amounts of financial and non-financial data, internal and external data, and thus provides the necessary information needs for stakeholders (Ibrahim et al, 2021:9) As the volume of data has increased, institutions have been required to keep big data on cloud computing, Institutions are also currently facing a major challenge due to the availability of large amounts of data, which is the extent of these institutions' ability to control and analyze that data (Handoko, et al 2020, 2906). Big data analytics can help the internal auditors to access and analyze larger amounts of data, enable Auditors to obtain sufficient audit evidence, increase the effectiveness of the auditor's activity, benefit from big data analyzes in the development of internal audit and How can this development contribute to improving the quality of accounting information through the following dimensions: the Relevance of information and the reliability of information as defined in the conceptual framework for financial reporting of the Financial Accounting Standards Board (FASB) and International Accounting Standards Board(IASB).

In light of this, the main research question is:

- What is the impact of Internal audit on the quality of accounting information in light of big data technology?

This general question can be divided into sub-questions:

- 1- What is the role of big data in improving the internal audit process?
- 2- What is the extent of application of big data analytics in companies listed on the Egyptian Stock Exchange?
- 3- What are the internal audit controls in light of new cloud computing technologies?
- 4- What is the nature of the relationship between the use of New technologies for cloud computing, which are fog computing and edge computing, and the effectiveness of Internal audit?

1.3 Literature Review.

Tang et al (2017) determine the impact of applying big data analytics on the Internal audit function. Data were collected through interviews with twelve chief audit executives(CAE) In six for-profit institutions and six non-profit institutions in several industries .Study concluded that The chief audit executives concur the importance of the internal audit work team obtaining certifications and licenses, especially the Certified Public Accountants(CPA) license.They emphasized the importance of big data analytics In the internal audit function and believe that internal auditors must have the necessary skills and experience of concepts and data analysis tools.

Al-Htaybat& Alberti-Alhtaybat (2017) investigate the impact of big data technology on corporate reports.This study relied a qualitative study. Study concluded that the Institutions need the information that is provided by analyzing and processing data through big data technology and benefit from it in preparing financial statements .Big data technology helps institutions reduce the timing of preparing their reports with more accuracy,Big data and corporate reports face many Contradictions,The availability of reports in the appropriate Timing will be affects the reliability of these reports, This contradiction contribute to creating a challenge for management In institutions and stakeholders to verify the reliability of these reports. The other contradiction is simplicity versus complexity. BDA provides simplified and understandable information in reports, On the other hand,it can Increase the complexity of reports becausee data scientists do not have sufficient analytical skills. Therefore, institutions seek to integrate the tacit knowledge of an accountant with the analytical skills of data scientists .

Idil et al (2018) determine the impact of big data analytics on Internal audit. This study relied on the exploration approach. Study concluded that the internal audit is considered more systematic when It is related to the ERP system. Big data analytics helps Internal audit reduce human error, detect fraud, reduce costs, obtain proven results and manage risk. Develop data entry standards to better perform big data analytics.

Rakipi et al (2021) Study the impact of big data analytics on internal auditing function. Data was collected from 1,681 chief audit executives in 82 countries. Study concluded that Big data analytics helps the internal audit function to obtain value from big data and benefit from it in increasing the effectiveness of the internal audit function and enhancing the efficiency of its activities in light of the development of big data technologies. Big data analytics helps increase the ability of the internal audit function to improve the internal control system, detect deficiencies in it, and detect administrative fraud.

Joshi (2021)examine the main factors that affect the effectiveness of internal auditing in Nifty-500 institutions in India .The study used factor analysis and multiple regression techniques. Random samples were taken from 300 institutions included in the Nifty-500 in India through Smart Survey. Study concluded that Big data analytics interactions of the Internal audit with the audit committee are two factors affecting the effectiveness of the internal audit.persons responsible For hiring the internal auditors must not have any connection with the entity responsible for their rewards.

Saleh et al(2022) investigate the impact of big data analytics on the quality of financial reports.This study relied on a qualitative study, data were collected through semi-structured interviews with 127 accountants, auditors and financial analysts in accounting and auditing institutions in Canada . Study concluded that The importance of the role of big data analytics in increasing the quality of financial reports, The application of BDA and its association with financial reports enhances the competitive advantage of institutions, improves the quality of accounting and financial information, and Enhancing the credibility of the financial position due to the availability of verifiability, Faithful representation and impartiality in the accounting information contained in the financial reports.

Falana et al (2023) determine the impact of Big Data on the Quality of Accounting Information. The study relied on a survey research design. The data was collected through a questionnaire, the study population consisted of 157 companies. Study concluded that the characteristics of big data (volume, variety and Velocity) affect the timeliness of accounting information and thus improve the quality of accounting information in Nigerian institutions. Big data can be used in financial accounting and reporting to improve the quality of accounting information. The great value in data provided by big data helps in the development of institutions.

Kmaleh (2023) determine the impact of cloud computing on the quality of accounting information. This study relied on the descriptive analytical approach. The study sample was randomly selected from a group of Jordanian companies. The study found that cloud computing has a positive impact on the quality of accounting information. Institutions are exposed to risks resulting from the application of cloud computing, such as security risks and contractual gaps. Material risks do not affect the development of international financial reporting standards.

1.4 Research objectives :

The main objective of this study is to study the impact of internal auditing on the quality of accounting information in light of big data technology

Therefore, this study seeks to achieve the following objectives : -

- This study aims to determine the role of big data and cloud computing technologies in improving the effectiveness of internal audit.
- This study aims to clarify the role of big data in institutions.
- This study aims to determine the role of big data in improving the quality of accounting information.
- The Study aims to Measure awareness of internal auditors of the advantages of using big data.

1.5 Research Scope:

The limits of the study represent the scope within which the issue will be addressed.

The research is limited to studying the impact of internal auditing in light of big data techniques on the quality of accounting information on a sample of companies listed on the Egyptian Stock Exchange.

2. The Theoretical Framework of the Study.

2.1 The Concept of Big Data.

Big data analytics is defined according to study of (Deniswara, 2020 : 377) as it is An analytical technique used to check all procedures of receiving huge amounts of data that help in detecting errors, fraud and opportunities to assist institutions in making decisions. Technology that is in the form of programmed software is used in the analysis process.

2.1.1 characteristics of big data.

Study of (Ashraf,2017:26) presented 6 characteristics of big data (6Vs), as follows:

- Volume : institutions have huge amounts of data that are difficult to process and analyze
- Variety: Groups of data that have different formats such as quantitative and mixed text formats, images, videos, documents, and spreadsheets.
- Velocity: Refers to the rapid frequency at which new data is available for processing in order to meet requirements and needs.
- Veracity : Refers to increasing the quality of data through the availability of reliable data. Dealing with inaccurate data that is processed by using tools and analytics to manage and extract data, which can contain valuable information.
- Variability: This property indicates data inconsistency which causes problem in data analysis and data management. Obtaining large data from multiple sources, and this data is inconsistent and

unrelated, such as data collected from multiple sensors or servers, which is inconsistent in reporting. This case is called complexity. Therefore, the data must be linked and connected .

- Value: Big data indicates that the data is of little value in relation to its size, but more value can be obtained from the data by using big data analytics applications to analyze larger amounts of data.

2.1.2 Big Data Techniques.

1- Hadoop Approach

Hadoop Approach is an open source software framework that helps in analyzing, storing and processing large amounts of data to produce information that helps increase the profits of institutions (Deniswara, 2020:381). It includes data integration, monitoring, and workflow scheduling (Ishwarappe, Anuradha, 2015:323).

2- Machine learning :

Machine learning is one of the big data technologies. It has also been used in many fields such as artificial intelligence. Algorithms designed for machine learning have a clear property of discovering knowledge and making decisions automatically (Singh et all, 2016:233). It helps complete required tasks automatically by enabling computer systems to learn from data (Ali et all, 2016:4).

3- Neural Networks

Neural networks are characterized by their ability to extract complex patterns and detect complex trends (Singh et all, 2016:232). Association analysis

4- Association analysis

helps analyze data from multiple sources, types, and domains. Big data is collected without special sampling strategies. Association rules are created by analyzing data to identify recurring if/then patterns and using support and trust criteria to determine the significance of relationships. Support is an indicator of how frequently items appear in the transaction database. Confidence is an indicator of how frequently the if/then statements are true (Shu, 2016 :122).

5- Data mining

Data mining represents the process of searching huge amounts of data through algorithms to access hidden information through statistical methods, analytical processing via the Internet, and machine learning. The application of this modern method in institutions has importance on the internal audit process (Nan Nan, 2022:1).

2.2 Cloud Computing.

Recently, the interest of developed countries in the internal audit profession has increased for many reasons, the most important of which are the large size of institutions, the spread of multinational companies and international companies, and the separation of management from ownership. Institutions are interested in the Internal audit profession in several ways, the most important of which is establishing independent internal audit departments to support institutions from all material and human aspects to achieve the institution's goals with high efficiency, establishing internal control and internal audit systems to ensure work safety and adherence to senior management policies and instructions. However, due to developments in information technology and the emergence of cloud accounting, models design methods and accounting software applications have evolved to meet the needs of users of financial statements in obtaining reliable accounting reports (Abdulmunim, 2018: 158)

2.2.1 Cloud computing faces many risks, including:

First: Risks related to physical capabilities, which are represented by the slowness of the Internet, which affects the provision of information in a timely manner, and a lack of technological infrastructure that would help institutions determine the necessary accounting services from cloud computing (Kmaleh, 2023:15).

Second: Risks related to legislation and laws, the most important of which are the risks of not having accounting standards that determine the extent of the commitment of both parties, both the institution that used the service and the institution that provided it in the contractual procedure, the risks of

not having laws or standards to protect the intellectual property of data and accounting information for the institution using the service (Ib.cid,16).

Third: Risks related to procedural gaps, meaning the gaps that occurred when dealing with cloud computing, and this leads to a lack of security and privacy of data, which increases the risks. When the user places all the information on the cloud, accounting files and records can be exposed to hacking, The inability to protect intellectual property rights and thus the lack of a guarantee that these rights will not be violated, the inability to control records and accounting information because all this information has become under the control of the service provider and he knows the password (Ib.cid,16).

Fourth: Risks related to the academic and professional qualifications of the work team: The use of cloud computing requires experience in dealing with programs by users and accounting experience in preparing financial reports, risks resulting from the lack of programs to qualify users to prepare and analyze accounting data and prepare financial reports using cloud computing (Ib.cid:16).

2.3 Internal audit in a big data environment.

Although Big Data technologies do not dispense with traditional audit procedures, they help auditors in procedures that were not possible, data analysis technologies help to analyze all transactions that are recorded (Chu, Youg, 2021:49). Big Data Technologies open up a world of opportunities for storing and processing external data and unstructured data, thereby enabling companies to make productive decisions. The integration of big data with a data warehouse allows institutions to work efficiently with a low cost of storage and Analytics, Data Analytics can be used on consolidated data to gain better insights. The Hadoop framework is less cost compared to other technologies and provides huge benefits to institutions . Hence, it is widely preferred by institutions all over the world (Sheri, 2018:65).

Big data In the audit profession includes business transactions recorded in general and subsidiary ledgers, reports and financial statements, audit balances, industry data and social media data, so large audit firms that have the capabilities, programs and experience have to apply Big Data Analytics in

the audit process to meet the needs of their clients, Small audit firms can outsource audit data analysis tools such as organizations specializing in data analysis, the data analysis process involves testing all business transactions using data analysis tools (Sanoran, Ruangprapun, 2023:3).

The audit process faces many challenges with the advent of the era of big data and the audit work is becoming more and more difficult, Big Data technology helps to analyze and process all data, improve structured data processing and compensate for insufficient audit samples, It is difficult to obtain some audit evidence in the traditional audit process, and therefore it is not possible to ensure the validity of the audit process, but while the institutions depend on the use of big data technology, audit evidence is easily available and audit evidence is becoming more relevant, but at the same time, it is not possible to ensure the credibility of the integrity of the audit evidence. The data can be erroneous or intentionally tampered with when entering the information system (Qiu, 2022:2).

2.3.1 The study (Shabani, 2022: 5,6,7) presented the advantages of using big data analytics in internal audit work in institutions.

1- Risk assessment.

Through the use of BDA, internal auditors can collect and analyze data related to the institution in order to provide more comprehensive insights about it , BDA can be integrated into internal audit to obtain the information needed by the internal auditor in a timely manner, the use of BDA helps to improve the assessment of current and potential risks, whether inside and outside the institution to achieve more accurate results and thus improve business processes, whether daily and long-term, and increase the efficiency, effectiveness and profitability of institutions .

2- Compliance Assurance .

The occurrence of any error in the audit process can put the business beyond compliance. The use of big data analytics helps auditors to set up controls in the audit system and monitor those elements to see if the institution is complying with the rules and standards .

3- Fraud Detection .

Big Data Analytics helps to provide the information that an internal audit needs in a timely manner and thus detect risks more quickly. BDA tools enable auditors to convert all raw data into structured and formatted information that is easy to understand, BDA helps auditors get their work done efficiently and draw conclusions faster.

2.3.2 Study of(Wang, 2020:3,4) presented that:

The strategy of internal audit merging into Big Data environment .

1- Create a cloud audit platform with large data processing ability.

The ability to access data is a challenge facing institution, it should build a cloud audit system with the help of information department. The audit data section of the cloud audit platform should have the following functions: efficient management, comprehensive sharing and flexible search. The following functions should be available in the Audit application section :continuous monitoring, intelligent data analysis. And in the audit management section should have the Functions of intelligent management and result sharing. The cloud audit platform helps to get more accurate and reliable audit results.

2- Building a data-driven internal audit system

Data analytics tools help analyze valuable data and obtain information that will assist auditors in assessing and managing risk. Creating a data-driven internal audit system further standardizes internal audit work.

3- Establishment of internal audit system guided by information .

The information system assists in the preparation of many audit planning actions: the formulation and adjustment of control, allocating audit resources. Establishing an information-guided audit system helps the internal audit to perform its work accurately and in a timely manner, improve its effectiveness, and thus improve the quality of the internal audit process.

2.4 The Role of internal auditing in improving the quality of accounting information Through big data technology.

As the complexity of the business increases over time, the gap between the expectations of users of financial statements and auditors increases, users expect absolute fairness in presenting financial statements, so auditors seek to reduce the gap between users' expectations and what auditors actually provide by increasing the quality of the audit process, which may be expensive and time-consuming (Shabani et al, 2022:362). In recent years, the BDA has influenced many fields, including the field of accounting and auditing (Ib.cid: 363). Both internal and external auditors use the BDA in their work to reach conclusions and conclusions about the institution they are auditing (Ib.cid:364). BDA helps auditors to analyze a large amount of data in a short time, detect patterns and anomalies and obtain accurate information from the data by analysis, modeling and visualization at all stages of the audit. Large audit institutions have many resources such as capital, which help them to create customized data analytics platforms, smaller institutions use the available platforms to help conduct audits, institutions are always working to develop and customize data analytics tools according to their needs and the resources available to them(Ib.cid:365).

The internal audit function in Institutions provides information to senior management that helps them in making decisions and provides information that demonstrates the effectiveness of the internal control system applied in the Institution , This study is an extension of previous studies that showed the role of big data technologies in increasing the efficiency and effectiveness of the internal audit process.in light of technological developments and the availability of huge amounts of big data, Big data analytics can help the internal auditors to access and analyze larger amounts of data, enable Auditors to obtain sufficient audit evidence, increase the effectiveness of the auditor's activity, benefit from big data analyzes in the development of internal audit and How can this development contribute to improving the quality of accounting information through the qualitative characteristics of accounting information as defined

in the conceptual framework for financial reporting of the Financial Accounting Standards Board (FASB) and International Accounting Standards Board(IASB).

The importance of internal audit is to constantly audit the work that takes place within the institution, discover errors and risks that the institution may be exposed to and help management in ensuring the implementation of administrative policies that ensure the protection of assets and the accuracy of the data available in the books and information in the financial statements. Therefore, the importance of some big data technologies in the audit process has emerged in analyzing and processing data and helping internal auditors in obtaining a greater amount of relevant information and facilitating the process of storing and using the information obtained and thus improving the quality of accounting information.

3.1) Survey study:

Surveys are a useful research tool because they can cover an almost unlimited range of topics. In a survey study, participants answer a set of questions posed to them by a researcher. The answers they provide are considered self-reported data because participants answer the questions themselves. Consequently, I can show this study as follow:

3.1.1: Population & Sample Description:

The study targets all employees in the financial departments in the Egyptian listed firms, accordingly the study population is so big and contain more than 10,000 observations, in addition its geographic disperse. Consequently the minimum sample size of my study shouldn't be less than 384 observations.

In this regard, I use the electronically questionnaire designed and targeted for those employees by Google form directed through the internet links for the social communication sites and other related. According to this way I received 392 responses valid for analysis and represent my sample well.

3.1.2:Sample Description:

According to the questionnaire design, I can describe my sample according to respondents which is equal (392) observations.

3.1.3:Hypotheses testing results:

Multiple linear regression (MLR), also known simply as multiple regression, is a statistical technique that uses several explanatory variables to predict the outcome of a response variable. The goal of multiple linear regressions is to model the linear relationship between the explanatory (independent) variables and response (dependent) variables. In essence, multiple regressions are the extension of ordinary least-squares (OLS) regression because it involves more than one explanatory variable.

Regression analysis is primarily used for two conceptually distinct purposes. First, regression analysis is widely used for prediction and forecasting, where its use has substantial overlap with the field of machine learning. Second, in some situations regression analysis can be used to infer causal relationships between the independent and dependent variables. Importantly, regressions by themselves only reveal relationships between a dependent variable and a collection of independent variables in a fixed dataset. To use regressions for prediction or to infer causal relationships, respectively, a researcher must carefully justify why existing relationships have predictive power for a new context or why a relationship between two variables has a causal interpretation. The latter is especially important when researchers hope to estimate causal relationships using observational data. Therefore, the researcher can show the results of multiple regression as follow:

- **Firstly, testing H1 (the effect of internal auditing on the accounting information quality):**

The first hypothesis predicts the relationship between the internal auditing and the accounting information quality.

Table (3-1) The effect of internal auditing on the accounting information quality

Variable	Relevance			Faithful Representation		
	β	T-Stat.	Sig.	β	T-Stat.	Sig.
Constant	0.056	0.265	0.068	0.066	0.403	0.110
Planning	0.223	2.426	0.033	0.337	2.484	0.026
Qualification Professional for the internal auditor	0.233	2.198	0.030	0.172	2.316	0.035
Auditor Report Internal Quality	0.319	2.975	0.017	0.284	3.194	0.027
N	392			392		
F-Value	24.643			22.668		
Adj.R2	43.1%			41.6%		

From Panel (A), it is obvious that internal auditing dimensions have significant positive effect on Relevance as measure for the accounting information quality (where T-Stat. = 2.426, 2.198, 2.975 >2; Sig. = 0.033, 0.030, 0.017 < 0.05). Therefore, I can accept the first sub hypothesis in the alternative form as follow: *internal auditing and its sub dimensions have significant positive effect on Relevance as proxy of accounting information quality.*

The results of Panel (B), It is obvious that internal auditing dimensions have significant positive effect on faithful representation as measure for the accounting information quality (where T-Stat. = 2.484, 2.316, 3.194 >2; Sig. = 0.026, 0.035, 0.027 < 0.05). Therefore, I can accept the second sub hypothesis in the alternative form as follow: *internal auditing and its sub dimensions have significant positive effect on faithful representation as proxy of accounting information quality.*

Based on the above results, I can accept the first main hypothesis (H1) in the alternative form as follow: *internal auditing and its sub dimensions have significant positive effect on accounting information quality.*

- Secondly, testing H2 (the effect of big data on the accounting information quality):

Table (3-2) The effect of big data on the accounting information quality

Variable	Relevance			Faithful Representation		
	β	T-Stat.	Sig.	β	T-Stat.	Sig.
Constant	0.073	0.283	0.086	0.068	0.268	0.096
Data Collection	0.318	2.577	0.023	0.292	2.986	0.035
Data Storage	0.166	2.418	0.036	0.260	2.577	0.038
Data Analysis	0.244	2.750	0.030	0.332	2.309	0.037
Data Usage	0.228	2.583	0.015	0.363	3.276	0.030
Cloud Computing	0.176	2.583	0.016	0.256	2.382	0.024
N	392.000			392.000		
F-Value	23.138			16.738		
Adj.R2	40.6%			40.9%		

From Panel (A), it is obvious that big data dimensions have significant positive effect on Relevance as measure for the accounting information quality (where T-Stat. = 2.577, 2.418, 2.750, 2.583, 2.583 > 2; Sig. = 0.023, 0.036, 0.030, 0.015, 0.016 < 0.05). Therefore, I can accept the first sub hypothesis in the alternative form as follow: *Big Data and its sub dimensions have significant positive effect on Relevance as proxy of accounting information quality.*

The results of Panel (B), it is obvious that big data dimensions have significant positive effect on faithful representation as measure for the accounting information quality (where T-Stat. = 2.986, 2.577, 2.309, 3.276, 2.382 > 2; Sig. = 0.035, 0.038, 0.037, 0.030, 0.024 < 0.05). Therefore, I can accept the second sub hypothesis in the alternative form as follow: *Big Data and its sub dimensions have significant positive effect on faithful representation as proxy of accounting information quality.*

Based on the above results, I can accept the second main hypothesis (H2) in the alternative form as follow: *Big Data and its sub dimensions have significant positive effect on accounting information quality*

- Thirdly, testing H3 (the effect of big data on the relationship between the internal auditing and accounting information quality):

Table (3.3) the effect of big data on the relationship between the internal auditing and accounting information quality

Panel (A): Interaction With Planning							
Variable	Relevance			Faithful Representation			
	β	T-Stat.	Sig.	β	T-Stat.	Sig.	
Constant	0.061	0.460	0.081	0.063	0.398	0.085	
Data Collection × Planning	0.169	2.283	0.021	0.347	3.320	0.025	
Data Storage × Planning	0.366	2.840	0.037	0.263	2.609	0.021	
Data Analysis × Planning	0.288	2.643	0.031	0.370	3.278	0.021	
Data Usage × Planning	0.166	2.910	0.021	0.238	2.582	0.025	
Cloud Computing × Planning	0.293	2.597	0.030	0.279	2.693	0.022	
N	392.000			392.000			
F-Value	17.722			23.134			
Adj.R2	36.6%			39.5%			
Panel (B): Interaction With Professional Qualification							
Variable	Relevance			Faithful Representation			
	β	T-Stat.	Sig.	β	T-Stat.	Sig.	
Constant	0.070	0.272	0.069	0.066	0.198	0.085	
Data Collection × Professional Qualification	0.311	3.266	0.033	0.283	2.796	0.030	

Data Storage × Professional Qualification	0.241	2.571	0.039	0.169	2.870	0.021
Data Analysis × Professional Qualification	0.357	2.447	0.020	0.259	2.481	0.015
Data Usage × Professional Qualification	0.322	3.064	0.033	0.369	3.030	0.026
Cloud Computing × Professional Qualification	0.197	2.478	0.031	0.239	3.074	0.019
N	392.000		392.000			
F-Value	19.335		19.972			
Adj.R2	37.0%		43.0%			

Panel (C): Interaction With Report Quality

Variable	Relevance			Faithful Representation		
	β	T-Stat.	Sig.	β	T-Stat.	Sig.
Constant	0.056	0.335	0.095	0.069	0.418	0.116
Data Collection × Report Quality	0.352	3.325	0.025	0.289	2.659	0.030
Data Storage × Report Quality	0.358	2.556	0.025	0.327	2.405	0.032
Data Analysis × Report Quality	0.262	2.964	0.025	0.365	2.167	0.039
Data Usage × Report Quality	0.184	2.555	0.015	0.278	3.136	0.035
Cloud Computing × Report Quality	0.338	2.831	0.024	0.291	3.004	0.018
N	392.000		392.000			
F-Value	22.335		23.140			
Adj.R2	39.6%		37.5%			

From Panel (A) of the Panel (C) table, it is obvious that moderated variables which represent the interaction between Report Quality and the big data dimensions which are represented in Data Collection, Data Storage, Data Analysis, Data Usage and Cloud Computing have significant positive effect on Relevance as measure for the accounting information quality (where T-Stat. = 3.325, 2.556, 2.964, 2.555, 2.831 >2; Sig. = 0.025, 0.025, 0.025, 0.015, 0.024 < 0.05). Therefore, I can accept the first sub hypothesis in the alternative form as follow: *Big Data and its sub dimensions have significant positive effect on the relationship between the internal auditing (Report Quality dimension) and Relevance as proxy of accounting information quality.*

The results of Panel (B) of the Panel (C) table, it is obvious that moderated variables which represent the interaction between Report Quality and the big data dimensions which are represented in Data Collection, Data Storage, Data Analysis, Data Usage and Cloud Computing have significant positive effect on faithful representation as measure for the accounting information quality (where T-Stat. = 2.659, 2.405, 2.167, 3.136, 3.004 >2; Sig. = 0.030, 0.032, 0.039, 0.035, 0.018 < 0.05). Therefore, I can accept the second sub hypothesis in the alternative form as follow: *Big Data and its sub dimensions have significant positive effect on the relationship between the internal auditing (Report Quality dimension) and faithful representation as proxy of accounting information quality.*

Based on the above results, I can accept the third main hypothesis (H3) in the alternative form as follow: *Big Data and its sub dimensions have significant positive effect on the relationship between internal auditing and accounting information quality.*

4 . Summary,Results and Recommendations:

Summary

The researcher aimed to study the impact of internal audit on the quality of accounting information in light of big data technology in companies listed on the Egyptian Stock Exchange. In order to achieve this goal, the study was divided into four chapters as follows.

In the first chapter, the study dealt with the general framework of the study.

In the second chapter, The researcher concludes that big data helps institutions move from traditional audit procedures that take a lot of time to automating audit procedures, it helped internal auditors monitor and predict risks to avoid them and thus improve the quality of the audit process.

In the third chapter, The researcher concluded that there is a positive relationship between big data and the qualitative characteristics of accounting information. The internal audit process helps in having an effective control system and thus Obtaining high-quality accounting information. The researcher also explained the impact of internal audit on the quality of accounting information in light of big data technology. Big data analytics helps auditors analyze large amounts of data and obtain valuable information.

The fourth chapter also included a case study and a survey study to test the impact of internal auditing on the quality of accounting information in light of big data technology in companies listed on the Egyptian Stock Exchange.

Results:

- 1- In light of technological developments, the importance of big data analyzes in the field of accounting and auditing has emerged in improving the quality of reports and financial statements of institutions and providing solutions to address the challenges to which data is exposed in light of relying on digital technologies.
- 2- The importance of cloud computing in storing and analyzing big data, but some risks also posed to cloud computing, including risks related to privacy and information security,It can be solved by encrypting data, as it increases the level of self-protection and the integrity of the data to be audited and enables authorized parties only to access data and perform control functions, The people responsible for the audit and internal control will be able to carry out their duties effectively.
- 3- The importance of big data in improving the quality of accounting information by providing accurate, comprehensive and timely information available to make decisions and increase the competitive advantage in institutions.
- 4- There is statistically significant relationship between Internal Audit and Quality of Accounting Information.
- 5- There is statistically significant relationship between Big Data Technology and Quality of Accounting Information.
- 6- There is statistically significant relationship to the impact of big data on the relationship between Internal Audit and Quality of Accounting Information.
- 7- Big data and cloud computing technologies help in improving the internal audit process through its ability to analyze and process large amounts of data and maintain the integrity and privacy of data, and this reflects positively on the quality of accounting information.

Recommendation:

In light of the objectives and limitations of the study and its findings, the researcher recommends the following:

- 1- It is necessary to pay attention to holding more training courses for internal auditors and introducing them to the importance of big data.
- 2- The need for institutions to pay attention to new cloud computing technologies (fog computing, edge computing) to improve storage, processing, and maintain the integrity and confidentiality of big data.
- 3- The need for institutions in the Egyptian Stock Exchange to commit to following updates in the field of big data and applying them.
- 4- Modifying the courses of accounting departments in Egyptian universities to accommodate the phenomenon of big data and introducing new courses and programs in the field of big data analytics.

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