# Electronic Auditing and Artificial Intelligence in Narrowing the Audit Expectations Gap

# التدقيق الإلكتروني والذكاء الاصطناعي في تضييق فجوة التوقعات بالتدقيق

**Nessab Aicha** *
*Hassiba Ben Bouali University, Chlef, Algeria*
**E-mail** *a.nessab@univ-chlef.dz*

**Received: 09th/01/2024** **Accepted: 09th/05/2024**

## Abstract:

Despite the auditor's dominance in discovering most of the manipulations of the preparers of financial and accounting statements, the reality shows cases of the possibility of the auditor's failure, especially in the digitized information environment, even in light of the best performance on his part, which puts him inside an expectations gap in the auditing profession, In order to answer the research problem, and due to the modernity of the study variables we use the descriptive approach by describing the various literatures dealing with the expectations gap in auditing, then present and analyze the professional publications and major applications that dealt with electronic auditing and artificial intelligent, as globally accepted models and approved by the largest global accounting and auditing offices

The study came up with a reasonable solutions to narrow the expectations gap in auditing financial reports, through the use of the most important electronic audit references and indicates the importance of artificial intelligence in this. The study also concluded that the good use of information technology by the auditors is positive for the credibility of the profession and brings their actual performance closer to public expectations and there is no doubt that any change carries many challenges, but the opportunities provided by the use of such techniques by the auditor are always worth trying to overcome the challenges to move forward and achieve the continuous development of the auditing profession, We expect that our research paper will be considered a suggested guide for auditors to use when auditing computerized and cloud accounting environments.

**Keywords:** audit, Audit expectation gap, Audit performance, Information Technology, electronic auditing, artificial intelligence, Cyber security.

* Correspondent author: Nessab Aicha

**Jel Classification Codes: M420, M480, D840, O330**

**Abstract in Arabic:**

بالرغم من هيمنة المدقق على إكتشـاف معظم تلاعبات معدي البيانات المالية والمحاسـبية، إلا أن الواقع يظهر حالات لإمكانية إخفاق المدقق خاصـــة في بيئة المعلومات المرقمنة حتى في ظل أفضـــل أداء من جانبه، مما يوقعة داخل فجوة توقعات بمهنة التدقيق، من أجل الإجابة على اشـــكالية البحث، ونظراً لحداثة متغيرات الدراسـة قمنا باسـتخدام المنهج الوصـفي من خلال وصـف الأدبيات المختلفـة التي تنـاولـت فجوة التوقعـات في التـدقيق، ثم عرض وتحليـل المنشـــورات المهنيـة وأهم التطبيقات التي تناولت التدقيق الإلكتروني. والذكاء الاصـطناعي، كنماذج مقبولة عالمياً ومعتمدة من أكبر مكاتب المحاسبة والمراجعة العالمية

وقد توصـلت الدراســة إلى إعطاء جملة من الحلول المعقولة لتضـييق فجوة التوقعات في تدقيق التقارير المالية، من خلال استخدام أهم أدوات التدقيق الإلكتروني. والاشارة إلى أهمية الذكاء الاصـطناعي في ذلك. كما خلصـت الدراسـة إلى أن الاسـتخدام الجيد لتكنولوجيا المعلومات من قبل مدققي الحســـابات يجعل أدائهم الفعلي أقرب إلى توقعات الجمهور ولا شـــك أن أي تغيير يحمل في طياته العديد من التحديات ، إلا أن الفرص التي يوفرها استخدام هذه التقنيات من قبل المدقق يستحق دائمًا محاولة التغلب على التحديات للمضـي قدمًا وتحقيق التطوير المسـتمر لمهنة التدقيق، ونتوقع أن تعتبر ورقتنا البحثية بمثابة دليل مقترح في يد المدققين للاسـتعانة بها عند التدقيق في بيئات المحاسـبة المحوسبة والسحابية.

**الكلمات المفتاحية:** التدقيق، فجوة توقعات التدقيق، أداء التدقيق، تكنولوجيا: المعلومات، التدقيق الإلكتروني، الذكاء الاصطناعي، الامن السيبراني.

**تصنيف Jel: M420, M480, D840, O330**

## *Introduction*

Technological development led to the development of the use of information technology and the spread of the use of the Internet in all fields, This opened up new horizons for society segments to enjoy a better life, which requires governments all over the world to adopt modern digital technologies in their method of work, to keep pace with these rapid transformations, and raise the level of services provided and make them more efficient and quality.

Where many countries of the world have tried to keep pace with the digital age by making radical modifications in curricula and work patterns in all fields, especially accounting, the change in the accounting information system as result of the use of information technology will indirectly affect the legal audit profession

**Research problem** : Although the ability of the auditor to discover most of the manipulations of accountants, the reality shows cases of the possibility of

failure of the auditor, especially in the digitized information environment, even in light of the best performance on his part, which puts him on expectations gap in auditing profession. The research problem is represented as:

**How Electronic Auditing and Artificial Intelligence can reduce the Expectations Gap in Auditing within the electronically processed data environment?**

**Research Methodology:** In order to answer the research problem, and due to the modernity of the study variables we use the descriptive approach by describing the various literatures dealing with the expectations gap in auditing, then present and analyze the professional publications and major applications that dealt with electronic auditing and artificial intelligent, as globally accepted models and approved by the largest global accounting and auditing offices (big four).

we divide the study into the following main axes:

**1.** The Nature and Meaning of Audit Expectation Gap;

**2.** the expectations gap in electronically processed data environment;

**3.** The contribution of Electronic Auditing and Artificial Intelligence to reducing the difficulties of auditing digitized data

## 1.The Nature and Meaning of Audit Expectation Gap

Many researches have dealt with the existence of the phenomenon of the expectations gap in the audit environment, and it has received great attention from researchers, whether in terms of identifying the gap or developing solutions to it. Therefore, we are trying through the research to monitor the features of the expectations gap emerging between the auditor and the parties benefiting from his services, while directing efforts to study the factors leading to the existence of this gap.

### 1.1. Historical stages of Audit Expectation Gap

The expectations gap received a lot of attention in the late seventies, when the Cohen Committee was formed consisting of independent scholars headed by (Manuel F.Cohen) and funded by the American Institute of Certified Public Accountants (AICPA) in 1974 (F.Cohem, 1978) to study the responsibilities of auditors and society's expectations of them and what they must do to meet those expectations. The committee issued its initial report in

May 1977 and its final report in 1978, in which it recommended the introduction of some amendments to the organization of the profession, especially the work of auditing standards (A.Bowsher, 1996, p. 64).

A subcommittee was formed in the US House of Representatives, « the Moss Subcommittee », which issued a report in October 1976 attacking the auditing and accounting profession in America.

In Canada, a committee (The Macdonald Commission) formed by the Canadian institut of Certified Public Accountants (CICA) conducted a comprehensive search of accounting thought in the field of auditing in order to study society's expectations from auditors. The committee found that there is an expectations gap because the auditors were unaware of the public's expectations (macdonald commission, juin 1988). And since the late eighties until now, the issue of the expectations gap has received great attention from researchers in the field of audit science, as it is not possible to ignore the existence of this gap or claim that society's expectations are unrealistic.

### 1.2. Definition of audit expectation gap

Many researches have addressed the existence of the phenomenon of the expectations gap in the auditing environment and have received great interest from researchers, whether in terms of identifying the gap or developing solutions for it.

In 1974, Liggio defined the expectations gap as “the difference between the levels of performance presented by the independent auditor and the level expected of him by users of the financial statements.” (Zaidi.M, 2007, p. 51), Years after this definition and the publication of the Cohen Committee Report in 1978, the definition emphasized that “an expectations gap can arise between what the public expects or needs and what auditors can provide within the framework of the reasonable performance of the audit task.” (Salehi, Azary, & Mansouri, 2009, p. 167)

Porter also conducted a field study in 1993 on the expectations gap in auditing, defining it as “the difference between what auditors do or can do and what auditors should or are expected to do on the basis of society’s expectations required of them.” The study identified the components of the expectations gap in auditing as follows: (porter & Gowthorpe, 2004, pp. 39-43)

- **The reasonableness gap:** arises from the discrepancy between what society expects auditors to accomplish and what the auditor can reasonably accomplish.
- **Performance gap:** arises from the discrepancy in reasonable expectations on the part of society for what the auditor should do and the actual performance of the auditor; it is divided into:
- **Standards deficiency gap:** represents the gap between the tasks that can be reasonably expected from auditors and the tasks required of them through professional standards and publications.
- **Performance deficiency gap:** represents the gap between the expected standards for performing auditors' current tasks and their actual performance.

We conclude that the components of the expectations gap, according to Porter, take into account the external environment for practicing the auditing profession and the reasonable and unreasonable expectations of users of financial reports. It also takes into account the extent to which the auditor himself adheres to the standards of the profession, while not ignoring the shortcomings of these standards, which would create a gap. Expectations of the auditor's work.

In 1994, Lee defined the expectations gap as the discrepancy between what auditors are expected to achieve and their actual performance, as this gap is related to the actual performance of the business and the auditors' failure to perform their work as required. Chadlers & Edwards also defined it as the fundamental difference between what society expects from auditing and what the profession actually offers to society.

From what was mentioned, it is clear that the expectations gap is a discrepancy arising from the beliefs of users of the financial statements about the auditor's ability to discover and report every act that would harm their interest with what this auditor actually provides within the limits of his respect for professional performance standards.

**2. the expectations gap in electronically processed data environment**

The world is witnessing the invasion of information technology in all fields, where information technology had clear repercussions on the accounting and auditing profession, both as a result of its employment in accounting work,

and this is evident through moving from manual accounting to computing accounting, which depends on the employment of electronic devices such as computers And its programs in accounting work, or through practices or businesses that have become dependent in their exchanges heavily on modern technological means within what is now called electronic commerce. All those developments that affected accounting (accounting system) or business practices will inevitably also have an impact on Auditing, whether through the relationship that links auditing with accounting, or through the auditing profession's use of various computer programs and electronic devices in performing its duties.

Before addressing the expectations gap in the environment of electronically processed data, we will try to refer to how is digital transformation in accounting taking place?

### 2.1. What is accounting computing?

Accounting is an organized process for recording economic events according to a chronological sequence. It specializes in analyzing, recording, classifying, summarizing and interpreting the financial operations of entities with the aim of determining their financial position at the end of a specific financial period.

**Information Technology (IT)**: Information technology is a set of software, processes, and equipment that are used to collect, process, and store data in electronic media. Examples of these tools include: coding, programming, storage, retrieval, analysis, systems monitoring, and data transformation. Information technology also includes: business automation, and communications. Multimedia also enables information technology to store and process information within systems, and includes everything related to computers, networks, software, websites, databases, and telecommunications, here we do not mean technology used for personal or entertainment purposes.

After giving the concept of information technology, we can summarize its impact on accounting, where: When modern technologies are introduced into accounting, financial systems, digital assets, and account management, it makes them more effective. That is, through these technologies, entities can achieve faster and more accurate results, and even gain the ability to perform various multiple functions together.

Also, Information Technology contributes to increasing the ability of accounting information systems to quickly adapt to work in economic entities

by providing effective economic tools to store, retrieve, and process data and present it in the form of information to decision makers in a timely manner. This has been clearly reflected in increasing the effectiveness and efficiency of accounting information..

**2.2. Software Tools in the Accounting technology**: Accounting Software system is a technological transformation of the usual accounting books and the daily tasks of the accountant in a digital form, giving the same results and managing the same processes, but in a form more compatible with the current era and its technical tools, the most widely used programs in business are:

**2.2.1 Accounting Software**: Represents software that manages and records an organization's day-to-day financial transactions, including fixed asset management, expense management, revenue management, accounts receivable, accounts payable, ledger accounting, reporting, and analytics. This provides decision makers with immediate access to accurate financial data in real time. It also allows officials to measure the financial performance of their entities.

**2.2.2 Audit Software**: Through digital auditing, information technology and software are used to plan and implement audit tasks and issue the report, we will discuss this element in some detail in the coming axes.

**2.2.3 Word Processing Software**: This are applications that allow business organizations to write, coordinate, edit, print and save daily transactions, and through them the texts appear on the screen in the same way as the printed copy.

**2.2.4 Spread Sheets**: Spreadsheet software is a versatile and powerful tool in the hands of accountants designed to organize, analyse and manipulate numerical and textual data. These applications typically feature a grid-like structure consisting of rows and columns, enabling users to arrange daily data and interim economic events and direct them to decision makers.

**2.2.5 Graphics Software**: it is the creation of drawings and pictures related to the financial situation using the computer. Instead of the accountant wasting a lot of time drawing a number of pictures and explanations on paper related to the continuity of the institution or the development of the market share, for example, it is possible to clarify the drawing and design with the computer by drawing it within a few moments..

**2.2.6 Electronic Data Interchange (EDI)**: Means digital exchange of purchase or sale invoices, for example, and communication between the company and its stakeholders to exchange financial data electronically in record time.

This invention saved organizations and companies time as well as data free from errors that occur in manual processing.

Through the above, accounting technology can contribute to business organizations in several fields, because IT has changed the way that just about every industry functions including accounting. Among the aspects touched by this change : (Kimberlee , 2019)

- Instant Access to Business Information;
- Business Software Advancements;
- Mobility and Reduced Travel Time;
- Bank Information Accessibility ;
- Document Scanning and Signing .

In addition to the aforementioned, from the positives of using information technology in workers' organizations:

- **Saving time and effort**: by placing highly repetitive, routine tasks on the machine and selecting the tasks that most require the accountant's focus and creativity, which increases productivity, shortens time, and reduces the burden of increasing the number of employees unnecessarily.
- **Providing sustainable capital for the company** :Accounting software is intangible assets that constitute direct or indirect returns, such as reducing time and increasing productivity, for example.
- **Raising the efficiency of workers:** Training on accounting programs makes the human worker capable of deciphering complexity, which opens ways for creativity and efficiency in the optimal management of available resources.
- **Facilitate error review:** Centralizing files and quick access to them allows not only to review errors, but also to prevent them from the beginning or correct them if they occur, without the great effort required to review paper files.

- **Obtaining competitive advantages**: Institutions' use of information technology improves their position in the competitive environment, through adopting and designing innovative programs and applications that allow those institutions to lead in their fields.
- **Smoothness between all accounting operations** :Automatic recording of daily transactions brings harmony to the accounts, making them more valuable and smooth.

Despite the addition that information technology has made to accounting, there are many disadvantages, for example Huge Cost, Resistance, Destruction of Data, Interruption, Compromised Accuracy, Training Cost, Health Issues and Disruption of Work in some time….. In this context, we try to focus on the defects that have an impact on the auditing Where information technology can put auditors into an expectation gap, the task of auditing has become difficult to perform in an environment invaded by digitization.

- **Constant reliance on the Internet:** This will lead to a constant loss of communication with cloud accounting programs if there is a weakness in the flow and instability of the Internet.
- **High costs** :Small companies may not be able to bear the subscription costs for accounting software, especially if they were forced to do so due to the digital transformation of the country and the adoption of electronic invoices**.**
- **Possible loss of data, or accidental deletion**: Through unauthorized exploitation of software or systems.
- **The computer is incapable of thinking or personal judgment**: Therefore, many errors can occur unless there are procedures to control the software used.
- **Non-compliance with legal standards**: Organizations must adhere to a range of laws and regulations regarding data retention.
- **Cyber risks:** the most common are eavesdropping, password theft, malware, fraud, cross-site attacks, and social engineering through social networking sites.

We conclude that the tremendous technological development in accounting has led to the emergence of many problems that did not exist by manual operation of data, the most important of which is the ease of committing fraud crimes and the difficulty of detecting them, and the spread of computer virus crimes,

Fraud in the field of electronic computers means any tampering with computer programs, report files, operations, and equipment, which leads to losses for the organizations in which fraud occurs in the field of using computers, from this we say that Computer fraud is characterized by several characteristics:

- Ease of committing fraud with the use of computers, and the reason for this is due to the lack of control over computer systems associated with the great technical progress.
- The difficulty of detecting fraud and tracking it with the use of electronic computers, where the perpetrator of fraud can change the storage units without leaving any tangible trace that can be traced, and implements this accurately and tightly, so most of these cases may not be detected, which leads to an increase in cases of fraud under the use of computers.
- Computer fraud achieves an attractive return for its perpetrators, which encourages them to commit it.

Here, the auditor falls into an unavoidable danger, which is that some important matters that were incorrectly included in the financial reports remain undetected, The issue of the auditor's responsibility for discovering misleading when reviewing financial reports is one of the most controversial and controversial matters in the auditing literature, especially if the disinformation resulted from a misunderstanding of the accounting systems prepared by information technology.

## 3. The contribution of Electronic Auditing and Artificial Intelligence to reducing the difficulties of auditing digitized data

Keeping pace with the needs of society constitutes a challenge for both researchers in this field and auditors, because this problem requires scientific foundations and practical solutions to deal with it.

IT auditing plays a critical role in the success of organizations' overall risk management strategy by ensuring compliance with laws and regulations, enhancing information security, improving operational efficiency, mitigating potential risks, and supporting decision makers. IT auditing can help organizations achieve their business goals and protect their reputation. As such, it is essential that organizations invest in IT auditing to ensure the continued success of their operations.

### 3.1. The concept of E-auditing:

Electronic auditing, or e-auditing, is computer-assisted auditing that uses electronic records to complete part or all of your audit. This follows similar procedures as a traditional audit but using electronic means to remotely perform the audit. E-auditing is also known as Remote Auditing. (E-auditing meaning, uses and limitations, 2021)

Also, an E-auditing is a systematic, independent, and documented process to obtain evidence through electronic means to determine the extent of conformity to the audit criteria (Wilson, 2017).

So, what is meant by the electronic audit is that the auditor monitors the client's electronic systems using electronic programs in order to ascertain whether the use of the computer contributes to protecting the organization's assets, confirming the integrity of its data, and effectively achieving its goals, In other words, it is new techniques to verify the validity of accounts by exploiting computer capabilities based on the application of electronic processing of data extracted from the information system of the enterprise.

### 3.2. Auditing and artificial intelligence (AI)

The increase of modern technologies, such as artificial intelligence, has increased the expectations gap even further. The so-called "development gap" has appeared in auditing, which means that there is a need for development in some areas of auditing, to respond to the growing requirements and take into account technical progress and how to enhance the auditing process to add more value.

We can say that Artificial Intelligence is the study of how to produce machines that have some of the qualities that the human mind has, such as the ability to understand language, recognize pictures, solve problems, and learn (Artificial Intelligence meaning, s.d.)

#### 3.3 major applications of AI and professional publications related to E-auditing:

Therefore, the following items of this study comes to present and analyze the professional publications and major applications that dealt with electronic auditing, so that it may contribute to developing some proposals for guidance by auditors, and to answer questions related to this research.

We will present the most important of these references and standards used in electronic auditing, where the methodologies used are considered as practical solutions that can be summarized according to their uses, and divided into several fields, namely:

- References and standards for the development of computer systems ;
- References and standards for the management of computer systems ;
- References and standards for driving and organizing computer systems ;
- References and standards for the management of computer systems projects ;
- References and standards for the management of Computer systems security ;
- References and standards for the organization's management and quality

Artificial Intelligence and big data software can achieve efficiency and effectiveness in audit performance, in addition to evaluating internal control systems and thus reduce the profession's expectations, gap through:

- Enabling auditors to access quality financial and non-financial information, in a timely manner and at the lowest costs, in addition to increasing the flexibility of inspection and auditing operations and helping to provide information to its various users according to their requirements;
- Abandoning sampling methods in auditing internal control systems. Using electronic auditing and artificial intelligence applications enables working hours to be extended to 24 hours a day, seven days a week.
- Supporting the independence of auditors through the use of artificial intelligence applications and remote auditing by avoiding direct friction between managers and auditors.
- Reducing the carbon footprint to a minimum, which results from greenhouse gas emissions due to the use of paper in manual systems, which results in achieving health and fiscal security.

The world is experiencing a number of cases in the field of auditors using artificial intelligence, like **Argus**, Deloitte's first cognitive audit application (Davenport, 2020), It relies on simulating human intelligence in dealing with economic events and major accounting transactions and processes them automatically by learning from any type of electronic documents, such as purchases and transfers of assets. "Argus" is programmed

to automatically process all recurring transactions under the same conditions, which saves a lot of time for auditors.

Despite the important addition of artificial intelligence techniques in reducing the expectations gap in the auditing profession, there are undesirable challenges that the auditor can face, including:

- Resistance to change, whether by decision-makers in institutions or accountants and auditors;
- Cybersecurity problems, which have become a challenge that determines the security of large projects and economies.
- Misuse of artificial intelligence applications. There is no mature audit framework for artificial intelligence, regulations or standards

### 3.3.1. Control Objectives for Information Technology (COBIT)

COBIT is the most used reference by auditors in the framework of electronic auditing and auditors are always keen on the actual application of this reference in the institutions because it is the only guarantor of auditing practices and the leadership of informatics systems.

According to COBIT the auditor guarantee six Principles for a Governance System: Synthesis, frame of reference, detailed objectives of control, audit guide, implementation tools, administration guide, also, COBIT provides managers, auditors, and users of information technologies with indicators of good practices to help them maximize the benefits of technology, development and governance of automated information systems, and determines the level of security and control that is necessary to protect the information, and this is through developing a model for driving automated information systems, The three most important COBIT versions:

- COBIT version 4: It summarizes four requirements: planning, construction, implementation, and metrology
- COBIT version 5: This publication guides the business, governance, and management of an organization's information systems.
- COBIT Quickstart version: It is a simplified reference directed at small and medium enterprises, which do not consider information technology as a strategic bet.

**pability Maturity Model Integration (CMMI) :**

CMMI is a model of best practices designed to evaluate, control, and improve project activities. The ladder for measuring the organization's capability maturity includes five levels, starting with the initial maturity level, all the way to the ideal maturity level. CMM was developed and is promoted by the Software Engineering Institute (SEI).

SEI was founded in 1984 to address software engineering issues and, in a broad sense, to advance software engineering methodologies. More specifically, SEI was established to optimize the process of developing, acquiring and maintaining heavily software-reliant systems for the DOD. SEI advocates industry-wide adoption of the CMM Integration (CMMI), which is an evolution of CMM. The CMM model is still widely used as well . (Pane & Sarno, 2015, pp. 40, 48)

### 3.3.3. Unified Modeling Language (UML) :

It provides auditors with how to model the processes of internal control systems. It serves system designers and software developers with systems analysis and design tools.

The program is useful in advancing the industry by running visual modeling that guides decision-making. It ensures the unification of the meanings of words and symbols.

### 3.3.4. Software Processes Improvement and capability determination (SPICE)

SPICE is designed to assess the effectiveness of software development processes, enabling organizations to determine their capability level and identify areas for improvement. It is based on a six-level model.

The SPICE project focuses on acquiring a set of professional standards, including professionalism, objectivity, confidentiality, respect for methods and documentation, data integrity, and respect for intellectual property.

### 3.3.5. Information Technology Infrastructure Library (ITIL)

ITIL serves as the internal law of the Automated Information Department of the institution that adopts it, and it reference is concerned with leading information systems, regardless of their form, while ensuring strategic compatibility of information systems and business processes. The reference also describes how to ensure that the customer obtains appropriate automated information services.

### 3.3.6. Project IN Controlled Environments (PRINCE2)

It stands for **PR**ojects **IN C**ontrolled **E**nvironments, The standard gives the basic skills a person needs to become a successful project manager, as it explains project management methodology in a flexible, scalable way that can be customized to meet various requirements.

The PRINCE2 methodology provides guidance for effective project management, focusing on the following three sevens:

- Seven principles outlining the guidelines to be followed;
- Seven Thèmes describe the aspects of project management that are constantly addressed to implement the project in a good way;
- Seven Processes detail the activities that must be performed to complete the project.

### 3.3.7. Project Management Body Of Knowledje (PMOK)

This guide is a project management reference document that describes the knowledge and methods applied to the majority of projects, and is the process of using existing knowledge and creating new knowledge to achieve project objectives.

The main benefits of adopting this lexicon are to leverage prior organizational knowledge to produce or improve project outcomes, and to gain new knowledge to support it. This process occurs throughout the project.

### 3.3.8. Project & Portfolio Management (PPM)

Project portfolio management represents the central management of a number of projects simultaneously through planning their budgets, determining the optimal mix of resources, and drawing a timetable for implementing activities, taking into account the constraints of strategic objectives or the external environment.

### 3.3.9. eSourcing Capability Model for Service Providers (eSCMP-SP)

In the context of eSourcing external services, the reference provides best practices for controlling the relationship between client institutions and external service providers, these services vary between repetitive routine activities and strategic processes that directly affect the customer's profitability.

### 3.3.10. Blockchain Technologie

Blockchain technology is described as a digital ledger to record transactions distributed within the network in the form of homogeneous blocks secured with special codes, and managed by a number of participants, as it is a decentralized database.

Through blockchain technology, smart contracts can be concluded and implemented automatically without the need for a human worker

### 3.3.11. ISA401: Auditin in Computer Information Systems Environement

The overall objective and scope of an audit does not change in a Computer Information Systems (CISenvironment). However, the digitization of accounting work and the adoption of computerized accounting applications and cloud accounting can affect the credibility of information systems due to digital storage of data.

In this context, the auditor focuses on Recommendation 1001 related to security and Recommendation 1002 to introduce new rules related to the Internet.

### 3.3.13. ISO standards:

We focus our attention here on information systems management system standards, they serve as a guide for auditing information security, and they are international standards that cover all aspects of electronic security, including:

- **ISO/IEC 27000**: It is a common glossary of the ISO/CEI27K series on automated information security management systems, the family includes:

**- iso (27002):** This standard is concerned with the rules and scientific practice of information security systems.

**- iso (27003):** It is a guide for implementing information security management.

**- iso (27004):** It measures the effectiveness of information security management systems.

**- iso (27005):** It is for risk management in the information security system.

**- iso (27006):** It is a guide to the information security management system certification process.

- **ISO/IEC 17799, BS7799**: According to the two standards, information system security must pass through four stages:

- Environment subject to protection;

- The nature of electronic threats;

- The effects of electronic attacks on the information system;

- The protection measures that have been put in place.

- **ISO/IEC 20000**: The standard represents a guide to best practices for supplying and managing automated information services, and for its implementation it depends on the recommendations of the ITIL reference. This standard describes a set of professional processes that will be implemented in order to provide optimal automated information services.

- **ISO/CEI9000**: The standard specifies the requirements for establishing a quality management system for organizations wishing to continuously improve to meet the desires of their customers and provide conforming products and services. It is directed to all organizations, regardless of their size and sector of activity, and it belongs to the ISO 9000 series of standards.

- **ISO 10006:** It serves as a set of guidelines on applying quality management to projects within the framework of project management processes. It defines a set of concepts related to projects and their improvement and is applied to all projects regardless of their size.

  The standard highlights management's responsibilities with regard to quality, particularly the integration of quality principles into strategic activities, as well as through management reviews and evaluation of work progress, and suggests tips for embodying quality within project resource management processes and within product delivery processes (project coordination, project content, duration, cost, communication, risks and procurement) as well as to improve quality through a combination of measurements, analysis and continuous improvement

Finaly we can say that there is no mature auditing framework in place for AI, nor any AI-specific regulations, standards or mandates therefore, auditors must govern AI systems and be careful about how they are handled.

**Conclusion:**

We conclude that:

The audit expectation gap is a discrepancy arising from the financial community's expectation about the auditor's ability to discover and report every act that would harm their interest with what this auditor actually offers, and the actual challenge that auditors face is falling into the development gap because they do not keep pace with the huge technological development.

The previous references provide auditors with information technology users with indicators, processes and good practices to help them maximize the benefits of information technology and develop, govern and control companies, and help them understand information systems and determine the level of security and control that are necessary to protect companies, and this is by developing models for driving automated information systems, and providing references as well Key indicators of objectives, key indicators of performance, and key success factors for each process, all of which can narrow the expectation gap in the auditing profession in light of the invasion of information technology and artificial intelligence.

Auditors improve their services by using artificial intelligence techniques, such as increasing the sample size and improving the ability to detect fraud or bankruptcy of companies before they occur, but we can say that there is no mature auditing framework in place for AI, nor any AI-specific regulations, standards or mandates therefore, auditors must govern AI systems and be careful about how they are handled.

By using electronic auditing techniques, remote auditing can significantly reduce the carbon footprint that threatens environmental sustainability, and therefore remote auditing leads to achieving health and fiscal security.

Supporting the independence of auditors by using electronic auditing and remote auditing applications by avoiding direct friction between managers and auditors, and this brings their performance closer to the required level.

In conclusion, there is no doubt that any change carries many challenges and obstacles, but the opportunities provided by the use of such techniques by the auditor are always worth trying to overcome the challenges

to move forward and achieve the continuous development of the auditing profession.

## 1. Reference list:

2. A.Bowsher, C. (1996). *The accounting profession, Major issues.* united states: Progress and concers general accounting office (GAO).

3. AICPA. (1988). *The Auditor's Responsibility to Detect and Report Errors and Irregularities.* AICPA. New York, NY: American Institute of Certified Public Accountants.

4. AICPA. (2022, Jul 13). *Artificial intelligence is a game changer for auditors, , , .* Récupéré sur www.AICPA-cima.com.

5. Alexander, M. (2021, Jun 24). What is project portfolio management? Aligning projects to business goals. (www.cio.com., Éd.) *CIO Newsletters*.

6. *Artificial Intelligence meaning*. (s.d.). Récupéré sur dictionary.cambridge.org .

7. *Blockchain overview*. (s.d.). Consulté le 08 10, 2023, sur www.ibm.com.

8. CMMI, ISACA. (s.d.). *CMMI performance solutions, Capability Maturity Model Integration (CMMI®) model.* Consulté le 08 05, 2023, sur www.isaca.org,.

9. D, G. (1992). Legal Liability and the Audit Expectation Gap. Singapore Accountant. pp. 25-28.

10. Davenport, T. H. (2020). *Deloitte's advanced audit analytics.* Récupéré sur www2.deloitte.com.

11. David Lanter, C. (2018). COBIT 2019 FRAMEWORK: INTRODUCTION & METHODOLOGY. (ISACA, Éd.) 17.

12. Day, B. (2023, july 16). What Is an ITIL Certification and Is It Worth It in 2023? (cloudwards.net, Éd.)

13. Douglass, B. P. (2014). Real-Time UML Workshop for Embedded Systems,. *Elsevier*, pp. 1-32.

14. *E-auditing meaning, uses and limitations.* (2021, december 26). Consulté le 08 07, 2023, sur indiafreenotes.com.

15. Edubirdie. (2021, September 07). *The Use Of Information Technology In Accounting* . Consulté le July 31, 2023, sur edubirdie.com.

16. Elaine B, H., Keith M, H., & Mark C, P. (2009). *eSourcing Capability Model for Service Providers (eSCM-SP).* (C. M. University, Éd.)

17. F.Cohem, M. (1978). *Report and recommendations of the commission on auditor's responsabilities.* Newyork: AICPA.

18. Ghasemi, M., & al. (2011). The impact of Information Technology (IT) on modern accounting systems. *Procedia - Social and Behavioral Sciences*(28 ), pp. 112 – 116.

19. GS, M., & Woodliff , D. (1994). An Empirical Investigation of the AuditExpectation Gap: Australian Evidence. *Account. Finance*, pp. 47-74.

20. Guy DM, S. J. (1988). The Expectation Gap Auditing Standards. (165), pp. 36-46.

21. isaca. (s.d.). *COBIT An ISACA Framework.* Récupéré sur www.isaca.org.

22. ISO 10006. (2017, 11). *Quality management — Guidelines for quality management in projects.* Récupéré sur www.iso.org.

23. iso. (2005, 06). *ISO/IEC 17799, Information technology — Security techniques — Code of practice for information security management.* Récupéré sur www.iso.org.

24. iso. (2018 , 09 ). *ISO/IEC 20000, Information technology — Service management — Part 1: Service management system requirements.* Récupéré sur www.iso.org.

25. ISO 2020. (s.d.). *ISO/IEC 15504-6:2013,,*. Récupéré sur www.iso.org.

26. iso. (2022, February). *ISO/IEC 27002, Information security, cybersecurity and privacy protection — Information security controls, , 02-2022, .* Récupéré sur www.iso.org.

27. ISO 9001 . (s.d.). *ISO 9001 and related standards Quality management.* Récupéré sur www.iso.org.

28. *ISO 9001 and related standards Quality management,.* (s.d.). Récupéré sur www.iso.org .

29. itlibrary. (2023, 08 09). *Welcome To The Itil Open Guide*. Récupéré sur www.itlibrary.org.

30. Jaleel, A. (2023, January 18 ). *ChatGPT and Leveraging Artificial Intelligence in Auditing.* Récupéré sur www.isaca.org .

31. Jennings MM, D. C. (1993). The Significance of Audit Decision Aids and Pre-case Jurist's Attitude on Perceptions of Audit Firm Culpability and Liability. *Contemp. Account, 9* (2), pp. 489-507.

32. Kimberlee , L. (2019, February 12). How Is Information Technology Used in Accounting? *Hearst Newspapers, smallbusiness*.

33. Kimberlee Leonard, ,. .. (2019, February 12). How Is Information Technology Used in Accounting? *Hearst Newspapers, smallbusiness*.

34. Kimberlee Leonard, H. I. (s.d.).

35. M. Amidu, , & al. (2011). E-Accounting Practices among Small and Medium Enterprises in Ghana. *Management Policy and Practice, 12*(4), p. 152.

36. Pane, E. S., & Sarno, R. (2015). Capability Maturity Model Integration (CMMI) for Optimizing Object-Oriented Analysis and Design (OOAD). *Procedia Computer Science*(72), pp. 40 – 48.

37. PMBOK® GUIDE. (2021). A Guide to the Project Management Body of Knowledge . *PMI Seventh edition*, 03. Project Management Institute.

38. Pol, F., & Li, C. (2013, December). Impact of Information Technology on Accounting Systems. *Multimedia Services Convergent with Art, Humanities, and Sociology, 3*(2), p. 101.

39. porter, B., & Gowthorpe, C. (2004). AUDIT EXPECTATION-PERFORMANCE GAP IN THE UNITED KINGDOM IN 1999 AND COMPARISON WITH THE GAP IN NEW ZEALAND IN 1989 AND IN 1999. The Institute of Chartered Accountants, Scotland Edinburgh.

40. prince2. (s.d.). *About PRINCE2, , view 10/08/*. Consulté le 08 10, 2023, sur www.prince2.org.uk.

41. (juin 1988). *Report of the commission to study the public's expectations of audits toronto.* canada: The canadian institut of chartered accountant.

42. Salehi, M. (2011, September 23 ). Audit expectation gap: Concept, nature and trace. *African Journal of Business Management , 5*(21), p. 8382.

43. Salehi, M., Azary, Z., & Mansouri, A. (2009, February). Audit independence and Expectation Gap, Emperical Evidences from Iran. *Internal Journal of Economics and Finance, 1*(1), p. 167.

44. Sevinc, E. (2023, march 11). *Assessing and Enhancing Software Processes: An Introduction to SPICE.* Consulté le july 25, 2023, sur www.linkedin.com,.

45. Simion, M. (2011). Tailoring PRINCE2 management methodology to suit the research and development project environment, NCD ECOIND – INTERNATIONAL SYMPOSIUM – SIMI 2011"THE ENVIRONMENT AND THE INDUSTRY. (www.academia.edu, Éd.) p. p322.

46. STATHIS , G., & BRINICH, A. (2023, APRIL 12). *How COSO's New Sustainability Reporting Guidance Provides Opportunities for the Profession.* Récupéré sur www.ifac.org.

47. *What is UML ?* (s.d.). Consulté le july 30, 2023, sur www.uml.org.

48. Wilson, S. (2017, MARCH 7). *e-Auditing: A Matter of Context, The auditor an exemplar global publication.* Récupéré sur theauditoronline.com.

49.Zaidi.M, D. (2007, September). The study of the audit expectation gap in the public sector of Malysia . *thesis of the requirement for the degree of Doctor*. University of stirling.