

The Artificial Intelligence (AI) framework and the benefits of its use in internal audit

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Abstract— AI is well known today as a valuable tool that can improve our daily lives. In addition, it can improve the efficiency and productivity of many professions, such as the internal auditor.

The research methodology is literature review. The primary objectives of the article are twofold: Firstly, to provide a comprehensive description of the institutional framework for the operation of AI internationally, and secondly, to examine the benefits that arise from the use of AI in internal audit units and organisations in general.

The significance of the research lies in its examination of artificial intelligence (AI) as a valuable instrument in the arsenal of internal auditors. The findings suggest that AI has the potential to enhance the efficacy of internal audits, reduce the time required for their execution, reduce the frequency of internal audits, and, in general, optimise the operations of companies and organisations.

Keywords—Internal audit, Fraud, Corruption, Artificial intelligence, Management,

I. INTRODUCTION

The Organisation for Economic Co-operation and Development (2024) defines AI as "a machine-based system that, for explicit or implicit purposes, infers from the input it receives how to generate outputs such as predictions, content, recommendations, or decisions that can affect physical or virtual environments". Different AI systems vary in their level of autonomy and adaptability after deployment". AI has been in the news in recent years and is considered a catalyst for global change (Rehman and Hashim, 2022). AI, in its broadest sense, is the technology that makes machines intelligent (Mambo Dallu, 2018).

AI can be seen as the combination of man and machine (Zhou, 2021). The power of AI is so important that it is considered to change the whole world (Rehman and Hashim, 2022). Companies that adopt AI can increase their efficiency and ensure that events that affect the company's reputation do not occur (Ali - Mohammed and Al-Abdul Rahman, 2024).

AI is a modern tool used in the business world. AI is a modern tool that is being applied in the business world due to the fact that it contributes positively to the effectiveness and efficiency of the business. AI has transformed society and people's daily lives (National

Institute of Standards and Technology, 2023). AI can help public administration in areas such as improving the efficiency of operations, enhancing accountability, improving decision making, and generally improving public sector services (Unesco and OECD, 2024). Internal audit is a valuable tool for effective management if properly used (Kontogeorgis, 2018). Internal audit can also improve public administration (Kontogeorgis and Varotsis, 2021). The Institute of Internal Auditors has issued standards for the application of AI in business due to the ever-increasing use of AI (The Institute of Internal Auditors, 2023). More generally, the implementation of internal audit standards helps to improve the competitiveness of companies (Kontogeorgis and Filos, 2012).

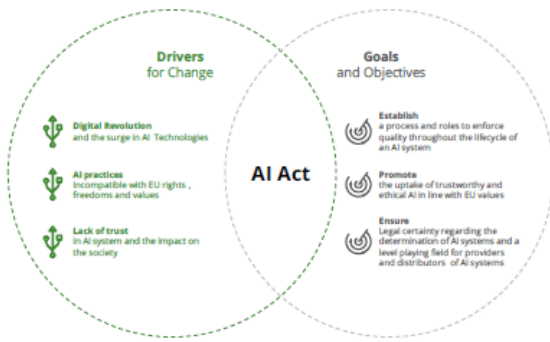
II. METHODOLOGY

A gap exists in the literature on the application of artificial intelligence to internal audit (Wassie and Lakatos, 2024). The research methodology is bibliographic literature review. Specifically, international scientific articles were studied regarding the role of AI in internal audit. The literature search was based on keywords such as artificial intelligence, artificial intelligence and internal audit, institutional framework of artificial intelligence and usefulness of artificial intelligence in internal audit. The bibliographic search was carried out using google scholar. Google scholar is a well-used search engine for academic articles (Gusenbauer and Haddaway, 2019)

III. LITERATURE REVIEW

A. The regulatory framework of AI

The basic regulatory framework for the use of AI in the European Union is the EU Regulation adopted in December 2023 (Deloitte, 2024). The main objective of the regulation was to provide a risk-based approach to the classification of AI systems and to control the development, distribution and use of AI systems. The above framework is illustrated in the figure below:



(Deloitte, 2024)

This particular piece of legislation has some basic objectives, which are reflected in six pillars. The first pillar is the regulation of AI systems. The main objective is to categorise AI systems on the basis of risk level. There are systems with high, low or unacceptable levels of risk. The second pillar defines the prohibited practices of AI systems. It defines the prohibition of practices such as the use of biometric data, the recognition of emotions and other sensitive information. The third pillar is to protect against the implementation of high-risk AI systems. This includes areas such as law enforcement, migration and legal interpretation.

The fourth pillar is the creation of a regulatory framework for generative AI systems. This includes, for example, not producing unethical content for AI tools such as ChatGPT. The fifth pillar is transparency and accountability. This will define the process by which European citizens can lodge complaints about the use of AI. The sixth pillar is the definition of general purposes of AI systems. This pillar encompasses the exemptions pertaining to compliance with European legislation, AI documentation, and descriptions of educational content.

The pertinent standards with regard to AI are delineated by IIA Standards 1100 to 2440. More specifically, the articles related to internal audit are presented in the table below:

IIA Standard 1100: Independence and Objectivity	IIA Standard 2210: Engagement Objectives
IIA Standard 1210: Proficiency	IIA Standard 2220: Engagement Scope
IIA Standard 2010: Planning	IIA Standard 2230: Engagement Resource Allocation
IIA Standard 2030: Resource Management	IIA Standard 2240: Engagement Work Program
IIA Standard 2100: Nature of Work	IIA Standard 2310: Identifying Information
IIA Standard 2110: Governance	IIA Standard 2400: Communicating Results
IIA Standard 2120: Risk Management	IIA Standard 2410: Criteria for Communicating
IIA Standard 2130:	IIA Standard 2420: Quality

Control	of Communications
IIA Standard 2200: Engagement Planning	IIA Standard 2440: Disseminating Results
IIA Standard 2201: Planning Considerations	

(The Institute of Internal Auditors, 2023)

The International Organization for Standardization and the International Electrotechnical Commission (2023) issued standards on AI. The main objective of this guide is to mitigate the risk posed to an organization by the use of AI. Additionally, the guide aims to help businesses integrate AI into risk management and provide some good practices in the use of AI.

The National Institute of Standards and Technology has published a framework for the design, development and use of AI systems. Its main purpose is to create a trustworthy and responsible way of using AI (National Institute of Standards and Technology, 2023). This framework is voluntary and is suggested to be applied flexibly according to the characteristics of each organisation.

The development of AI can significantly improve the effectiveness and efficiency of audit processes, sampling and the performance of the audit work in general (Rodrigeus et al., 2023). AI can have an impact on increasing the efficiency and effectiveness of audit processes, improving audit sampling and reducing the cost of audit processes (Rodrigeus et al., 2023).

Some key conclusions about the role of AI in the operation of the internal audit unit is that AI is directly related to internal audit and can affect it. AI can act both as a governance mechanism for businesses and it should AI should be incorporated into their corporate governance codes. Finally, businesses can use AI as a validation mechanism and confirmations (Rehman and Hashim, 2022).

The use of AI requires a total change in the overall perspective of control with an emphasis on the use of AI. The table below shows the differences between traditional audit methods and AI-based audit methods:

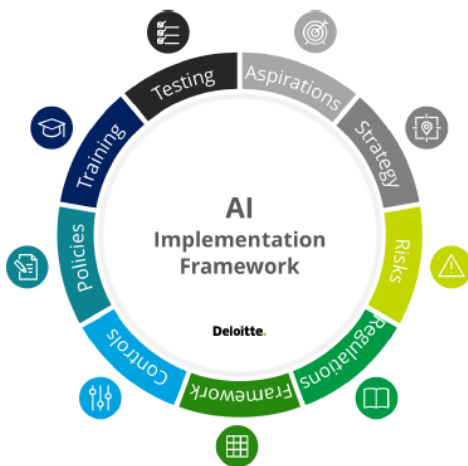
Phase	Automated Audit Process enabled by AI	Traditional Audit Process
PrePlanning	Big data analysis by AI	The auditor collects information on the organizational structure, the accounting systems and operation of the business.
Contracting	AI calculates audit fees and drafts contract between auditee and auditor	The auditor calculates the audit fees and draws up the contract between the

		auditee and the auditor
Internal Controls Understanding and Risk Factors Identifying	AI calculates the audit risks by creating documents such as flowcharts questionnaires and others	the auditor calculates the audit risks by creating documents such as flowcharts questionnaires and others
Control Risk Assessment	Continuous audits and data collection	periodic and sample audits
Substantive Tests	Continuous control of transactions that tends to reach 100%	Sampling based on rules set by the auditor
Evidence Evaluation	It is part of the previous phase	
Reporting	Continuous audit through prediction models	Historical information based on the auditor's opinion.

Source: Issa, Sun, Vasarhelyi, 2016; Vukovic, Tica and Jaksic , 2023)

B. Applications and benefits of AI in internal audit

The application of AI can be done by following a specific methodology. The figure below shows the steps of implementing artificial intelligence:



Deloitte, 2024

According to the above figure the implementation of AI through the following steps:

Revise strategic aspirations based on AI: Understand the company's strategic goals and use AI to achieve them.

Define AI strategy and risk tolerance: Determining the organisation's tolerable level of risk and using AI tools to reduce risk to the lowest level.

Define and calculate potential risks: Defining and calculating the impact of potential risks and using AI to mitigate them.

Consideration of institutional - legal constraints: Understanding the constraints on the use of AI in the organisation resulting from business rules, laws and other regulatory frameworks.

Develop a framework for the role of AI in governance: Regulatory framework for the use of AI that includes the rules of application, accountability and required actions to be taken in the event of inappropriate events.

Implementing internal control systems: The use of AI can help uncover new risks through audits that can target decision making, user access and data quality.

Develop and update policies and procedures: Revise the organisation's processes and policies to include AI operations and applications.

Training and skills development: Staff at all hierarchical levels should be trained to understand the capabilities of AI.

Audit the internal audit function: Audit the internal audit function to determine its compliance with the organization's regulatory framework and strategic objectives.

The benefits of using AI in internal audit, according to a survey, are shown in the table below:

Benefits	Percentage
Improve audit effectiveness and efficiency	90%
Reduce audit costs	63%
Reduce human errors and risks	63%
Implementation digitals applications	51%
Implementation of new methods and tools	35%
Increase in business value	34%
Improvement of corporate governance image	31%

(ICAEA International, 2024)

According to the table above, the main benefits of using artificial intelligence in internal audit are increased efficiency and effectiveness, reduced operational costs, and reduced human error and risk. More specifically, the use of AI may have come to the fore for a number of reasons such as the following (Ali Mohammed and Al-Abdul Rahman, 2024):

Fraud prevention tools: the use of AI can reduce business risks and thus increase stakeholder trust.

The constant change in fraud patterns and the advanced methods of fraudsters: It has led to the need for modern fraud prevention tools that will be conducted more and more over time.

Economy of human resources: The use of AI tools saves human resources that can be used in other productive areas of the business.

The need to comply with national and international regulations: The requirements are particularly high and the human staff is not sufficient to carry out the required checks.

Enrichment of technological possibilities: AI is considered a state-of-the-art technological tool that enables businesses to more effectively control the commission of a fraud.

A relevant survey conducted in the USA shows that a one-standard-deviation increase in recent AI investments is linked to a 5.0% decrease in the probability of an audit needing a restatement, a 0.9% reduction in audit costs, and a decline in the number of accounting employees by 3.6% after three years and 7.1% after four years (Fedyk et al., 2022).

Internal auditors have a very important role to play in overseeing the implementation of AI in an organization. Internal audit should include in the risk assessment the possibility of errors in AI systems. Furthermore, Internal audit must advise the organization on the implementation of good practices for implementing AI. Last but not least, internal audit must ensure that the use of AI does not raise ethical issues and that the required types of governance regarding the use of AI are implemented (The Institute of Internal Auditors, 2023).

C. Threats of AI in internal audit

The use of AI without control can have undesirable consequences for both individuals and society (National Institute of Standards and Technology, 2023). Some risks from the use of AI are important and should be taken seriously (Mambo Dallu, 2018).

Human errors and Undetected human biases may exist during the design of the AI system. Not only this, but errors in the use of AI resulting in the creation of defective products and damage to the company's reputation. Furthermore, the lack of oversight of AI can result in a lack of ethics in its use. It is common practice customers and stakeholders not be positive about the use of AI. Thus, the business may not face the competition effectively if it does not make use of AI. Last but not least, the cost of investing in AI and research can affect important indicators such as return on investment ratio.

A key task of internal auditors is to ensure that AI systems follow the necessary ethical, legal and institutional rules (The Institute of Internal Auditors, 2023).

IV. Conclusions

Technology is making everyday business life more complex, and every business has a need for immediate improvements. Artificial intelligence can provide fast and reliable solutions (Wassie and Lakatos, 2024). Therefore, it is imperative to strengthen the capabilities of internal auditors in order to respond to today's changing environment (Zhou, 2021).

The institutional framework for artificial intelligence is developing due to its importance at global level. The European Union has already established an initial framework for AI, and the AI code is currently under development. The Institute of Internal Auditors has already issued guidelines and manuals in relation to

the use of artificial intelligence. Finally, a number of international organisations, including the OECD, prominent auditing companies and technology institutes, have published relevant manuals and research on the use of artificial intelligence.

The internal auditor must decide whether or not to use AI in the audit plan. Internal audit must assess and mitigate the risks arising from the implementation of AI systems in the business, such as in the production line. In addition, internal audit should contribute to the overall good implementation of AI and reduce problems arising from its use. Special emphasis should be placed on ethical issues related to the use of AI." (Mambo Dallu, 2018).

There are significant limitations to the research on the use of AI in internal audit. In particular, more analysis and theory on the use of AI in internal audit needs to be developed and published (Wassie and Lakatos, 2024).

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