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The Role of Artificial Intelligence in Public Sector Auditing Missions: Challenges and Future Perspectives

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Abstract

Nowadays, Artificial Intelligence role is rapidly increased in various industries, even in audit.

In audit missions, machine learning, natural language processing (NLP), and data analytics, as AI technologies are becoming more efficient, accurate and comprehensive.

In external audit missions, by improving efficiency, accuracy and reliability, the integration of Artificial Intelligence is changing the audit process. As external audits play a crucial role in ensuring financial transparency, compliance, and public trust the role of AI is becoming more and more important. The role of AI in automating processes has expanded due to improvements in data processing capabilities, automating tasks, detecting fraud, and providing insights into risk management.

Through this study, we aim to show how various applications of AI technologies such as e.x machine learning (ML), natural language processing (NLP) also robotic process automation (RPA) are applied in external audit processes. The paper identifies the key areas where AI is enhancing the audit process, by examining some of the key issues addressed in an audit mission

Keywords: *Artificial Intelligence, External Auditing (Public Audit), Supreme Audit Institutions (SAI)*

Introduction

External public auditing plays a fundamental role to guarantee transparency in public financial management and secure the proper use of public

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funds. In this way, they strengthen citizens' trust in public institutions and add value to the auditing process.

Audit missions, traditionally, have been performed using manual procedures and standardized methodologies, that both of them are often slow and costly. As the audit environment has change, and nowadays are faced with ever-growing datasets, complex transactions, and demands for rapid reporting, the use of Artificial Intelligence has emerged as a necessity for modernizing public auditing (Kokina & Davenport, 2017). Moreover, the presence of human factor is associated with limitations like potential errors due to fatigue or overload, mental and emotional strain when processing large volumes of data, and difficulties in maintaining critical and analytical precision. In this context the use of Artificial Intelligence can reduce these limitations by supporting the auditor through enhancing the quality of analysis, the speed of processing, and the continuity of audit work.

International practices support this approach. For e.x the case of the U.S. Department of Defense (DoD) according to Kokina and Davenport (2017), AI applications can increase auditors' analytical effectiveness, make some audit stages more time-efficient, and assist in identifying unusual patterns or possible fraud at an earlier stage.

In our study of 130 albanian auditors, 60% expressed support for AI integration, 30% were skeptical, and 10% were neutral. These findings highlight a generally positive perception of AI technologies while emphasizing the need for training and capacity-building for SAI's.

International Applications of AI in Audit Process

Because of the use of Artificial Intelligence in auditing has been increased, many large institutions are exploring AI to enhance the accuracy of their audits, for the aim to analyse large datasets efficiently and detect unusual activities or risks more quickly. For instance, some government

agencies in the United States apply machine learning to process enormous amounts of transactional and contractual data, with the goal of identifying patterns that may indicate risks or irregularities.

These early applications provide valuable examples for audit institutions worldwide. Several Supreme Audit Institutions have begun experimenting with AI tools to support tasks such as risk assessment, financial data monitoring, anomaly detection, and the anticipation of possible irregularities. While full-scale AI integration across the entire audit cycle remains limited, initial projects have already shown promising gains in efficiency, reliability, and transparency.

The use of AI has expanded significantly in developed countries and within large organisations and institutions:

- Global corporations leverage machine learning, natural language processing (NLP), and robotic process automation (RPA) to enhance audit accuracy and accelerate anomaly detection (Issa et al., 2016).

- The U.S. Department of Defence utilizes machine learning algorithms to examine vast numbers of transactions and contracts, enabling the detection of anomalies and the forecasting of potential risks (U.S. Government Accountability Office, 2019).

These examples act as benchmarks for Supreme Audit Institutions around the world, many of which are now integrating AI to strengthen risk assessments, monitor data more effectively, detect anomalies, and anticipate possible financial discrepancies. Some key cases include:

- AI Canada: Use of automation and data analytics in financial and performance audits.

- UK National Audit Office (NAO): AI for risk forecasting and complex governmental data analysis.

- GAO: Use of machine learning to analyze large datasets, identify anomaly and forecast potential risks.

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- ANAO: Use of machine learning and advanced analyses to monitor specific processes and anticipate the risk.

While comprehensive AI implementation is still in its early stages, initial pilot initiatives and focused deployments are already yielding clear gains in operational efficiency, precision, and openness.

Methodology and Empirical Findings

A study involving 130 Albanian public auditors was carried out to evaluate their views on the use of AI in auditing tasks. The main findings are as follows

- 60% support AI integration
- 30% express skepticism
- 10% are neutral

The results show a positive trend for AI use, but also point out the need to improve infrastructure,

protect data, and make sure institutions are ready (Atuilik & Dhalia, 2019).

Model

A regression analysis was carried out to examine the factors affecting public albanian auditors' views on using Artificial Intelligence (AI) in auditing. The dependent variable measured whether auditors supported AI integration (1 = yes, 0 = no or neutral), and the model included the following predictors.

- Age (in years)
- Work experience: Number of years spent in auditing.
- Education level: Bachelor's, Master's, or Doctorate degree.
- Technical skills: Self-rated IT abilities and familiarity with AI.
- Data security perception: Belief that AI can be applied without risking confidentiality.

Table 1: Logistic Regression Results

Variablat e pavarura	Koeficienti (B)	Exp(B)	p-vlera
Mosha	- 0.045	0.956	0.012**
Përvoja profesionale	-0.038	0.963	0.082**
Arsimi	0.120	1.128	0.420
Njohuri teknologjike	0.510	1.665	0.000***
Besueshmeria e të dhënave	0.275	1.316	0.009**

Notes: Dependent variable = support for AI use. ***p < 0.01; **p < 0.05. (Source: Author)

Model formula:

$\ln(P/1 - p) = 0.85 - 0.045 * \text{Age} - 0.038 * \text{Experience} + 0.120 * \text{Education} + 0.510 * \text{Knowledge IT} + 0.2575 * \text{Trust in data security}$

where p is the probability that an auditor supports the use of AI.

The main regression results showed that:

Age and professional experience had a moderate negative effect ($p < 0.05$), suggesting that younger auditors with fewer years of experience were more open to the use of AI compared to their older colleagues.

-Education level did not result in a statistically significant impact, suggesting that the tendency

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to support AI is more related to practical technological skills than to the level of formal education. -Auditors' technical abilities were found to significantly boost their support for AI ($p < 0.01$). Those who rated their tech skills higher showed a greater likelihood of endorsing AI adoption, with each point increase in skill raising the chance of support by about 66.5%

-Auditors who were concerned about the security of AI were less willing to use it ($p < 0.05$). Lower confidence in AI's ability to protect data corresponded with reduced support for its implementation.

The adoption of AI in public auditing in Albania depends mainly on auditors' technical skills and their trust in data protection. Older or more experienced auditors tend to be cautious, which highlights the need for ongoing training and clear rules so that AI supports their work instead of being seen as a replacement.

Conclusion

Our study found that successful AI integration in Albanian public audits relies on auditors' technical skills and their confidence in data security. The caution shown by more experienced auditors underscores the importance of training and clear guidelines, ensuring AI serves as a tool to assist auditors rather than replace them. However, there remains a concern that over-reliance on AI could diminish the 'human factor,' reducing attention to the individuals being audited.

Major Areas Where AI is Applied in Public Auditing

Drawing on current practices and research, AI is primarily applied in the following areas:

- Automating routine tasks: helping to save audit time and lower costs.
- Risk evaluation and forecasting: allowing auditors to identify potential problem areas early
- Detecting fraud: identifying transactions or activities that appear unusual or inconsistent (Brown-Liburd et al., 2015).
- Monitoring compliance: applying automated tools to examine contracts, tenders, and official documents.
- Data reporting: using visual dashboards to enable faster and clearer decision-making (Yoon et al., 2015).

Challenges and limitations

While AI offers clear advantages, its use in public auditing also comes with potential risks.

-Quality and security of data: public data are often dispersed and non-standardized. - Algorithmic biases: AI models may produce biased outcomes if trained on inaccurate data (O'Neil, 2016)

-Transparency issues: Some AI systems are like "black boxes," so it is hard to see how they reach conclusions. This makes direct interaction with real audit situations harder than in traditional human-led audits.

-Ethics and law: Rules and guidelines are needed to make sure AI is used fairly and responsibly (INTOSAI, 2020).

-Human role: Even though AI can automate many tasks, it cannot fully understand context, emotions, or special circumstances. This shows the importance of combining AI with auditors' judgment to keep audits accurate, trustworthy, and detailed.

Combining AI tools with the skills and judgment of auditors is key to ensuring that public audits are both trustworthy and complete.

Future perspectives

Using artificial intelligence (AI) in public audits can help reduce mistakes, boost efficiency, and provide more detailed understanding of financial data. In the future, AI is expected to support audits in several important ways.

-Blockchain: improves tracking of transactions and transparency in financial audits, enhances transparency, supporting more accurate audits of financial statements and public funds.

-Automated audits: AI can observe fund usage in real time, detect irregularities, and strengthen fraud prevention measures, monitors fund usage in real time, detects irregularities, and supports fraud prevention.

-International standardization: aligns audit practices across SAIs for better comparability and transparency also improving comparability.

-Human-AI collaboration: AI assists auditors by combining data analysis with human judgment, through combining advanced data analytics with human insight and professional judgment, rather than replacing them (Vasarhelyi et al., 2015).

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Moreover, AI can enhance several critical aspects of external audit work, such as:

1. Financial statements: using automated tools to review balances, revenues, expenses, and asset valuations in order to detect inconsistencies with established standards.
 2. Compliance: verification of adherence to laws, regulations, and accounting standards.
 3. Fraud detection: identifying anomalies and indicators of suspicious activity in financial transactions and documents.
 4. Risk evaluation: applying machine learning to examine operational, financial, and error-related risks to anticipate possible financial problems.
- Looking ahead, the use of AI in public auditing highlights the need for a combined approach, where technology and auditors' skills work together to enhance efficiency, precision, and transparency in managing public resources.

Results

Artificial intelligence (AI) is increasingly playing a pivotal role in modernizing state-level public auditing by enhancing the speed, accuracy, and transparency of audit activities. Examples from international practice illustrate that AI facilitates the handling of large volumes of data, accelerates audit workflows, identifies anomalies, and contributes to fraud prevention.

The results from our Albanian study indicate strong auditor support for AI adoption. While there is a clear trend toward integrating AI into auditing practices, challenges remain concerning infrastructure, safeguarding data, and establishing an appropriate legal framework.

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