# Chapter 3

# Audit, Control, Regulation

**Angelika Kaczmarczyk**

Wroclaw University of Economics and Business
e-mail: angelika.kaczmarczyk@ue.wroc.pl
ORCID: 0000-0003-3395-7135

**Piotr Luty**

Wroclaw University of Economics and Business
e-mail: piotr.luty@ue.wroc.pl
ORCID: 0000-0003-0955-7000

**Katarzyna Piotrowska**

Wroclaw University of Economics and Business
e-mail: katarzyna.piotrowska@ue.wroc.pl
ORCID: 0000-0002-5830-6526

## 3.1. Audit, Control, Regulation – Overview of the Research

Audit, control and regulation are the cornerstones of ensuring transparency and credibility of financial statements in a rapidly changing business environment. In the context of the digital transformation of organisations, these areas are experiencing a significant evolution, resulting from the integration of advanced technologies such as blockchain, big data and artificial intelligence. Modern technologies are not only influencing the increased efficiency and precision of audit processes, but also opening up new challenges related to their regulation and ethics.

Table 3.1 provides an overview of the most important academic publications on audit, control and regulation issues in the digital age. The studies presented in the overview illustrate the diversity of methodological approaches, such as empirical analysis, theoretical modelling or case studies. The authors carried out an analysis of the key challenges and opportunities arising from the use of technology in auditing,

such as increasing the transparency of financial data, automating control processes or reducing the risk of human error.

The table also indicates the interdisciplinary nature of the research, which takes into account technological as well as regulatory and ethical aspects. The compilation of publications makes it possible to identify key research trends, such as the impact of blockchain on audit processes, the role of advanced analytical tools in financial control and the need to harmonise global regulations in an era of digital transformation.

**Table 3.1.** Summary of publications for the area "Audit, control, regulation"

| Paper | Test sample | Research method | Results/conclusions | Quoted |
|---|---|---|---|---|
| Maksymov et al., 2023 | Survey of 145 chief accountants and interviews with 35 chief accountants at large US public companies | Theoretical model (data collection technique: questionnaire and interviews) | Examine the developed theoretical model of the internal control over financial reporting (ICFR) process from a management perspective. The study indicates that executives feel limited in their ability to direct ICFR and maintain a perspective that reflects these limitations. In particular, the majority of executives feel obliged by auditors to adhere to the preferences of the PCAOB (Public Company Accounting Oversight Board), although executives feel that these preferences often distract management and auditors from riskier areas, additionally indicating that audit committees' involvement in ICFR is too passive and auditor assessments are sometimes too harsh, leading executives to put pressure on auditors. | 1 |
| Li et al., 2023 | Sample: 579 Chinese listed manufacturing companies in 2020 | Empirical methods – logistic regression model | Developing textual indicators for detecting financial fraud. Textual information can complement the effectiveness of indicators in identifying financial fraud, reducing information asymmetry and extending stakeholder theory. | 3 |
| Chiu et al., 2023 | Sample: 46739 quarterly company data from 2004 to 2020 | Regression analysis and other statistical methods | To investigate the usefulness of a new model for detecting misstatements in financial reports and to assess its usefulness for the auditor. The model includes 'big data' extracted from Google. It is demonstrated that the model can serve as a tool to determine the financial position of an entity, which can help auditors to assess the risk of revenue distortion. | 2 |
| Sharpe et al., 2023 | Financial Analysis Made Easy (FAME) database. Sample: 72227 observations covering 62821 private firms and 9406 are public firms. | Probit model for hypothesis testing | An analysis of the role of auditor selection (Big 4/Non-Big 4) in the debt financing of private and public firms. Private firms have less access to debt than public firms, and Big 4 auditors support debt raising in both private and public firms. Private firms face greater information asymmetry, in turn Big Four auditors are more important for raising debt in private firms than in public firms. The benefits of appointing Big Four auditors to private firm debt raising are greater in the opaque information environment of the global financial crisis and when firms are smaller, younger or have poorer quality financial reporting. | 0 |

| Paper | Test sample | Research method | Results/conclusions | Quoted |
|---|---|---|---|---|
| Maksymov et al., 2023 | Sample: 462 questionnaires, 24 interviews among: partners in audit companies, CFOs, audit committee members | Survey, interview | Material errors are identified in approximately 9% of surveys of listed companies and 15% of surveys of unlisted companies. More relevant to the identification of material errors are breaches of contractual conventions and going concern issues than reference to profit (revenue) levels. Identification of various factors that increase audit effectiveness risk (both on the part of the auditor and the company). | 2 |
| Estep et al., 2023 | Survey with a sample of 43 finance directors; experiment with a sample of 115 finance directors | Questionnaire – experimental method | Investigate whether the use of AI increases the level of auditor adjustments for complex estimates by directors. 1. managers have positive expectations about the use of AI in their companies, worse about the use of AI by auditors 2. the use of AI influences managers' willingness to adjust the fair value of a patent 3. audit evidence supported by AI is more accurate only if the firm also uses AI 4. firms using AI are more open to the use of AI by auditors. | 4 |
| Aboud & Robinson, 2022 | Sample: 73 Irish companies | Survey | Investigating the effectiveness of fraud prevention and detection techniques, including data analytics, machine learning and data mining, and understanding how widespread the use of data analytics is across sectors, and identifying and understanding potential barriers to implementing these techniques to detect and prevent fraud. The study suggests that there are barriers that may prevent businesses from implementing advanced data analytics to detect financial statement fraud, and indicates how these barriers can be overcome. | 15 |
| Austin et al., 2021 | No data | Interviews with managers – interpreting the results on the ground of theory | Investigating how auditors, managers and regulators interact with data analysts in the area of financial reporting according to their contribution to the study reveals three areas of conflict on the background of different preferences for data analytics: diagnosing tension between auditors and management on the subject of data. The auditors claim that they use data analytics strategically to increase the knowledge of managers about the business, which according to the regulators may interfere with the independence of the auditors. | 42 |
| McCallig et al., 2019 | No data | AIS model | The study indicates how developed techniques from IT disciplines could emulate and enhance the audit process (for receivables only). The study is exploratory in nature, generating design ideas applicable to building an AIS for receivables. | 73 |
| Abbott et al., 2016 | Surveys, a sample of 189 chief internal auditors from Fortune 1000 companies in 2009 | The two-factor internal audit quality model | Development of an interactive internal audit quality model. The research supports the hypothesis that the combined presence of competence and independence is a necessary condition for effective monitoring of financial reporting by internal audit. There is an impact of internal audit competence (independence) on the quality of financial reporting, and this depends on the independence (competence) of the internal auditor. | 167 |

| Paper | Test sample | Research method | Results/conclusions | Quoted |
|---|---|---|---|---|
| Troshani et al., 2015 | Sample: 21 interviews | Qualitative analysis (interviews) | An examination of the process of XBRL implementation from an institutional perspective in the UK. The results describe how the collaboration between regulators and information stakeholders in the UK on the implementation of XBRL has progressed. | 25 |
| Hennes et al., 2014 | Sample: 2705 restatements that were announced between January 1997 and June 2006 and 5061 restatements that were announced between January 2006 and 2010 | Statistical regression method – logistic regression | The research indicates that auditors are more likely to be dismissed in the case of major transformations, particularly the dismissal of non-Big Four auditors rather than Big Four auditors. Among corporations with Big Four auditors, those that are larger and more operationally complex are less likely to dismiss their auditors. The market reaction to dismissal is much more positive in the case of rigorous, more serious financial restatements. This positive market reaction is consistent with companies restoring credibility to financial reporting by replacing their auditors, and highlights the important role that auditors play in financial markets (paid access). | 142 |
| Glancy & Yadav, 2011 | No data | Quantitative methods for text research | Proposing a model to detect fraud in financial reporting (CFDM) using a quantitative approach to textual data, the use of an analytical method offers the potential for automation. The method has been tested on Management Reports and Analytics from 10-K reports and has been able to distinguish fraudulent reports from those that did not contain fraud. CFDM can serve as a screening tool in the event of suspected fraud. | 128 |
| Hennes et al., 2008 | No data | No data | The authors proposed a procedure for classifying restatements as errors or irregularities and showed that the majority of restatements classified as irregularities are followed by class action lawsuits related to fraud, while in the group of restatements classified as errors, only one lawsuit was reported. | 537 |
| Fisher, 2007 | No data | Application prototype | Presentation of a prototype system to support the temporal reconstruction of financial accounting standards (paid access). | 6 |
| Sunder, 2005 | No data | No data | To present the reasons why formal standards and enforcement, with their obvious advantages, do not necessarily dominate social norms in financial reporting. To show how financial reporting has moved from being guided by social norms and conventions to being dominated by formalised rules and enforced standards. | 49 |

Source: own elaboration on the basis of a review.

All financial and economic phenomena occurring in the economy should be regulated. The introduction of legal norms ensures the security of economic turnover and also protects the stakeholders of financial statements. Within the framework of the conducted verification of the content of publications, selected according to the applied research methodology, four areas can be distinguished concerning:

- data analysis (datasets),
- fraud detection (control aspects),
- financial reporting,
- internal control over financial reporting (ICFR) processes (control procedures).

Based on the review of the literature, it was possible to identify a publication that develops a model for detecting false information in annual reports of US companies (SEC) (Glancy & Yadav, 2011). The model proposed by these authors aimed to identify attempts to hide information or present incorrect information using textual data from annual filings with the US Securities and Exchange Commission (SEC). The article stresses the importance of automating the detection of potential fraud by using a proper fraud detection model. Using essentially all of the information contained in the reports submitted by companies, the model proposed by the authors provides decision support for early fraud detection and can also serve as a deterrent and countermeasure against fraudulent actions by companies (Glancy & Yadav, 2011).

Errors in reporting and communicating with stakeholders can vary in nature. Hennes et al (2008) pointed out the need to distinguish between errors (unintentional misstatements) and misstatements (intentional misstatements and fraud) when examining financial data restatements in the GAO (General Accounting Office) database. The authors also analysed the impact of errors and fraud on CEO/CFO turnover, and by distinguishing between errors and misstatements, they indicated that the study of the consequences of financial data restatements can be strengthened by examining market reactions to CFO and CEO changes. The authors also suggested focusing on short time windows related to director turnover and controlling for other market and non-market factors that may cause CFO and CEO turnover (Hennes et al., 2008).

Investigating how the use of Google's search engine can be applied as a novel big data analytical approach to detect irregularities in companies' revenue reporting, the authors suggested the high potential of Google Trends data, in particular the search volume index (SVI) for company products, as a source of external information that auditors can use to assess revenue fraud risk (Chiu et al., 2023). Discrepancies between sales growth resulting from SVI changes associated with company products and reported sales growth can be analysed. The study by Chiu et al. (2023) stressed the importance of using external information sources, such as Google searches, to improve audit quality and detect financial reporting irregularities. Working on large data sets, machine learning can be used in the prevention and detection of fraud in financial reporting, however there are barriers associated with the use of advanced data analysis techniques. Chiu et al. (2023) pointed to the technological barriers (use of research tools that have not yet been sufficiently tested), financial barriers (cost of acquiring research tools), and personnel barriers (lack of qualified staff).

Technological developments make it possible to analyse the reports published by companies and, on this basis, attempt to identify attempts at fraud in financial data. Analysis of the texts of information prepared by the boards of Chinese manufacturing companies indicates the importance of multiple dimensions of linguistic features, such

as structure, quality and expression, in identifying financial fraud (Li et al., 2023). The authors combined textual indicators with financial indicators to improve the accuracy of financial fraud detection, hence these measures can reduce information asymmetry and have a positive impact on the market. In addition, the authors highlighted that fraudulent companies tend to exhibit certain characteristics in their linguistic expression, such as being overly cautious, using fewer positive words and increasing the complexity of annual reports to hide financial fraud (Li et al., 2023).

The formalisation of financial and, more recently non-financial reporting regulations, have been ongoing for many years. The transformation from social norms to formalised standards and legislation has far-reaching consequences for accounting and corporate management (Sunder, 2005). One of the manifestations of formalisation in the area of company reporting is the introduction of XBRL. The process of implementing the XBRL format has been multifaceted and involved interactions between different organisations, including regulators (Troshani et al., 2015). The authors explored how regulators played a key role in enhancing the reliability of financial information. XBRL requires an interplay between the institutional and technical environment. Another tool to ensure the credibility of financial information is blockchain technology. The goal of combining multilateral safeguards and blockchain is to ensure that financial reporting information is error-free, complete, neutral, transparent and credible to stakeholders (McCallig et al., 2019).

Another area related to regulation is internal control. Abbott et al. (2016b) developed a model related to the examination of internal audit in the financial reporting monitoring process. The authors emphasised the importance of both the competence and independence of internal audit for effective monitoring of financial reporting (Abbott et al., 2016).

Regulating the accounting environment involves not only the implementation of standards, but also the testing of compliance with accounting rules, including the audit process. Austin et al. (2021) showed how interactions between auditors, managers, regulation and technology influence conflicting preferences among stakeholders, and indicated that the main differences include disagreements about audit fees, concerns about auditor independence and the quality of the audit process, and the lack of specific accounting regulations to provide detailed data for analysis (Austin et al., 2021). The effectiveness of auditors' controls also depends on the relationship with management to eliminate misstatements in the financial statements (Maksymov et al., 2024). This means that not only can one rely on technological tools to assess misstatements, but behavioural aspects also play an important role. According to Maksymov et al. (2023), managers may feel compelled to accept the preferences of auditors. The authors presented a model that considers the key factors that shape and constrain management's efforts to develop and maintain an effective internal control process, including ICFR guidelines, the governance triad (management, auditors and audit committees) and key business conditions (Maksymov et al., 2023). Auditor selection is an important factor in ensuring transparency of financial data and has implications

for the operation of the business, in terms of reducing information asymmetries as well as raising capital (Sharpe et al., 2023).

Year on year, the use of artificial intelligence in the conduct of business, including in the area of reporting and auditing, is becoming more and more popular. Estep et al. (2023) studied the reaction of finance directors to the use of artificial intelligence in financial reporting and auditing. The results of the study revealed that although managers are open to the use of artificial intelligence in their companies and by auditors, there are differences in their expectations. The study also examined how artificial intelligence can affect the quality of financial reporting, the audit process, audit costs, audit duration and the time and effort of company personnel involved in the audit process (Estep et al., 2023). This means that technological innovations are encroaching both on the production process, making it more competitive, as well as on the management of the business unit itself.

On the basis of this literature analysis, additional research questions can be formulated: ow do the conflicting expectations and preferences of different stakeholder groups of financial and non-financial information (auditors, managers) affect reporting? What are the technological challenges faced by accounting directors?

## 3.2. Audit, Control and Regulation in the Context of the Use of Modern Technology

The literature review conducted in section 3.1 revealed particularly researched themes within the audit and regulatory area. These themes highlighted in the global research are:

- data analysis (datasets),
- fraud detection (control aspects),
- financial reporting,
- internal control over financial reporting processes (ICFR) (control procedures).

The aim of the following section is to establish the impact of digitalisation and technology on the process of data analysis, financial reporting and fraud detection and internal control.

**Data analysis.** Data analysis and the growing technology of today, especially digitalisation, are closely linked, and thus the process of data analysis becomes more dynamic, interactive and results-oriented. Data management becomes easier, allowing for better risk management and identification of new business opportunities. Thanks to new tools it is possible to analyse large data sets and obtain data that was previously unattainable. It is also possible to analyse data from different sources, including combining quantitative and qualitative data analysis. Data analysis allows for pattern identification, anomaly detection, statistical analysis and predictive modelling. Multiple elements can be combined, further supported by visualisation of findings. Analytical tools can integrate data from different sources, transform it into valuable information and then present the results in a way that is understandable and useful to decision-makers.

In this way, managers can make decisions more effectively (Austin et al., 2021). An important element in the process of data analysis is the interaction of those interested in the results of these analyses, therefore interaction between auditors and managers is essential (Austin et al., 2021). Additionally, data analyses are performed for government statistics, where interactions should also include regulatory enforcers (Austin et al., 2021). Combining digitalisation with modern technologies reduces the risk of human error, increases the accuracy of analyses and enables more detailed and complex data examination. This, in turn, improves control over internal processes, optimises costs and the ability to react quickly to market changes.

Based on the literature, the relationship between data analytics and technology, and in particular digitisation, is symbiotic as the two processes interact with each other and are interdependent. Data analytics relies on technological tools and progress, while technological development is also driven by adoption and evolution of data analytics (Austin et al., 2021). Digital transformation in the area of financial reporting and data analytics improves both the audit process and supports decision-making in business units (Austin et al., 2021). Any transformation requires full agreement and understanding of the process change. The introduction of new data analytics solutions may encounter difficulties at the level of human factors (conflict of interest) (Austin et al., 2021). An element of contention may be the costs incurred in digital transformation.

Digitalisation lays the foundation for data availability, technology supports data processing and analysis, and the data analytics process provides organisations with the key information they need to make informed, strategic decisions.

**Fraud detection.** The second area related to digital transformation in audit and regulation is the use of technological solutions to combat and detect fraud. The effectiveness of new solutions to combat manipulation requires ongoing training and time for individuals to gain experience in detecting anomalies (Aboud & Robinson, 2022). The literature also identifies the problem of the reliability of the datasets being analysed, including their availability and integrity. In practice, mechanisms for detecting fraud in financial statements using data analytics, machine learning and large database mining tools have been identified as effective (Aboud & Robinson, 2022). The digitalisation of the fraud detection process benefits not only from quantitative analysis, but also from qualitative analysis (text analysis of internal documents), indicating a deepening integration of technology in fraud detection processes (Aboud & Robinson, 2022). Recently, the possibility of using digitalisation in the tax fraud detection process has emerged: enhanced JPK files, the KSeF system, obligation to keep records electronically, and online cash registers make it easier to track tax fraud (e.g. income tax avoidance, VAT manipulation, cost manipulation).

**Financial reporting.** In accounting, a tool to improve communication and transparency of financial data is the XBRL language (Troshani et al., 2015), which integrates accounting data with business communications. This technology enables easy sharing of financial data and also influences the ability to store standardised company data

(McCallig et al., 2019). XBRL allows for the electronic sharing of financial statements, enabling the seamless exchange of financial data between different computer platforms and applications (Troshani et al., 2015). Financial data are directed to different recipients of information, from managers to counterparties, financial institutions and tax authorities, thus reducing the potential for error with manual data collection. This technology not only cuts down the costs associated with manual data processing, but also minimises the risk of financial reports not complying with applicable accounting standards. With XBRL it is possible to quickly detect inconsistencies and anomalies in the data, which helps to maintain high quality reporting. It is also worth noting that XBRL contributes to greater data accessibility for external stakeholders, which fosters trust and increases transparency in the company's operations. By automating and digitalising reporting processes, XBRL supports better information management and allows for the more efficient use of resources within the organisation.

**Internal control.** The fourth area discussed in this section concerns the use of technological advances in relation to the performance of internal control duties. The digitalisation of processes allows monitoring and response in crisis situations. Tools that restrict access to data reduce the possibility of unauthorised data entry or alteration. In addition, executives expect the latest technologies such as AI, data analytics, blockchain and robotic process automation to have a positive impact on reducing key internal control risks including the failure to detect material irregularities and unauthorised alteration of accounting information (Maksymov et al., 2023). At the same time, data analytics and machine learning tools enable predictive risk analysis to identify potential risks earlier and manage them proactively, yet there is also concern that a challenge arising from new technologies is the lack of accounting staff qualified to use the technology effectively (Maksymov et al., 2023). The integration of modern technologies often involves changing existing processes, which can lead to temporary disruptions in company operations, and also requires large investments in technology infrastructure and ongoing staff training. There are also digital security risks, such as cyberattacks, which can compromise data integrity and control processes. The digitalisation of internal control processes not only brings benefits, but also poses new challenges for organisations. In addition to improving the efficiency and accuracy of controls, technology enables the automation of routine tasks, allowing human resources to be diverted to more complex analysis and strategic activities. Tools such as artificial intelligence can identify patterns and anomalies in real time, allowing fraud and other irregularities to be detected quickly.

## 3.3. Diagnosis and Directions for Further Research

Based on the research carried out on modern technologies and their impact on the areas highlighted:
- data analysis (datasets),
- fraud detection (control aspects),

- financial reporting,
- internal control over financial reporting processes (ICFR) (control procedures),

a critical analysis of the formulated conclusions was carried out, identifying key research areas and indicating directions for further research.

Highlighting the fact that digitalisation increases the availability of data, technology supports the processing of data so that the data analysis process provides organisations with the key information needed for decision-making. In turn, the possibility to use digitalisation in the financial fraud detection process increases the effectiveness of new control tools (expanded JPK files, KSeF system, mandatory electronic record keeping, online cash registers). The automation and digitisation of reporting processes (XBRL) support the better management of reporting information and allows for the more efficient use of resources in the organisation. To this should be added the digitisation of processes in the area of internal control, which, in addition to improving the efficiency and accuracy of controls, enables the automation of routine tasks, allowing human resources to be diverted to more complex analyses and strategic activities. In addition to digitalisation and automation, tools such as artificial intelligence can identify patterns and anomalies in real time, allowing fraud and other irregularities to be detected quickly, both in the area of audit and internal control. As can be seen, the use of new technologies in the practice of companies and in audit institutions requires regulatory changes that take into account new types of behaviour.

To summarise the study on modern technology and its impact on regulation, audit and control, a number of key research areas can be identified, as shown in Table 3.2.

**Table 3.2.** Areas of impact of modern technology on regulation, audit and control

| Key research areas | Description | Exemplary publications |
|---|---|---|
| Data analysis (data sets) | | |
| Holistic approach | The fourth industrial revolution has blurred the boundaries between the physical, digital and biological realms, leading to a fusion of technologies that is transforming auditing and the wider accounting field. | S. Zhu, 2021 |
| Digitalisation of the economy | The increasing digitalisation of the economy has led to the application of big data technology, which has had a profound impact on the economic and social functioning of the country, influencing the direction of the audit industry. | S. Jiang, 2020 |
| CAATT tools and techniques | Computer-assisted audit tools and techniques (CAATT) have emerged to help auditors look for anomalies in data files and allow more analysis to be performed in less time using more evidence at a lower risk level. | Aksoy & Gurol, 2021 |
| Synergy of science and practice | Big data and analytics offer new opportunities and challenges for researchers and practitioners in all business disciplines, including accounting and auditing. | T. Rana et al., 2023 |
| Fraud detection (control aspects) | | |
| | Financial institutions have turned to automated processes using statistical and computational methods, particularly techniques based on computational intelligence, to detect fraud. | Kadyshevitch, 2024 |

| Key research areas | Description | Exemplary publications |
|---|---|---|
| Fraud detection techniques | Data mining (DM) and data analytics (DA) techniques, combined with a better understanding and use of quantitative techniques, have become effective auditing approaches, especially for fraud prevention and detection. | Balkaran, 2017 |
| Use of artificial intelligence | Most fraud detection systems are based on previous frauds, which may be lagging behind as criminals develop new ways to commit fraud using new technologies such as artificial intelligence The technological revolution in artificial intelligence is sweeping the world, and auditing is no exception. Intelligent audit automation (IAA) is the next generation of audit services, which includes new audit business models and professionals and new ways of looking at data creation. | Saluja et al., 2024 |
| Financial reporting | | |
| New significance of the audit profession | The use of new technologies has had a significant impact on the audit profession, leading to the introduction of new generations of auditors. | Christ et al., 2021; Mališ et al., 2020 |
| New technologies – Blockchain, big data | Technologies such as blockchain, artificial intelligence, data analytics and automation have revolutionised financial reporting and audit processes. Blockchain technology has been identified as a tool that can increase the quality of audits without increasing the time spent on audited data, allowing auditors to increase the number of samples used without increasing their workload. | Herath et al., 2024; Hussein et al., 2025; Jayesh et al., 2022 |
| Internal control over financial reporting processes (control procedures) | | |
| Internal control and technology | Emerging trends in internal audit process technology include the widespread use of artificial intelligence, big data and other technologies to improve the efficiency and quality of internal audit, while also challenging the development of internal audit. In addition, the use of technology-based audit techniques (TBAT) involves conducting more audits, finding more risk factors, making more recommendations. | Eulerich et al., 2023; Marques & Morais, 2022; Teeter et al., 2010; Zhou, 2021 |

Source: own elaboration.

Table 3.2 shows the key research areas of regulation, audit and financial control. The digital economy has forced the evolution of the audit process from conventional manual audits to continuous electronic audits, driven by rapidly evolving information technologies and the demand for more timely communication of information to business stakeholders. Blockchain technology has been identified as a tool that can increase the quality of audits without extending the time spent on audited data, allowing auditors to expand the number of samples used without adding to their workload. In turn, the development of Big Data and Analytics (BDA) tools is having an impact on the audit profession, shaping the dynamics of technological change and reconfiguring aspects of the audit process.

In conclusion, today's cutting-edge technologies in auditing and financial reporting encompass a wide range of innovations, including blockchain, artificial intelligence, data analytics, automation and distributed ledger technology. These technologies have already had a significant impact on the audit profession and financial reporting processes. Emerging trends point to a shift towards continuous electronic audits and the integration of technology into accounting practices, while the future direction

of technology in auditing and financial reporting points to increasing automation, predictive financial reporting and a changing role for auditors in using innovative technology to enhance the reliability of financial information.

Based on the evaluation of past research and the characterisation of the areas identified in Table 2.1 concerning the impact of modern technology on regulation, audit and control, planned research directions in this area have been set. Table 3.3 presents three strategic directions for future research on the evolving role of the auditor (statutory auditor), controller and regulator in the face of increasing digitalisation and the development of modern technologies. The identified research directions reflect the key challenges and changes that are likely to significantly affect the tasks and competencies required of today's auditors and controllers, as well as financial reporting experts and regulators in the field.

**Table 3.3.** Planned lines of research on regulation, audit and control

| Direction of research | Research questions | Suggested testing methodology |
|---|---|---|
| Evaluation of new technologies for identifying financial fraud | Are new technologies encouraging the growth of financial fraud? | Quantitative and qualitative research |
| | Are new technologies helping to detect financial fraud? | Quantitative and qualitative research |
| The role of auditors in the face of technological change | What challenges do auditors face in terms of new technologies? | Quantitative and qualitative research |
| | What new competences should auditors have? | Quantitative and qualitative research |
| | Will the auditing profession continue to fulfil its function? | Quantitative and qualitative research |
| Responsibility in the face of new technologies – regulatory challenges | What regulations should arise from a responsible approach to new technologies? | Quantitative and qualitative research |
| | Does modern technology diversify liability? | Quantitative and qualitative research |
| | What are the effects of dehumanising decisions on accountability? | Quantitative and qualitative research |

Source: own elaboration.

As can be seen from Table 3.3, directions for further research should focus around the impact of new technologies on the development of financial fraud (increased risk of financial fraud and identification of new types of financial fraud). On the one hand new technologies influence the development of financial fraud whilst, on the other, they could also help auditors to detect these frauds by equipping them with new control tools. Therefore, research should be directed towards the use of new technologies in the audit and control process, streamlining the process, minimising the risk of errors and fraud being overlooked, and this will ensure that audit and control continues to be an effective tool in the process of detecting financial fraud.

This is undoubtedly a challenge for auditors, controllers and regulators. New technologies make it necessary to review the role of the auditor in view of challenges to the

auditor's new competences, skills and knowledge in terms of using new technologies, analysis of the audit and control function in the face of new challenges, and the use of experts in new technologies – a new role for IT professionals.

In the face of new technologies there must emerge a responsible approach to regulation, which should take into account the dehumanisation of decisions and the diversification of responsibilities. This is a challenge for regulators, who must identify the risks arising from the use of new technologies both in the preparation of reporting information (financial statements), their analyses and assessments used in decision-making processes, and in the audit and control process (audit of financial statements using new technologies, responsibility for the assessments formulated).

## 3.4. Ethical Dilemmas Regarding Audit, Control and Regulation in the Context of the Use of Modern Technology

In section 3.3, areas of impact of new technologies on regulation, audit and internal control are indicated. The use of modern technologies has obvious benefits related, for example, to the use of big data or the automation of control processes. A common issue raised by the authors (see Table 3.2 ) is the use of artificial intelligence in the area of auditing, data analysis, fraud detection and internal control. Artificial intelligence used in the area of control is a new tool that has not yet been fully explored. There is no re-search on the manipulation of information provided by artificial intelligence, the sources of which are not openly indicated. In today's world, it is necessary to be aware of the risks associated with the use of artificial intelligence, the main ones being the following.

**Bias and discrimination.** Artificial intelligence (AI) can unconsciously reflect various types of biases contained in the input data that forms the input to the system, which can lead to the formulation of subjective results. In the context of control and audit, AI systems may favour certain groups of people or organisations, undermining the ob-jectivity of the process and the usefulness of the results obtained. Artificial intelligence models are learned from historical data, which may contain existing biases and/or subjective opinions. For example, if the data contains discriminatory wording towards certain social groups, AI may unconsciously perpetuate these patterns. In an audit this can lead to unequal treatment of companies or individuals based on criteria such as location or industry. Users may unconsciously introduce and perpetuate biases when adapting AI algorithms to the specific needs of an audit – this may be due to incorrect assumptions about the analysed data.

**Lack of transparency.** Many advanced AI models, such as neural networks, operate in ways that are difficult for humans to understand. Analysing the result itself, without knowing the decision-making process, can lead to errors in interpretation. In control and audit, being unable to explain why an algorithm has made a particular decision can lead to problems of accountability and trust.

**Breach of privacy – protection of personal data.** AI systems often analyse large amounts of data, including personal and confidential data. Inadequate management

of this data can lead to privacy breaches. Processing financial data without adequate safeguards can result in its leakage or unauthorised use. It is particularly important to manage this data appropriately and to comply with regulations related to the protection of personal data (in Poland these are the RODO regulations). Processing large amounts of information increases the risk of security breaches, especially if the data is stored in the cloud or transferred between different systems. Such data may be stolen or used in an unauthorised manner.

**Automation of faulty processes.** If an audit or control process contains errors or unethical practices, their automation by AI can perpetuate or exacerbate them. While automation can increase efficiency, it also carries the risk of replicating errors if the underlying processes on which it is based are incorrect or unethical.

**Risk of abuse of technology.** AI technology in control and audit can be used for purposes contrary to ethics, such as manipulating audit results and surveillance of employees. AI can be used to create realistic but false evidence, e.g. altered video, audio or generated images to mislead auditors. Systems can be used to unfairly classify individuals or organisations, which can lead to unfair treatment in audit and decision-making processes.

**Reducing human responsibility for the process.** Auditors can avoid making difficult decisions by uncritically trusting the results generated by AI. There may also be a reduced role for humans in decision-making as AI systems in auditing can make decisions autonomously, reducing the human role in the audit process. AI decisions based on data may appear neutral, but the lack of human judgement can lead to inappropriate analyses that do not take into account social, cultural or moral context. Artificial intelligence, while very effective at processing data and identifying patterns, may not be flexible enough in unusual situations. In such cases, human intervention may be necessary and its absence can lead to problems. The lack of empathy in AI analyses can also be a major problem since AI does not understand the context of human actions, which can lead to decisions that are effective but not necessarily fair. For example, algorithms that assess risk may ignore human factors such as the needs or concerns of those being audited, turning auditing into a cold, technocratic procedure (Jai Sisodia, 2022).

Based on the above ethical dilemmas related to the use of artificial intelligence, the authors identified remedies that can positively influence this aspect:
- data diversity – incorporating diverse and representative data to train AI models is key to reducing bias;
- algorithm audit – regularly checking AI systems for performance and potential bias is essential for early detection of problems;
- transparency – designing algorithms in a way that is understandable and transparent to users allows better control of their performance and limits unwanted effects;
- involvement of professionals – consultation with ethics experts and social and technological specialists can help to address biases;

- implement data protection principles – AI systems should be designed with data protection principles in mind at every stage of development and implementation;
- data anonymisation and pseudonymisation – the use of these techniques can significantly reduce the risk of privacy breaches, even in the event of data leakage;
- user training and awareness – staff using AI in auditing should be aware of data protection risks and relevant legislation;
- independent audit of AI systems – regular audits of AI systems for compliance with data protection regulations and ethical standards can help prevent problems (Leocádio et al., 2024).

With these considerations in mind, there is a need for research into ethical issues that will contribute to the development of standards for its use in order to negate its negative effects.

# References

Abbott, L. J., Daugherty, B., Parker, S., & Peters, G. F. (2016). Internal Audit Quality and Financial Reporting Quality: The Joint Importance of Independence and Competence. *Journal of Accounting Research*, *54*(1), 3-40. https://doi.org/10.1111/1475-679X.12099

Abhishek N., Suraj, N., Rahiman H. U., Nawaz, N., Kodikal, R., Kulal, A., & Raj, K. (2024). Digital Transformation in Accounting: Elevating Effectiveness Across Accounting, Auditing, Reporting and Regulatory Compliance. *Journal of Accounting and Organizational Change* [in print]. https://doi.org/10.1108/JAOC-01-2024-0039

Aboud, A., & Robinson, B. (2022). Fraudulent Financial Reporting and Data Analytics: An Explanatory Study from Ireland. *Accounting Research Journal*, *35*(1), 21-36. https://doi.org/10.1108/ARJ-04-2020-0079

ACFE. (2020). *Report to the Nations. 2020 Global Study on Occupational Fraud and Abuse*. https://Legacy.Acfe.Com/Report-to-the-Nations/2020/

Adelakun, B. O., Antwi, B. O., Ntiakoh, A., & Eziefule, A. O. (2024). Leveraging AI for Sustainable Accounting: Developing Models for Environmental Impact Assessment and Reporting. *Finance & Accounting Research Journal*, *6*(6), 1017-1048. https://doi.org/10.51594/farj.v6i6.1234

Adeyelu, O. O., Ugochukwu, C. E., & Shonibare, M. A. (2024). The Impact of Artificial Intelligence on Accounting Practices: Advancements, Challenges, And Opportunities. *International Journal of Management & Entrepreneurship Research*, *6*(4), 1200-1210. https://doi.org/10.51594/ijmer.v6i4.1031

Afzali, M. (2023). Corporate Culture and Financial Statement Comparability. *Advances in Accounting*, *60*, 100640. https://doi.org/10.1016/j.adiac.2022.100640

Ahmad, A. Y. A. B. (2024). Ethical Implications of Artificial Intelligence in Accounting: A Framework For Responsible AI Adoption In Multinational Corporations in Jordan. *International Journal of Data and Network Science*, *8*(1), 401-414. https://doi.org/10.5267/j.ijdns.2023.9.014

Ahmed, A. E., Ucbasaran, D., Cacciotti, G., & Williams, T. A. (2022). Integrating Psychological Resilience, Stress, and Coping in Entrepreneurship: A Critical Review and Research Agenda. *Entrepreneurship: Theory and Practice*, *46*(3), 497-538. https://doi.org/10.1177/10422587211046542

Ajayi-Nifise, A. O., Falaiye, T., Olubusola, O., Daraojimba, A. I., & Mhlongo, N. Z. (2024). Blockchain in U.S. Accounting: A Review: Assessing Its Transformative Potential for Enhancing Transparency And Integrity. *Finance & Accounting Research Journal*, *6*(2), 159-182. https://doi.org/10.51594/farj.v6i2.786

Aksoy, T., & Gurol, B. (2021). Artificial Intelligence in Computer-Aided Auditing Techniques and Technologies (CAATTs) and an Application Proposal for Auditors. In T. Aksoy, U. Acioglu (Eds.), *Auditing Ecosystem and Strategic Accounting in the Digital Era: Global Approaches and New Opportunities* (pp. 361-384). Springer. https://doi.org/10.1007/978-3-030-72628-7_17

Albrecht, A., Mauldin, E. G., & Newton, N. J. (2018). Do Auditors Recognize the Potential Dark Side of Executives' Accounting Competence? *Accounting Review*, *93*(6), 1-28. https://doi.org/10.2308/accr-52028

Alghamdi, S., Daim, T., & Alzahrani, S. (2024). Technology Assessment for Cyberse-curity Organizational Readiness: Case of Airlines Sector and Electronic Payment. *IEEE Transactions on Engineering Management*, *71*, 7701-7718. https://doi.org/10.1109/TEM.2024.3376314

Alhanatleh, H., Khaddam, A., Abudabaseh, F., Alghizzawi, M., & Alzghoul, A. (2024). Enhancing the Public Value of Mobile Fintech Services Through Cybersecurity Awareness Antecedents: A Novel Framework in Jordan. *Investment Management and Financial Innovations*, *21*(1), 417-430. https://doi.org/10.21511/imfi.21(1).2024.32

Al-Hawamleh, A. (2024). Cyber Resilience Framework: Strengthening Defenses and Enhancing Continuity in Business Security. *International Journal of Computing and Digital Systems*, *15*(1), 1315-1331. https://doi.org/10.12785/ijcds/150193

Allee, K. D., & Deangelis, M. D. (2015). The Structure of Voluntary Disclosure Narratives: Evidence From Tone Dispersion. *Journal of Accounting Research*, *53*(2), 241-274. https://doi.org/10.1111/1475-679X.12072

Alles, M. (2020). AIS-Ethics as an Ethical Domain: A Response to Guragai, Hunt, Neri and Taylor (2017) and Dillard and Yuthas (2002). *International Journal of Digital Accounting Research*, *20*. https://doi.org/10.4192/1577-8517-v20_1

Almulla, D., Abbas, M., Al-Alawi, A., & Alkooheji, L. (2024). Process and Impact Evaluation of Artificial Intelligence in Managerial Accounting: A Systematic Literature Review. *International Journal of Computing and Digital Systems*, *15*(1), 1467-1482. https://doi.org/10.12785/ijcds/1501104

Altman, E. I. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. *The Journal of Finance*, *23*(4), 589-609. https://doi.org/10.1111/j.1540-6261.1968.tb00843.x

Amiram, D., Bozanic, Z., Cox, J. D., Dupont, Q., Karpoff, J. M., & Sloan, R. (2018). Financial Reporting Fraud and Other Forms of Misconduct: A Multidisciplinary Review of the Literature. *Review of Accounting Studies*, *23*(2), 732-783. https://doi.org/10.1007/s11142-017-9435-x

Appelbaum, D., Kogan, A., Vasarhelyi, M., & Yan, Z. (2017). Impact of Business Analytics and Enterprise Systems on Managerial Accounting. *International Journal of Accounting Information Systems*, *25*, 29-44. https://doi.org/10.1016/j.accinf.2017.03.003

Arkhipova, D., Montemari, M., Mio, C., & Marasca, S. (2024). Digital Technologies and the Evolution of the Management Accounting Profession: A Grounded Theory Literature Review. *Meditari Accountancy Research*, *32*(7), 35-64. https://doi.org/10.1108/MEDAR-07-2023-2097

Arnold, V. (2018). The Changing Technological Environment and the Future of Behavioural Research in Accounting. *Accounting and Finance*, *58*(2), 315-339. https://doi.org/10.1111/acfi.12218

Arnold, V., Benford, T., Canada, J., & Sutton, S. G. (2015). Leveraging Integrated Information Systems to Enhance Strategic Flexibility and Performance: The Enabling Role of Enterprise Risk Management. *International Journal of Accounting Information Systems*, *19*, 1-16. https://doi.org/10.1016/j.accinf.2015.10.001

Austin, A. A., Carpenter, T. D., Christ, M. H., & Nielson, C. S. (2021). The Data Analytics Journey: Interactions Among Auditors, Managers, Regulation, and Technology. *Contemporary Accounting Research*, *38*(3), 1888-1924. https://doi.org/10.1111/1911-3846.12680

Autore, D., Chen, H., Clarke, N., Lin, J. (2024). Blockchain and Earnings Management: Evidence from the Supply Chain. *The British Accounting Review, 56*(4), 101357. https://doi.org/10.1016/j.bar.2024.101357

Ayinla, B. S., Atadoga, A., Ike, C. U., Ndubuisi, N. L., Asuzu, O. F., & Adeleye, R. A. (2024). The Role of Robotic Process Automation (RPA) in Modern Accounting: A Review – Investigating How Automation Tools Are Transforming Traditional Accounting Practices. *Engineering Science & Technology Journal*, *5*(2), 427-447. https://doi.org/10.51594/estj/v5i2.804

Azaan, S., & Elsa, J. (2024). *The Rise of Automated Accounting: Navigating the Digital Landscape The Rise of Automated Accounting: Navigating the Digital Landscape*. EasyChair Preprint 12113. https://easychair.org/publications/preprint/G7b5

Baldwin, A. A., & Williams, S. L. M. (1999). The Future of Intelligent Internet Agents in European Financial Reporting. *European Accounting Review*, *8*(2), 303-319. https://doi.org/10.1080/096381899336050

Balkaran, L. (2017). Understanding and Applying Data Mining and Data Analysis Techniques. *EDPACS*, *56*(1), 1-6. https://doi.org/10.1080/07366981.2017.1343550

Bani Ahmad, A. Y. A. (2024). Ethical Implications of Artificial Intelligence in Accounting: A Framework for Responsible AI Adoption in Multinational Corporations in Jordan. *International Journal of Data and Network Science*, *8*(1), 401-414. https://doi.org/10.5267/j.ijdns.2023.9.014

Barker, R., Barone, E., Birt, J., Gaeremynck, A., Mcgeachin, A., Marton, J., & Moldovan, R. (2013). Response of the EAA FRSC to the EFRAG/ANC/FRC Discussion Paper: Towards a Disclosure Framework for the Notes. *Accounting in Europe*, *10*(1), 1-26. https://doi.org/10.1080/17449480.2013.772715

Bassyouny, H., Abdelfattah, T., & Tao, L. (2020). Beyond Narrative Disclosure Tone: The Upper Echelons Theory Perspective. *International Review of Financial Analysis*, *70*, 101499. https://doi.org/10.1016/j.irfa.2020.101499

Beaver, W. H. (1966). Financial Ratios As Predictors of Failure. *Journal of Accounting Research*, *4*, 71-111. https://doi.org/10.2307/2490171

Beaver, W. H. (1968). Alternative Accounting Measures as Predictors of Failure. *The Accounting Review*, *43*(1), 113-122. http://www.jstor.org/stable/244122

Bedard, J. C., Hoitash, R., & Hoitash, U. (2014). Chief Financial Officers as Inside Directors. *Contemporary Accounting Research*, *31*(3), 787-817. https://doi.org/10.1111/1911-3846.12045

Bini, L., Schaper, S., Simoni, L., Giunta, F., & Nielsen, C. (2023). Mandatory Non-Financial Disclosure: Is Everybody on the Same Page About Business Model Reporting? *Accounting Forum*, *47*(2), 198-222. https://doi.org/10.1080/01559982.2023.2170036

Bisht, D., Singh, R., Gehlot, A., Akram, S. V., Singh, A., Montero, E. C., Priyadarshi, N., & Twala, B. (2022). Imperative Role of Integrating Digitalization in the Firms Finance: A Technological Perspective. *Electronics* , *11* 19, 3252. https://doi.org/10.3390/electronics11193252

Black, E. L., Christensen, T. E., Kiosse, P. V., & Steffen, T. D. (2017). Has the Regulation of Non-GAAP Disclosures Influenced Managers' Use of Aggressive Earnings Exclusions? *Journal of Accounting, Auditing and Finance*, *32*(2), 209-240. https://doi.org/10.1177/0148558X15599131

Blanco-Oliver, A., Irimia-Dieguez, A., Oliver-Alfonso, M. D., & Vázquez-Cueto, M. J. (2016). Hybrid Model Using Logit and Nonparametric Methods for Predicting Micro-Entity Failure. *Investment Management and Financial Innovations*, *13*(3), 35-46. https://doi.org/10.21511/imfi.13(3).2016.03

Blessing, M. (2024). *The Role of AI in Real-Time Financial Reporting and Continuous Auditing*. https://www.researchgate.net/publication/384971921

Bonsón, E., Bednárová, M., & Perea, D. (2023). Disclosures About Algorithmic Decision Making in the Corporate Reports of Western European Companies. *International*

*Journal of Accounting Information Systems*, *48*, 100596. https://doi.org/10.1016/j.accinf.2022.100596

Bonsón, E., Lavorato, D., Lamboglia, R., & Mancini, D. (2021). Artificial Intelligence Activities and Ethical Approaches in Leading Listed Companies in the European Union. *International Journal of Accounting Information Systems*, *43*, 100535. https://doi.org/10.1016/j.accinf.2021.100535

Briere, M., & Ramelli, S. (2022). *Green Sentiment, Stock Returns, and Corporate Behavior*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3850923

Cameran, M., Campa, D., & Pettinicchio, A. (2014). IFRS Adoption Among Private Companies: Impact on Earnings Quality. *Journal of Accounting, Auditing and Finance*, *29*(3), 278-305. https://doi.org/10.1177/0148558X14534260

Chang, Y. J., & Lee, B. H. (2022). The Impact of ESG Activities on Firm Value: Multi-Level Analysis of Industrial Characteristics. *Sustainability*, *14*(21), 14444. https://doi.org/10.3390/su142114444

Chen, J. J., Cheng, X., Gong, S. X., & Tan, Y. (2014). Do Higher Value Firms Voluntarily Disclose More Information? Evidence from China. *British Accounting Review*, *46*(1), 18-32. https://doi.org/10.1016/j.bar.2013.06.003

Chen, M., Mussalli, G., Amel-Zadeh, A., & Weinberg, M. O. (2022). NLP for SDGs: Measuring Corporate Alignment with the Sustainable Development Goals. *The Journal of Impact and ESG Investing*, *2*(3), 61-81. https://doi.org 10.3905/jesg.2021.1.035

Chen, M., von Behren, R., & Mussalli, G. (2021). The Unreasonable Attractiveness of More ESG Data. *The Journal of Portfolio Management*, *48*(1), 147-162. https://doi.org 10.3905/jpm.2021.1.281

Chiu, P. C., Teoh, S. H., Zhang, Y., & Huang, X. (2023). Using Google Searches of Firm Products to Detect Revenue Management. *Accounting, Organizations and Society*, *109*, 101457. https://doi.org/10.1016/j.aos.2023.101457

Choi, J. H., Gipper, B., & Malik, S. (2023). Financial Reporting Quality and Wage Differentials: Evidence from Worker-Level Data. *Journal of Accounting Research*, *61*(4), 1109–1158. https://doi.org/10.1111/1475-679X.12477

Choi, Y.-S., & Young, S. (2015). Transitory Earnings Components and the Two Faces of Non-Generally Accepted Accounting Principles Earnings. *Accounting and Finance*, *55*(1), 75-103. https://doi.org/10.1111/acfi.12040

Christ, M. H., Emett, S. A., Summers, S. L., & Wood, D. A. (2021). Prepare for Takeoff: Improving Asset Measurement and Audit Quality with Drone-Enabled Inventory Audit Procedures. *Review of Accounting Studies*, *26*(4), 1323-1343. https://doi.org/10.1007/S11142-020-09574-5

Christensen, D. M., Jones, K. L., & Kenchington, D. G. (2018). Gambling Attitudes and Financial Misreporting. *Contemporary Accounting Research*, *35*(3), 1229-1261. https://doi.org/10.1111/1911-3846.12322

Cieślak M. (2011). *Podejście etyczne w rachunkowości a jakość sprawozdań finansowych*. Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Costa, M., Lisboa, I., & Gameiro, A. (2022). Is the Financial Report Quality Important in the Default Prediction? SME Portuguese Construction Sector Evidence. *Risks*, *10*(5), 98. https://doi.org/10.3390/risks10050098

Crawley, M., & Wahlen, J. (2014). Analytics in Empirical/Archival Financial Accounting Research. *Business Horizons*, *57*(5), 583-593. https://doi.org/10.1016/j.bushor.2014.05.002

Dauth, T., Pronobis, P., & Schmid, S. (2017). Exploring the Link Between Internationalization of Top Management and Accounting Quality: The CFO's International Experience

Matters. *International Business Review*, *26*(1), 71-88. https://doi.org/10.1016/j.ibus-rev.2016.05.007

Davidson, R., Dey, A., & Smith, A. J. (2012). *Executives' "Off-The-Job" Behavior, Corporate Culture, and Financial Reporting Risk*. NBER Working Paper No. 18001. http://www.nber.org/papers/w18001

De Franco, G., Fogel-Yaari, H., & Li, H. (2020). Md&A Textual Similarity and Auditors. *Auditing*, *39*(3), 105-131. https://doi.org/10.2308/ajpt-18-016

De Villiers, C., Dimes, R., & Molinari, M. (2024). How Will AI Text Generation and Processing Impact Sustainability Reporting? Critical Analysis, a Conceptual Framework and Avenues for Future Research. *Sustainability Accounting, Management and Policy Journal*, *15*(1), 96-118. https://doi.org/10.1108/SAMPJ-02-2023-0097

Debreceny, R., & Gray, G. L. (2001). The Production and Use of Semantically Rich Accounting Reports on the Internet: XML and XBRL. *International Journal of Accounting Information Systems*, *2*(1), 47-74. https://doi.org/10.1016/S1467-0895(00)00012-9

Dharmani, P., Das, S., & Prashar, S. (2021). A bibliometric analysis of creative industries: Current trends and future directions. *Journal of Business Research*, *135*, 252–267. https://doi.org/10.1016/J.JBUSRES.2021.06.037

Elad, C., Shah, N., & Agyeman, C. (2023). Accounting Classification in the Era of International Financial Reporting Standards: The Case of Africa. *Journal of International Accounting, Auditing and Taxation*, *51*. https://doi.org/10.1016/j.intaccaud-tax.2023.100546

Elbashir, M. Z., Collier, P. A., & Sutton, S. G. (2011). The Role of Organizational Absorptive Capacity in Strategic Use of business Intelligence to Support Integrated Management Control Systems. *Accounting Review*, *86*(1), 155-184. https://doi.org/10.2308/accr.00000010

Estep, C., Griffith, E. E., & MacKenzie, N. L. (2023). How Do Financial Executives Respond to the Use of Artificial Intelligence in Financial Reporting and Auditing? *Review of Accounting Studies*, *29*, 2798-2831. https://doi.org/10.1007/s11142-023-09771-y

Eulerich, M., Masli, A., Pickerd, J., & Wood, D. A. (2023). The Impact of Audit Technology on Audit Task Outcomes: Evidence for Technology-Based Audit Techniques. *Contemporary Accounting Research*, *40*(2), 981-1012. https://doi.org/10.1111/1911-3846.12847

Faccia, A., & Petratos, P. (2024). Big Data Applications in Accounting Information Systems. *ICBDC '24: Proceedings of the 2024 9th International Conference on Big Data and Computing* (pp. 1-7). Association for Computing Machinery. https://doi.org/10.1145/3695220.3695223

Fan, G., & Wu, X. (2022). *Going Green: The Effect of Environmental Regulations on Firms*. Singapore Management University School of Accountancy Research Paper No. 2023-163. https://ssrn.com/abstract=4098403

Fathi, M. R., Rahimi, H., & Minouei, M. (2023). Predicting Financial Distress Using the Worst-Practice-Frontier Data Envelopment Analysis Model and Artificial Neural Network. *Nankai Business Review International*, *14*(2), 295-315. https://doi.org/10.1108/NBRI-01-2022-0005

Firk, S., Richter, S., & Wolff, M. (2021). Does Value-Based Management Facilitate Managerial Decision-Making? An Analysis of Divestiture Decisions. *Management Accounting Research*, *51*, 100736. https://doi.org/10.1016/j.mar.2021.100736

Fisher, I. E. (2007). A Prototype System for Temporal Reconstruction of Financial Accounting Standards. *International Journal of Accounting Information Systems*, *8*(3), 139-164. https://doi.org/10.1016/j.accinf.2007.07.001

Hilario, F., Liendo, M., Chipana, L., & Rivera. R. (2023). Evaluation of Cyber Sabotage in Public Entities. *Journal of System and Management Sciences*, *14*(4), 574-582. https://doi.org/10.33168/JSMS.2023.0434

Gao, L., Calderon, T. G., & Tang, F. (2020). Public Companies' Cybersecurity Risk Disclosures. *International Journal of Accounting Information Systems*, *38*, 100468. https://doi.org/10.1016/j.accinf.2020.100468

Gao, R., & Sidhu, B. K. (2018). Convergence of Accounting Standards and Financial Reporting Externality: Evidence From Mandatory IFRS Adoption. *Accounting and Finance*, *58*(3), 817-848. https://doi.org/10.1111/acfi.12236

Glancy, F. H., & Yadav, S. B. (2011). A Computational Model for Financial Reporting Fraud Detection. *Decision Support Systems*, *50*(3), 595-601. https://doi.org/10.1016/j.dss.2010.08.010

Gonzalez, P. A., & Ashworth, L. (2021). Not Your Typical Leader? How Perceptions of CIOs Compare to Other Members of the Top Management Team. *Communications of the Association for Information Systems*, *49*, 515-534. https://doi.org/10.17705/1CAIS.04925

Groșanu, A., Fülöp, M.-T., & Măgdaș, N. (2024). Ethical Dilemmas in Digital Accounting: A Comprehensive Literature Review. *CECCAR Business Review*, *5*(4), 56-67. https://doi.org/10.37945/cbr.2024.04.06

Gupta, A., Sharma, U., & Gupta, S. K. (2021). The Role of ESG in Sustainable Development: An Analysis Through the Lens of Machine Learning. In *2021 IEEE International Humanitarian Technology Conference, IHTC 2021*. IEEE. https://doi.org/10.1109/IHTC53077.2021.9698939

Hamidah, D. H. A. (2024). Exploring Publication Trends in Accounting Information Systems and Identifying Research Positions in Indonesia: A Bibliometric Analysis. *International Journal of Economics and Business Research*, *27*(5). https://doi.org/10.1504/ijebr.2024.10064584

Harrison, J. S., & Malhotra, S. (2024). Complementarity in the CEO-CFO Interface: The Joint Influence of CEO and CFO Personality and Structural Power on Firm Financial Leverage. *Leadership Quarterly*, *35*(2), 101711. https://doi.org/10.1016/j.leaqua.2023.101711

Hasan, A. R. (2022). Artificial Intelligence (AI) in Accounting &amp; Auditing: A Literature Review. *Open Journal of Business and Management*, *10*(1), 440-465. https://doi.org/10.4236/ojbm.2022.101026

Hennes, K. M., Leone, A. J., & Miller, B. P. (2008). The Importance of Distinguishing Errors from Irregularities in Restatement Research: The Case of Restatements and CEO/CFO Turnover. *Accounting Review*, *83*(6), 1487-1519. https://doi.org/10.2308/accr.2008.83.6.1487

Hennes, K. M., Leone, A. J., & Miller, B. P. (2014). Determinants and Market Consequences of Auditor Dismissals After Accounting Restatements. *Accounting Review*, *89*(3), 1051-1082. https://doi.org/10.2308/accr-50680

Herath, S. K., Herath, L. M., & Yoo, J. K. (2024). Opportunities and Challenges of Digital Audits and Compliance: Adoption of International Financial Reporting Standards (IFRS) in the Digital Age. In A. J. Alqatan, K. Hussainey, M. Hamed, K. Benameur (Eds.), *Impact of Digitalization on Reporting, Tax Avoidance, Accounting, and Green Finance* (pp. 1-35). IGI Global. https://doi.org/10.4018/979-8-3693-1678-8.ch001

Hope, O.-K., & Vyas, D. (2017). Private Company Finance and Financial Reporting. *Accounting and Business Research*, *47*(5), 506-537. https://doi.org/10.1080/00014788.2017.1303963

Hrazdil, K., Simunic, D. A., Spector, S., & Suwanyangyuan, N. (2023). Top Executive Gender Diversity and Financial Reporting Quality. *Journal of Contemporary Accounting and Economics*, *19*(2), 100363. https://doi.org/10.1016/j.jcae.2023.100363

Huang, A. H., Wang, H., & Yang, Y. (2023). FinBERT: A Large Language Model for Extracting Information from Financial Text. *Contemporary Accounting Research*, *40*(2), 806-841. https://doi.org/10.1111/1911-3846.12832

Huang, S., Tsaih, R., & Lin, W. (2012). Unsupervised Neural Networks Approach for Understanding Fraudulent Financial Reporting. *Industrial Management & Data Systems*, *112*(2), 224-244. https://doi.org/10.1108/02635571211204272

Hussain, S. M., & Alaya, A. (2024). Investor Response To Financial News in the Digital Transformation Era: The Impact of Accounting Disclosures and Herding Behavior as Indirect Effect. *Journal of Financial Reporting and Accounting*, *22*(2), 254-273. https://doi.org/10.1108/JFRA-05-2023-0287

Hussein, T. M., Michael, A. A., & Goparaju, A. (2025). Reviewing the Impact of Technological Innovation on Accounting Practices. *Studies in Systems, Decision and Control*, *566*, 69-82. https://doi.org/10.1007/978-3-031-71318-7_7

Ibrahim, A. E. A., Elamer, A. A., & Ezat, A. N. (2021). The Convergence of Big Data and Accounting: Innovative Research Opportunities. *Technological Forecasting and Social Change*, *173*, 121171. https://doi.org/10.1016/j.techfore.2021.121171

Indrayani, Sukoharsono, E. G., Djamhuri, A., & Roekhudin. (2024). Mapping Research Landscape of Emerging Technology in the Accounting Field: A Bibliometric Analysis. *Cogent Business and Management*, *11*(1), 2407044. https://doi.org/10.1080/23311975.2024.2407044

Islam Priom, M. A., Lopa Mudra, S., Ghose, P., Islam, K. R., & Hasan, M. N. (2024). Blockchain Applications in Accounting and Auditing: Research Trends and Future Research Implications. *International Journal of Economics, Business and Management Research*, *8*(7), 225-247. https://doi.org/10.51505/ijebmr.2024.8715

Janvrin, D. J., & Wang, T. (2019). Implications of Cybersecurity on Accounting Information. *Journal of Information Systems*, *33*(3), A1-A2. https://doi.org/10.2308/isys-10715

Janvrin, D. J., & Wang, T. (2022). Linking Cybersecurity and Accounting: An Event, Impact, Response Framework. *Accounting Horizons*, *36*(4), 67-112. https://doi.org/10.2308/HORIZONS-2020-101

Jayesh, G. S., Novaliendry, D., Gupta, S. K., Sharma, A. K., & Hazela, B. (2022). A Comprehensive Analysis of Technologies for Accounting and Finance in Manufacturing Firms. *ECS Transactions*, *107*(1), 2715-2733. https://doi.org/10.1149/10701.2715ECST

Jejeniwa, T. O., Mhlongo, N. Z., & Jejeniwa.T. O. (2024). A Comprehensive Review of the Impact of Artificial Intelligence on Modern Accounting Practices and Financial Reporting. *Computer Science & IT Research Journal*, *5*(4), 1031-1047. https://doi.org/10.51594/csitrj.v5i4.1086

Jiang, M., Liang, Y., Han, S., Ma, K., Chen, Y., & Xu, Z. (2024). Leveraging Generative Adversarial Networks for Addressing Data Imbalance in Financial Market Supervision. *ArXiv*, *abs/2412.15222*. https://api.semanticscholar.org/CorpusID:274965774

Jiang, S. (2020). Research on the Influence of Big Data to Audit. *Proceedings. 2020 International Conference on Big Data Economy and Information Management, BDEIM 2020* (pp. 1-4). https://doi.org/10.1109/BDEIM52318.2020.00008

Jiang, Z., Zhao, X., Wang, Z., & Herbert, K. (2024). Safety Leadership: A Bibliometric Literature Review and Future Research Directions. *Journal of Business Research*, *172*, 114437. https://doi.org/10.1016/J.JBUSRES.2023.114437

Kadyshevitch, D. (2024). Traditional Fraud Engines Need to Widen Their View. *Computer Fraud and Security*, *2024*(6). https://doi.org/10.12968/S1361-3723(24)70024-4

Khomiak, N., Petchenko, M., Yarmoliuk, O., Viter, S., & Dmytrenko, O. (2022). Problems of Organization and Maintenance of Financial Accounting in the Conditions of Implementation of the Latest Methods and Tools. *Financial and Credit Activity: Problems of Theory and Practice*, *6*(47), 88-98. https://doi.org/10.55643/fcaptp.6.47.2022.3914

Kipp, P. C., Curtis, M. B., & Li, Z. (2020). The Attenuating Effect of Intelligent Agents and Agent Autonomy on Managers' Ability to Diffuse Responsibility for and Engage in Earnings Management. *Accounting Horizons*, *34*(4), 143-164. https://doi.org/10.2308/HORIZONS-19-133

Kovach, J. J., Swink, M., & Rodriguez, M. (2023). A Novel Measure of Firm-Level Production Outsourcing. *International Journal of Production Economics*, *263*, 108940. https://doi.org/10.1016/j.ijpe.2023.108940

Kurniawan, Y., & Mulyawan, A. (2023). The Role of External Auditors in Improving Cybersecurity of the Companies Through Internal Control in Financial Reporting. *Journal of System and Management Sciences*, *13*(1), 485-510. https://doi.org/10.33168/JSMS.2023.0126

Lantto, A.-M. (2014). Business Involvement in Accounting: A Case Study of International Financial Reporting Standards Adoption and the Work of Accountants. *European Accounting Review*, *23*(2), 335–356. https://doi.org/10.1080/09638180.2013.833411

Lantto, A.-M. (2022). Obtaining Entity-Specific Information and Dealing With Uncertainty: Financial Accountants' Response to Their Changing Work of Financial Reporting and the Role of Boundary Objects. *Critical Perspectives on Accounting*, *85*, 102277. https://doi.org/10.1016/j.cpa.2020.102277

Lattanzio, G., & Ma, Y. (2023). Cybersecurity Risk and Corporate Innovation. *Journal of Corporate Finance*, *82*, 102445. https://doi.org/10.1016/j.jcorpfin.2023.102445

Lehner, O. M., Ittonen, K., Silvola, H., Ström, E., & Wührleitner, A. (2022). Artificial Intelligence Based Decision-Making in Accounting and Auditing: Ethical Challenges and Normative Thinking. *Accounting, Auditing & Accountability Journal*, *35*(9), 109-135. https://doi.org/10.1108/AAAJ-09-2020-4934

Leocádio, D., Malheiro, L., & Reis, J. (2024). Artificial Intelligence in Auditing: A Conceptual Framework for Auditing Practices. *Administrative Sciences*, *14*(10), 238. https://doi.org/10.3390/admsci14100238

Leuz, C., & Wysocki, P. D. (2016). The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research. *Journal of Accounting Research*, *54*(2), 525-622. https://doi.org/10.1111/1475-679X.12115

Li, J., Li, N., Xia, T., & Guo, J. (2023). Textual Analysis and Detection of Financial Fraud: Evidence from Chinese Manufacturing Firms. *Economic Modelling*, *126*, 106428. https://doi.org/10.1016/j.econmod.2023.106428

Lim, T. (2024). Environmental, Social, and Governance (ESG) and Artificial Intelligence in Finance: State-of-the-art and Research Takeaways. *Artificial Intelligence Review*, *57*(4), 76 (2024). https://doi.org/10.1007/s10462-024-10708-3

Lin, F., Wu, C.-M., Fang, T.-Y., & Wun, J.-C. (2014). The Relations Among Accounting Conservatism, Institutional Investors and Earnings Manipulation. *Economic Modelling*, *37*, 164-174. https://doi.org/10.1016/j.econmod.2013.10.020

Lin, J. W., Hwang, M. I., & Becker, J. D. (2003). A Fuzzy Neural Network for Assessing the Risk of Fraudulent Financial Reporting. *Managerial Auditing Journal*, *18*(8), 657-665. https://doi.org/10.1108/02686900310495151

Liou, F.-M. (2008). Fraudulent Financial Reporting Detection and Business Failure Prediction Models: A Comparison. *Managerial Auditing Journal*, *23*(7), 650-662. https://doi.org/10.1108/02686900810890625

Lisboa, I. M. C., Costa, M., & Santos, F. (2021). Analysis of Family SMEs Default Risk: The Portuguese Case. *Australasian Business, Accounting and Finance Journal*, *15*(4), 76-92. https://doi.org/10.14453/aabfj.v15i4.5

Liu, Z., & Li, D. (2025). Research of Dempster-Shafer's Theory and Ensemble Classifier Financial Risk Early Warning Model Based on Benford's Law. *Computational Economics*, *65*, 3361-3389. https://doi.org/10.1007/s10614-024-10679-1

Lopez, C., Contreras, O., & Bendix, J. (2020). *ESG Ratings: The Road Ahead*. https://ssrn.com/abstract=3706440

Loureiro, G., & Taboada, A. G. (2015). Do Improvements in the Information Environment Enhance Insiders' Ability to Learn from Outsiders? *Journal of Accounting Research*, *53*(4), 863-905. https://doi.org/10.1111/1475-679X.12082

Maksymov, E., Peecher, M., Sutherland, A., & Weber, J. (2024). Audit Partners' Role in Material Misstatement Resolution: Survey and Interview Evidence. *Journal of Accounting Research*, *62*(1), 275-333. https://doi.org/10.1111/1475-679X.12506

Maksymov, E., Pickerd, J., Wilks, T. J., & Williams, D. (2023). The ICFR Process: Perspectives of Accounting Executives at Large Public Companies. *Contemporary Accounting Research*, *40*(3), 1671-1703. https://doi.org/10.1111/1911-3846.12859

Mališ, S. S., Žager, L., & Brozović, M. (2020). The Future of Audit in Light of Technological Changes: Opportunities and Threats. In A. Boitan, K. Marchewka-Bartkowiak (Eds.), *Fostering Innovation and Competitiveness With FinTech, RegTech, and SupTech* (pp. 228-249). IGI Global. https://doi.org/10.4018/978-1-7998-4390-0.CH012

Mariani, M., & Dwivedi, Y. K. (2024). Generative Artificial Intelligence in Innovation Management: A Preview of Future Research Developments. *Journal of Business Research*, *175*, 114542. https://doi.org/10.1016/j.jbusres.2024.114542

Mariano, S., & Laker, B. (2024). On-the-fly Decision Making Within Organizations: A Systematic Literature Review and Future Research Directions. *Journal of Business Research*, *174*, 114484. https://doi.org/10.1016/j.jbusres.2023.114484

Marques, D., & Morais, G. (2022). Internal Audit and the Use of New Technologies in Higher Education. In *Iberian Conference on Information Systems and Technologies, CISTI*, *2022-June*. https://doi.org/10.23919/CISTI54924.2022.9820269

Martins, A., Bianchi de Aguiar, M. T., Sambento, M., & Branco, M. C. (2024). Business Intelligence System Adoption and the Leveraging of Reporting Process Capabilities. *Journal of Accounting and Organizational Change*, *21*(3), 506-534. https://doi.org/10.1108/JAOC-11-2023-0204

Martinsons, M., Davison, R., & Tse, D. (1999). The Balanced Scorecard: A Foundation for the Strategic Management of Information Systems. *Decision Support Systems*, *25*(1), 71-88. https://doi.org/10.1016/S0167-9236(98)00086-4

McCallig, J., Robb, A., & Rohde, F. (2019). Establishing the Representational Faithfulness of Financial Accounting Information Using Multiparty Security, Network Analysis and a Blockchain. *International Journal of Accounting Information Systems*, *33*, 47-58. https://doi.org/10.1016/j.accinf.2019.03.004

Melloni, G., Caglio, A., & Perego, P. (2017). Saying More With Less? Disclosure Conciseness, Completeness and Balance in Integrated Reports. *Journal of Accounting and Public Policy*, *36*(3), 220-238. https://doi.org/10.1016/j.jaccpubpol.2017.03.001

Mi, H. (2024). Digital Transformation Strategy of Enterprise Financial Accounting Management Based on Blockchain Technology. *Applied Mathematics and Nonlinear Sciences*, *9*(1). https://doi.org/10.2478/amns-2024-0448

Mian, S. (2001). On the Choice and Replacement of Chief Financial Officers. *Journal of Financial Economics*, *60*, 143-175. https://doi.org/10.1016/S0304-405X(01)00042-3

Moodaley, W., & Telukdarie, A. (2023). Greenwashing, Sustainability Reporting, and Artificial Intelligence: A Systematic Literature Review. *Sustainability*, *15*(2), 1481. https://doi.org/10.3390/su15021481

Moral-Muñoz, J. A., Herrera-Viedma, E., Santisteban-Espejo, A., & Cobo, M. J. (2020). Software Tools for Conducting Bibliometric Analysis in Science: An Up-to-date Review. *Profesional de La Informacion*, *29*(1). https://doi.org/10.3145/epi.2020.ene.03

Mousavi, M. M., Ouenniche, J., & Tone, K. (2023). A Dynamic Performance Evaluation of Distress Prediction Models. *Journal of Forecasting*, *42*(4), 756-784. https://doi.org/10.1002/for.2915

Mundy, J., & Owen, C. A. (2013). The Use of an ERP System to Facilitate Regulatory Compliance. *Information Systems Management*, *30*(3), 182-197. https://doi.org/10.1080/10580530.2013.794601

Munoko, I., Brown-Liburd, H. L., & Vasarhelyi, M. (2020). The Ethical Implications of Using Artificial Intelligence in Auditing. *Journal of Business Ethics*, *167*(2), 209-234. https://doi.org/10.1007/s10551-019-04407-1

Murphy, P. R., Purda, L., & Skillicorn, D. (2018). Can Fraudulent Cues Be Transmitted by Innocent Participants? *Journal of Behavioral Finance*, *19*(1), 1-15. https://doi.org/10.1080/15427560.2017.1365367

Nguyen, T., Chen, J. V., & Nguyen, T. P. H. (2021). Appropriation of Accounting Information System Use Under the New IFRS: Impacts on Accounting Process Performance. *Information and Management*, *58*(8), 103534. https://doi.org/10.1016/j.im.2021.103534

Nofel, M., Marzouk, M., Elbardan, H., Saleh, R., & Mogahed, A. (2024). *From Sensors to Standardized Financial Reports: A Proposed Automated Accounting System Integrating IoT, Blockchain, and XBRL*. Preprints.org. https://doi.org/10.20944/preprints202408.2274.v1

Omer, T. C., Shelley, M. K., & Tice, F. M. (2020). Do Director Networks Matter for Financial Reporting Quality? Evidence From Audit Committee Connectedness and Restatements. *Management Science*, *66*(8), 3361-3388. https://doi.org/10.1287/mnsc.2019.3331

Osei-Assibey Bonsu, M., Wang, Y., & Guo, Y. (2023). Does Fintech Lead to Better Accounting Practices? Empirical Evidence. *Accounting Research Journal*, *36*(2-3), 129-147. https://doi.org/10.1108/ARJ-07-2022-0178

Pargmann, J., Riebenbauer, E., Flick-Holtsch, D., & Berding, F. (2023). Digitalisation in Accounting: A Systematic Literature Review of Activities and Implications for Competences. *Empirical Research in Vocational Education and Training*, *15*(1), 1 (2023). https://doi.org/10.1186/s40461-023-00141-1

Park, K., & Jang, S. C. (2014). Hospitality Finance and Managerial Accounting Research: Suggesting an Interdisciplinary Research Agenda. *International Journal of Contemporary Hospitality Management*, *26*(5), 751-777. https://doi.org/10.1108/IJCHM-12-2013-0554

Pei, D., & Vasarhelyi, M. A. (2020). Big Data and Algorithmic Trading Against Periodic and Tangible Asset Reporting: The Need for U-XBRL. *International Journal of Accounting Information Systems*, *37*, 100453. https://doi.org/10.1016/j.accinf.2020.100453

Perols, R. R., & Murthy, U. S. (2021). The Impact of Cybersecurity Risk Management Examinations and Cybersecurity Incidents on Investor Perceptions and Decisions. *Auditing: A Journal of Practice & Theory*, *40*(1), 73-89. https://doi.org/10.2308/AJPT-18-010

Piotrowska, K., Szymura, A., & Wanicki, P. (2024). Effect of R&D Activity on Level of Innovation of EU Countries in 2014 and 2020. *PLoS ONE*, *19*(2 February). https://doi.org/10.1371/journal.pone.0299697

Rabbani, M. R. (2024). Impact of Digital Advancements on Accounting, Auditing and Reporting Literature: Insights, Practice Implications and Future Research Directions. *Journal of Accounting and Organizational Change* [in print]. https://doi.org/10.1108/JAOC-01-2024-0028

Rana, P. H. (2024). Ethical Considerations in the Integration of Artificial Intelligence in Accounting: A Comprehensive Review and Framework. *MSNIM Management Review*, *2*(1), 16-23. https://msnim.edu.in/documents/1027/3.Ethical_Considerations_in_the_Integration_of_Artificial_Intelligence_in_Accounting.pdf

Rana, T., Svanberg, J., Öhman, P., & Lowe, A. (2023). Introduction: Analytics in Accounting and Auditing. In T. Rana, J. Svanberg, P. Öhman, A. Lowe (Eds.), *Handbook of Big Data and Analytics in Accounting and Auditing* (pp. 1-13). Springer. https://doi.org/10.1007/978-981-19-4460-4_1

Reig-Mullor, J., Garcia-Bernabeu, A., Pla-Santamaria, D., & Vercher-Ferrandiz, M. (2022). Evaluating ESG Corporate Performance Using a New Neutrosophic AHP-TOPSIS Based Approach. *Technological and Economic Development of Economy*, *28*(5), 1242-1266. https://doi.org/10.3846/tede.2022.17004

Rizal, M., Majid, M. S. A., Musnadi, S., & Sakir, A. (2024). Measuring Aggressive Decision-Making Behavior: A Confirmatory Factor Analysis. *International Journal of Applied Economics, Finance and Accounting*, *18*(1), 53-64. https://doi.org/10.33094/ijaefa.v18i1.1319

Rizzato, M., Wallart, J., Geissler, C., Morizet, N., & Boumlaik, N. (2022). Generative Adversarial Networks Applied to Synthetic Financial Scenarios Generation. *Physica A: Statistical Mechanics and Its Applications*, *623*, 128899. https://doi.org/10.1016/j.physa.2023.128899

Rowbottom, N., Locke, J., & Troshani, I. (2021). When the Tail Wags the Dog? Digitalisation and Corporate Reporting. *Accounting, Organizations and Society*, *92*, 101226. https://doi.org/10.1016/j.aos.2021.101226

Roychowdhury, S., Shroff, N., & Verdi, R. S. (2019). The Effects of Financial Reporting and Disclosure on Corporate Investment: A Review. *Journal of Accounting and Economics*, *68*(2-3), 101246. https://doi.org/10.1016/j.jacceco.2019.101246

Rubin, A., & Segal, D. (2019). Directors Skill and Financial Reporting Quality. *Journal of Business Finance and Accounting*, *46*(3-4), 457-493. https://doi.org/10.1111/jbfa.12359

Saluja, S., Nayyar, V., Dawra, S., Jain, M., & Shukla, R. P. (2024). Artificial Intelligence in Forensic Accounting. In S. Saluja, V. Nayyar, K. Rojhe, S. Sharma (Eds.), *Ethical Marketing Through Data Governance Standards and Effective Technology* (pp. 10-28). IGI Global. https://doi.org/10.4018/979-8-3693-2215-4.CH002

Sandner, P., Lange, A., & Schulden, P. (2020). The Role of the CFO of an Industrial Company: An Analysis of the Impact of Blockchain Technology. *Future Internet*, *12*(8), 128. https://doi.org/10.3390/FI12080128

Sanjiwani, P. D. A., Wulandari, A. A. I., Dewi, G.A, & Renta, M. P. P. (2024). The Impact of Artificial Intelligence on Accounting Information Systems. *Jurnal Ekonomi*, *13*(02), 1220-1234. https://ejournal.seaninstitute.or.id/index.php/Ekonomi/article/view/4570

Sauer, P. C., & Seuring, S. (2023). How to Conduct Systematic Literature Reviews in Management Research: A Guide in 6 Steps and 14 Decisions. *Review of Managerial Science*, *17*(5), 1899-1933. https://doi.org/10.1007/s11846-023-00668-3

Shahana, T., Lavanya, V., & Bhat, A. R. (2023). State of the Art in Financial Statement Fraud Detection: A Systematic Review. *Technological Forecasting and Social Change*, *192*, 122527. https://doi.org/10.1016/j.techfore.2023.122527

Shaikh, I. A., Wang, Z. H., & Drira, M. (2023). How Retaining Different Inside Directors on the Board Influences R&D-intensity: An Extension of Agency-theory Applied to the High-tech Sectors. *Journal of High Technology Management Research*, *34*(2), 100479. https://doi.org/10.1016/j.hitech.2023.100479

Shan, Y. G., & Troshani, I. (2021). Digital Corporate Reporting and Value Relevance: Evidence From the US and Japan. *International Journal of Managerial Finance*, *17*(2), 256-281. https://doi.org/10.1108/IJMF-01-2020-0018

Shapovalova, A., Kuzmenko, O., Polishchuk, O., Larikova, T., & Myronchuk, Z. (2023). Modernization of the National Accounting and Auditing System Using Digital Transformation Tools. *Financial and Credit Activity: Problems of Theory and Practice*, *4*(51), 33-52. https://doi.org/10.55643/fcaptp.4.51.2023.4102

Sharpe, W. H., Carey, P., & Zhang, H. F. (2023). Being Private, Big 4 Auditors, and Debt Raising. *Accounting and Finance*, *63*(2), 2295-2345. https://doi.org/10.1111/acfi.12969

Sisodia, J. (2022, December 6). *AI Ethics and the Role of IT Auditors*. https://www.isaca.org/Resources/News-and-Trends/Industry-News/2022/Ai-Ethics-and-the-Role-of-It-Auditors?Utm_source=isaca_internal&utm_medium=share_link

Sokolov, A., Mostovoy, J., Ding, J., & Seco, L. (2020). *Building Machine Learning Systems for Automated ESG Scoring*. *The Journal of Impact and ESG Investing*, *1*(3), 39-50. https://doi.org/10.3905/jesg.2021.1.010

Souza, P. V. S. de, Ribeiro, J. P. M., & Paulo, E. (2024). Organizational Complexity and Value Relevance Under the Regulatory and Financial Standards of Brazilian Electric Power Companies. *Energy Policy*, *186*, 114000. https://doi.org/10.1016/j.enpol.2024.114000

Sun, M. (2024). The Application of Embedded Hardware System and Blockchain in Rural Financial Management Cloud Platform. *Decision Making: Applications in Management and Engineering*, *7*(2), 81-100. https://doi.org/10.31181/dmame7220241040

Sunder, S. (2005). Minding Our Manners: Accounting as Social Norms. *British Accounting Review*, *37*(4), 367-387. https://doi.org/10.1016/j.bar.2005.08.007

Tang, F., Hess, T. J., Valacich, J. S., & Sweeney, J. T. (2014). The Effects of Visualization and Interactivity on Calibration in Financial Decision-Making. *Behavioral Research in Accounting*, *26*(1), 25-58. https://doi.org/10.2308/bria-50589

Teeter, R. A., Alles, M. G., & Vasarhelyi, M. A. (2010). The Remote Audit. *Journal of Emerging Technologies in Accounting*, *7*(1), 73-88. https://doi.org/10.2308/JETA.2010.7.1.73

*The State of AI in Accounting 2024. Emerging Trends, Challenges & Opportunities 2*. (2024). Karbon. https://karbonhq.com/resources/state-of-ai-accounting-report-2024/

Trinkle, B. S., Crossler, R. E., & Bélanger, F. (2015). Voluntary Disclosures via Social Media and the Role of Comments. *Journal of Information Systems*, *29*(3), 101-121. https://doi.org/10.2308/isys-51133

Troshani, I., Parker, L. D., & Lymer, A. (2015). Institutionalising XBRL for Financial Reporting: Resorting to Regulation. *Accounting and Business Research*, *45*(2), 196-228. https://doi.org/10.1080/00014788.2014.980772

Uwizeyemungu, S., Bertrand, J., & Poba-Nzaou, P. (2020). Patterns Underlying Required Competencies for CPA Professionals: a Content and Cluster Analysis of Job Ads. *Accounting Education*, *29*(2), 109-136. https://doi.org/10.1080/09639284.2020.1737157

Wang, A., Kapoor, S., Barocas, S., & Narayanan, A. (2024). Against Predictive Optimization: On the Legitimacy of Decision-making Algorithms That Optimize Predictive Accuracy. *ACM Journal on Responsible Computing*, *1*(1), Article 9. https://doi.org/10.1145/3636509

Wang, F., Zhang, Z., Ho, L. C. J., & Usman, M. (2023). CFO Gender and Financial Statement Comparability. *Pacific Basin Finance Journal*, *80*, 102100. https://doi.org/10.1016/j.pacfin.2023.102100

Wang, L., Zhou, Y., Sanders, K., Marler, J. H., & Zou, Y. (2024). Determinants of Effective HR Analytics Implementation: An In-depth Review and a Dynamic Framework for Future Research. *Journal of Business Research*, *170*, 14312. https://doi.org/10.1016/j.jbusres.2023.114312

Wen, H., Fang, J., & Gao, H. (2023). How FinTech Improves Financial Reporting Quality? Evidence From Earnings Management. *Economic Modelling*, *126*, 106435. https://doi.org/10.1016/j.econmod.2023.106435

Wu, J. S., & Zhang, I. X. (2019). Mandatory IFRS Adoption and the Role of Accounting Earnings in CEO Turnover. *Contemporary Accounting Research*, *36*(1), 168-197. https://doi.org/10.1111/1911-3846.12428

Yadav, S., Samadhiya, A., Kumar, A., Luthra, S., & Pandey, K. K. (2024). Environmental, Social, and Governance (ESG) Reporting and Missing (M) Scores in the Industry 5.0 Era: Broadening Firms' and Investors' Decisions to Achieve Sustainable Development Goals. *Sustainable Development*, *33*(3) 3455-3477. https://doi.org/10.1002/sd.3306

Yarmoliuk, O., Abramov, A., Mulyk, T., Smirnova, N., & Ponomarova, N. (2024). Digital Technologies in Accounting and Reporting: Benefits, Limitations, and Possible Risks. *Revista Amazonia Investiga*, *13*(74), 323-333. https://doi.org/10.34069/ai/2024.74.02.27

Zhang, C., Zhu, W., Dai, J., Wu, Y., & Chen, X. (2023). Ethical Impact of Artificial Intelligence in Managerial Accounting. *International Journal of Accounting Information Systems*, *49*, 100619. https://doi.org/10.1016/j.accinf.2023.100619

Zhang, F., Liu, Z., Feng, F., & Li, J. (2024). Can FinTech Promote Enterprises' Ambidextrous Innovation Capability? Organizational Resilience Perspective. *Finance Research Letters*, *68*. https://doi.org/10.1016/j.frl.2024.105994

Zhang, W. (2024). Ethical Dilemmas in Accounting: A Comprehensive Analysis of Professional Ethics. *Academic Journal of Business & Management*, *6*(2). https://doi.org/10.25236/ajbm.2024.060220

Zhang, Z., & Wang, F. (2023). Managerial Short-Termism and Financial Statement Comparability. *Accounting and Finance*, *63*(5), 5027-5067. https://doi.org/10.1111/acfi.13138

Zhou, G. (2021). Research on the Problems of Enterprise Internal Audit Under the Background of Artificial Intelligence. *Journal of Physics: Conference Series*, *1861*(1). https://doi.org/10.1088/1742-6596/1861/1/012051

Zhu, H., & Wu, H. (2014). Assessing the Quality of Large-Scale Data Standards: A Case of XBRL GAAP Taxonomy. *Decision Support Systems*, *59*(1), 351-360. https://doi.org/10.1016/j.dss.2014.01.006

Zhu, S. (2021). Audit and Technology. In *Proceedings. 2021 3rd International Conference on Machine Learning, Big Data and Business Intelligence, MLBDBI 2021* (pp. 745-749). IEEE. https://doi.org/10.1109/MLBDBI54094.2021.00145

# List of Figures

# List of Tables