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THE STRUGGLE AGAINST THE SHADOW ECONOMY AND CORRUPTION: THE POSSIBILITIES OF ACCOUNTING AND DIGITAL TECHNOLOGIES

ABSTRACT

The purpose of the article. The shadow economy and corruption pose significant threats to national economies, as illicit income from financial crimes and tax evasion often funds organized crime and terrorism, while exacerbating inequality and hindering development. This article examines key categories of financial crime, including asset misappropriation, fraud, bribery, cybercrime, and accounting violations. The study aims to enhance accounting methodology as a tool in combating corruption and the shadow economy. The central hypothesis is that improvements in accounting and auditingwhen supported by ethical, organizational, and technological infrastructurecan reduce these phenomena. Accounting information, when integrated with digital systems and ethical standards, becomes a powerful instrument for transparency and accountability.

Methodology. The study's methodological approach integrates theoretical and empirical components to examine the role of accounting in combating corruption and the shadow economy. Theoretically, it draws on general philosophical and scientific methods, including bibliometric analysis, synthesis, and historical-logical approaches, to explore the structural roots of financial crime and the potential of accounting for transparency and control. Empirically, the research involved 15 semi-structured interviews with accounting professionalsboth accountants and auditors from public and private sectors.

Results of the research. The interviews aimed to identify practical challenges in financial transparency, ethical dilemmas, and the impact of digitalization on fraud prevention. This qualitative data enriched the study's conclusions, offering a multidimensional perspective on how accounting practices are shaped by real-world constraints, organizational culture, and technological readiness.

Keywords: shadow economy, corruption, accounting transparency, digital technologies, forensic accounting, fraud prevention, blockchain in accounting

JEL Class: E60, M41, M42, O33

Introduction

The shadow economy, corruption, and financial crime represent serious threats to sustainable economic development, leading to reduced tax revenues, growing social inequality, and the support of illicit activities, including the financing of terrorism. It is estimated that the global shadow economy exceeds $10 trillion, directly affecting the livelihoods of approximately 1.8 billion people (ACCA Global, 2017a).

According to the Association of Chartered Certified Accountants (ACCA), the shadow economy's share in global GDP may decline from 23% (2011) to 21% by 2025; however, this trend is uneven particularly in developing countries, where its share is projected to rise (ACCA Global, 2017b). Key drivers of this phenomenon include excessive tax burdens, complex tax systems, intense market competition, rising unemployment and poverty, limited access to education, escalating corruption, and increasing digitalization, which offers

anonymity to users (ACCA Global, 2022). Additionally, the European shadow banking sector has been shown to be highly procyclical and positively related to stricter capital regulations (Hodula et al., 2020).

These dynamics have intensified in the context of recent global crises most notably the COVID-19 pandemic and the Russian invasion of Ukraine both of which have increased the risk of economic stagnation and accelerated criminal activity. In the current digital transformation era, information technologies play a dual role: on one hand, enabling effective tracking of business operations; on the other, creating new avenues for fraud through the exploitation of digital loopholes and user anonymity.

The hypothesis of this study posits that improving accounting and auditing methods when supported by ethical, organizational, and technological infrastructure contributes to a reduction in corruption and the shadow economy. Accounting systems integrated with modern digital technologies such as blockchain, artificial intelligence, and Big Data can significantly enhance information transparency, reduce informational asymmetry, and serve as effective tools for preventing abuse and economic crime.

Despite ongoing regulatory efforts, effective countermeasures against the shadow economy require a preventive approach, the creation of an institutional environment of zero tolerance for misconduct, and the engagement of the accounting profession as guardians of integrity, responsibility, and the ethical dimension of financial information (Everett et al., 2020).

Literature review

The analysis of scientific research in the field of economics, sociology, law, etc., allows to define the shadow economy as a separate sphere of economic relationships that take different forms (informal, hidden, illegal) and are implemented in a parallel space to the legal economy. The shadow economy is interpreted as activities performed with the express intention of avoiding taxes and social contributions or legal requirements concerning minimum wages, working hours, health and safety regulations (Schneider, 2005; Medina and Schneider, 2018). The analysis of scientific publications on the shadow economy shows a multitude definition of the mentioned concept (Schneider&Buehn, 2000; Ergene, 2015, Farzanegan et al., 2020) from "Unobservable economy" to "parallel economy").

From an economic perspective, the shadow economy arises from corruption (political factors), legislative conflicts (legal factors), and excessive regulation and taxation (economic factors). Its informal and non-declarative nature makes it difficult to measure, but various assessment methods exist, including economic-mathematical, statistical, expert-analytical, sociological, socio-psychological, control, futurological, criminological, and legal approaches.

There are quantitative methods of calculating the level of the shadow economy, which are applied to the micro-level of the functioning of the economic system: the questionnaire method (Schneider, 2005; Schneider & Enste, 2000; Medina & Schneider, 2018), expert methods, analysis of testimonies of victims or accomplices; control methods; analytical and accounting methods – analysis of accounting documents, economic analysis, audit (Mogensen et al., 1995).

Scientists have proposed a method of comparing two or more sources of the same data obtained in the accounting system (Postea & Achim, 2022). However, it can reveal only a portion of the shadow economy tied to legal activity. Given the rise of the information economy and major structural shifts, existing assessment methods require revision due to biases stemming from the increasing value of intellectual labor and intangible GDP components. In addition, monetary methods are becoming less reliable amid reduced cash usage and the emergence of cryptocurrencies.

The shadow economy has become the subject of economic research despite the ambiguity of interpretations and the difficulty of measuring this phenomenon, because the subjects of shadow economic relations hide the facts of their implementation. The differences between the formal and informal sectors of the economy were investigated by Hart (Hart, 1973) and initiated research into the methodology for detecting and preventing

the shadow economy (Feige, 1979; Gutmann, 1979; Schneider & Buehn, 2018). The shadow economy, tax evasion and corruption are the cause of economic crises (González-Fernández & González-Velasco, 2014; Farzanegan & Badreldin, 2017) proved the possibility of growing budget deficits, declining infrastructure quality and growing to political instability due to the growth of the shadow economy, and (Davis, 2007; Quintano & Mazzocchi, 2010; Lisi , 2016) show its negative impact on economic growth.

As well as, there are studies on the positive impact of the shadow sector of the economy on the socio-economic development of the country (Gerxhani, 2004; La Porta & Shleifer, 2014; Schneider & Enste, 2000), which claim that informal firms add minimal value to the formal economy due to low labor productivity, and the parallel economy has a positive effect on economic growth (Nabi & Drine, 2009; Ergene, 2015). Such statements are often contradictory and depend on the functioning of economic systems. In less developed countries, the shadow economy brings no positive effects. In contrast, in developed economies forming an information society, it is closely linked to the legal economy and divides into two segments: a symbiotic one where only part of the production cycle occurs in the shadow economy and an autonomous one, which spans the entire value creation process, from resource acquisition to final consumption (Bashlakova & Bashlakov, 2020).

Expert assessment remains a key tool for estimating the shadow economy, as it accounts for both quantitative and psychological factors driving shadow activity, corruption, and economic crime. In the absence of fully reliable measurement methods, the urgency of addressing these issues is especially high in less developed economies. Insufficient data on the shadow sector leads to macroeconomic and managerial inefficiencies, as distorted information undermines decision-making and resource allocation. International accounting standards support greater transparency by aligning practices with global reporting expectations (Cuadrado-Ballesteros et al., 2020; Paterson et al., 2019; Rodrigue & Dey, 2022).

Therefore the basis of the formation of economic information at different levels of management is the accounting system, and the object of accounting research is the economic reality of the business entity at its various levels (global economy, country, business entities (large, small, medium – the micro level of accounting), individual and households (quasi-level of accounting) (Semaniuk, 2018). The analysis of the literature shows that accounting can contribute to anti-corruption efforts in the social, economic and political contexts, as well as become a preventive factor in the implementation of fraudulent actions and shadow operations (Malagueño, 2010; Cooper et al., 2013; Goddard et al., 2016, Rodrigue & Dey, 2022).

The ability of accounting systems to generate relevant information is expanding with the widespread adoption of digital technologies. Digitization transforms accounting methodology and can drive the development of tools to prevent shadow operations, money laundering, fraud, corruption, and other economic crimes. The literature presents two contrasting views on accounting's role in this context: the orthodox approach emphasizes its value-creating potential, while the radical approach sees accounting as both a catalyst and potential constraint for economic responsibility (Everett et al., 2007).

Study by the International Federation of Accountants, for instance, illustrates the vital and unique role that accountants play when it comes to stymieing fraud on the international stage, where tricksters can rely on impressive digital tech and the dizzying nature of international regulations to avoid prying eyes. The study revealed what should be common sense to most, as it told us that the more accountants we have in the workforce, the lower the levels of corruption" (Kirtley, 2016). The positive impact of the adoption of international accounting and auditing standards on the perception of corruption, directly or indirectly, through SARS prove Kurniawati, E.P. and Achjari, D., proposing a strategy to eradicate corruption by adopting international accounting and auditing standards and strengthening auditing and reporting standards (Kurniawati & Achjari, 2022).

There is also an opposite point of view regarding accounting – research on the relationship between corruption and accounting in the field of public procurement. It examines how accoun-ting can combat or facilitate corruption. The MOSE case offers intriguing insights into how accounting can be used to build a "sustainable" network of corruption by collecting dirty money and facilitating the distribution of benefits among individuals (Pilonato, 2022).

Scholars describe the roles of accounting and accountants in organizations and society in the context of the digital era, providing practical insight into the potential relationship between technological (especially digital) developments and labor market dynamics for accounting professionals (Gonçalves et al., 2022). Korhonen et al. (2022) explore remote control and virtual or augmented reality technologies to prove that accountants can remain efficient and competitive compared to machines, and this makes significant adjustments in decision-making processes and creation of information in management accounting.

The digital transformation of accounting methods will facilitate access to information and its transparency (Yüksel, 2020). Cloud accounting technologies have a positive effect on efficiency in the context of "reducing the risk of error (especially human error), low risk of fraud, system automation, big data analysis, huge cost savings (due to increased efficiency and reduced errors), increased reliability in financial reports and reducing the work process" (Mosteanu & Faccia, 2020). Some researchers, including Yau-Yeung et al. (2020) emphasize the existence of certain risks associated with the digitization of accounting. Literature review in the field of accounting shows that attention to the prospects for the use of digital technologies in accounting is significant, and the main publications relate to the use of Bid Data methods, digital platforms, the use of new technologies in accounting, cyber security (Moll & Yigitbasioglu, 2019; Leoni & Parker, 2019).

The use of information technologies reduces the informal economy a trend confirmed in African countries and may apply to all low-income nations when paired with financial development, human capital, and corruption control (Ndoya et al., 2023). Integrating accounting methods with digital tools enhances information creation, data collection, analysis, and decision-making, enabling more effective control and audit practices against shadow activity and corruption. To support this, accounting science must evolve beyond the traditional dual-methodological framework.

Relationship between shadow economy, corruption and accounting

The shadow economy operates outside formal accounting and control systems, leading to unrecorded transactions and violations of established accounting principles. Its core drivers are economic crime and corruption, often enabled by unethical accounting practices. Fraud contributes to corporate collapses and broader economic crises. Despite advances in digital innovation, core mechanisms of bribery, corruption, and illicit operations have remained largely unaffected. The fifth technological revolution has introduced new tools not only for business transformation but also for the advancement of sophisticated financial crimes. This necessitates a strategic approach to identifying and mitigating economic crime risks in the context of a rapidly evolving economic landscape.

The COVID-19 pandemic highlighted systemic limitations in internal controls and accelerated digital transformation, thereby increasing exposure to fraud and enabling long-standing schemes to emerge or evolve (The Economist, 2020). In the global economy, threats can originate both internally and externally, and organizational success depends heavily on risk mitigation and reputational integrity.

Fraud investigations and effective risk management strategies are essential to safeguarding a company's tangible and intangible assets. Mechanisms such as dispute resolution, cybercrime response, and regulatory compliance contribute to organizational resilience (PwC, 2020). Post-industrial economies demand new skillsets, adaptive thinking, and intelligent data processing where accounting shifts from a secondary system into a critical information infrastructure for decision-making.

Corruption, conceptualized by Klitgaard (1988) as $C = M + D - A$ (corruption = monopoly + discretion – accountability), depends on the concealment of financial information. This distorts accounting outputs and undermines its informational value. Cross-country analysis of 57 nations confirms a correlation between accounting transparency and reduced perceived corruption; improvements in accounting and audit quality can lower corruption levels (Malagueño et al., 2010). Corruption and fraud are often facilitated by accountants with access to documentation, methods, and systems that allow fabrication of reports and contracts. The concept

of "creative accounting" involves manipulation of reports to meet management demands (Mathews & Perera, 1991; Shah et al., 2011). Innovation in reporting may be legitimate, crossing ethical boundaries leads to misinformation. Activities such as off-the-book reporting, unregistered transactions, or falsified documentation clearly violate accounting norms.

Creativity in accounting, as understood here, involves applying nontraditional techniques (especially in management accounting) to generate decision-relevant information while remaining within ethical limits (Semaniuk, 2018). However, misuse of such methods can distort financial reality and obscure illegal operations.

Shadow economies are frequently intertwined with corruption and illicit capital flows, such as bribes for policy influence or concealment of criminal activity. Financial crime is estimated to cost over $3.5 trillion annually surpassing the GDP of the UK (Gordon, 2020). These phenomena create systemic risks at both macroeconomic and global levels, generating income that fuels inequality, terrorism, and narcotics trade.

A reciprocal relationship exists between accounting and the shadow economy. On one hand, illicit schemes often require the involvement or negligence of accounting professionals. On the other, those same professionals may be deceived by falsified data or asymmetrical information. Consequently, forensic accounting and audit technologies have emerged to identify and mitigate such fraud risks. Economic crime continues to outpace preventive frameworks, driven by the rapid development of digital and business technologies. According to PwC's (2020), the most prevalent forms of financial crime include customer fraud, cybercrime, asset misappropriation, bribery, and financial statement fraud.

**Figure 1.** *The structure of economic crimes in 2020*
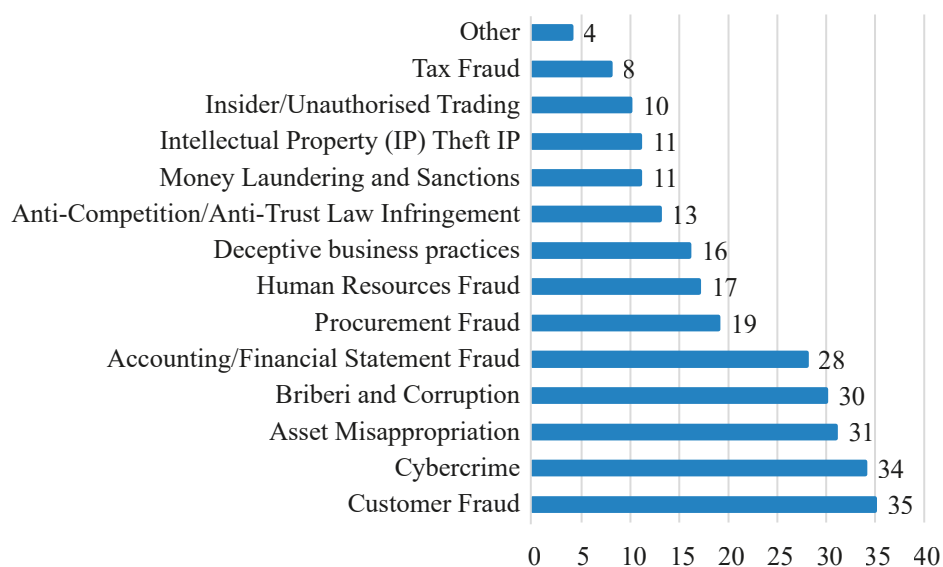
Source: *PwC (2020)*

Comparing the data presented in Figure 1 with PwC's findings (2022), customer fraud (35%) and cybercrime (34%) emerge as the most common types of economic crime globally, followed by asset misappropriation (31%) and financial statement fraud (28%). These figures reflect ongoing vulnerabilities in client interactions, digital systems, and internal controls. Companies face rising fraud risks due to uncertainty, digitalization, and more advanced schemes. PwC (2022) reports that 51% of organizations experienced fraud in the past two years the highest level in 20 years with 70% encountering new incidents tied to COVID-19 related disruptions, particularly via e-commerce and corporate platforms.

The PwC (2024) report reinforces that economic crime remains a pervasive and evolving threat, with customer fraud, cybercrime, and procurement fraud ranking among the most disruptive offenses globally. Despite the availability of advanced analytics, a significant portion of organizations still underutilize these tools nearly 20% of companies report not using data analytics at all to detect procurement fraud, while 32% do not quantify

related losses. This technological and strategic gap highlights the necessity for more robust, data-informed internal controls, particularly as digitalization increases the complexity of fraud schemes.

Figure 2. *Most disruptive fraud events – by industry*
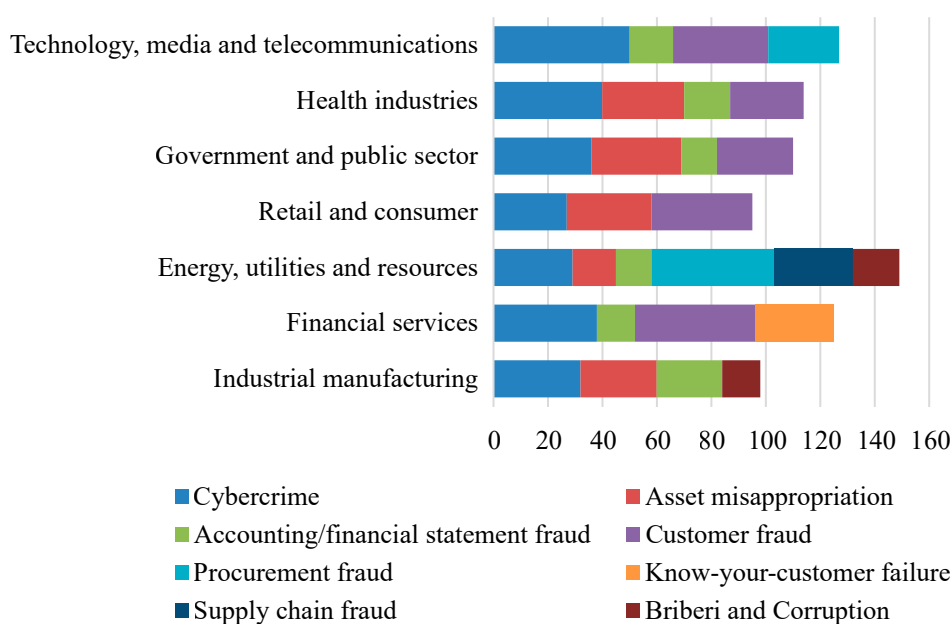
Source: *PwC (2020, 2022)*

American experts from the Association of Certified Fraud Examiners (ACFE, 2022) identify three main categories of fraudulent schemes in accounting: misappropriation of assets, including false accounts, manipulated payment data, and skimming (i.e., accepting payments without supporting documentation); corruption, involving bribes or illicit demands from third parties; and fraudulent financial reporting, such as fabricating income or concealing expenses and liabilities. Financial reporting fraud is the least common but most costly, with an average loss to the government of about two million US dollars (ACFE, 2022).

Digital solutions in accounting to prevent the shadow economy

Reliable and relevant accounting information underpins effective business decision-making and builds trust in financial reporting. Yet, the digital age transforms this landscapedata volumes grow exponentially, while fraud becomes more complex and faster. IT development, evolving business models, and globalization foster new forms of fraud and cybercrime. For instance, while cryptocurrency simplifies payments, it complicates verification of counterparties, and digital payments combined with global reach expand opportunities for cross-border economic crime.

Digital technologies play a crucial role in the prevention and detection of financial crime. The application of artificial intelligence (AI) in accounting enables large-scale data analysis through algorithmic processing, identifying high-risk transactions and preventing money laundering, capital flight, and sanction violations. AI can monitor expenditures and payments, reducing opportunities for bribery by applying extensive validation criteria tailored to organizational risks.

Moreover, AI and machine learning facilitate predictive fraud modeling and real-time monitoring. While accountants gain improved access to relevant data and control mechanisms, digitalization simultaneously expands avenues for fraud most commonly via manipulation of revenues or concealment of liabilities.

AI-driven tools enhance internal audit functions by detecting irregularities such as advance payments without contracts, excessive use of cash, and anomalous patterns involving intermediaries. These systems rely on data visualization, statistics, and text analysis to flag suspicious activities and assess corruption

risks. Forensic accounting remains a key instrument in this process, offering structured approaches to combat shadow operations and economic crime (Crumbley, 2008; Ocansey, 2017).

The digital economy, defined by the integration of advanced information technologies into business processes, transforms products, logistics, sales, and operations, fundamentally altering organizational principles. In this context, the digital transformation of accounting becomes imperative, as competitiveness, timely decision-making, and risk responsiveness depend on it. This transformation also necessitates a revision of accounting theory its principles, objectives, and methodology. Within the framework of the fifth industrial revolution, technologies such as blockchain, Big Data, cloud analytics, and artificial intelligence will facilitate large-scale automation of decision-making. Platforms for document sharing (e.g., Google Drive, Dropbox) and AI-based tools like OCR are increasingly integral to the accounting digital toolkit.

Along with the fact that digital toolkits and the latest information processing technologies relieve accountants of routine work and prevent errors caused by the human factor, their widespread use is accompanied by certain challenges, such as information security and privacy, cyber security, encryption access control, the cost of creating information, etc.The accountancy profession add higher levels of service through Look (monitoring), Shape (policy advisory), Count (measurement and modelling), Resolve (mediation), Automate (technology), Inform (education) (ACCAGlobal, 2017b).

"If all accountants learn what they are capable of doing and apply it to creating sustainable businesses and economies, then they can make a real difference. If they use their ethics, responsibility, and knowledge, they can save the world – Nasir Ahmad FCCA, CIMB Group Chairman and ACCA Council Member (ACCA-Global, 2017b)"

A high level of transparency in accounting information, particularly for external users, along with public disclosure, serves as a deterrent to corruption and economic offenses. To enhance transparency in the digital era, the application of blockchain technology is recommended. However, this requires extending traditional double-entry accounting principles and adopting decentralized ledgers to ensure data authenticity, immutability, and protection against falsification (PwC, 2020). Organizations implementing blockchain can benefit from transaction verification without a central authority, enhanced privacy, and tamper-proof, auditable records (Clements, 2020). Nonetheless, widespread adoption depends on legal regulation and the development of technological frameworks suited to national economic and legal contexts.

The double-entry accounting methodology serves as a prototype for blockchain development, where records are structured as cryptographically linked blocks. Duplication is replaced by multiple replications, ensuring information transparency and immutability. Data is stored in structured blocks, each referencing the previous one, allowing access to historical records. Any change in a block triggers an immediate alert, as discrepancies with replicated data across the chain are detected automatically.

There are studies on the business benefits of adopting blockchain technology, which claim that blockchain will generate an annual business value of more than 3 trillion US dollars until 2030, which will provide greater transparency and traceability for many business processes (Plain Concepts, 2022).

S. Gökten and B. Özdorgan (2020) analyzed the advantages of implementing blockchain in accounting, highlighting the need for specialized software. The limitations in control measures during COVID-19 underscored the relevance of adopting blockchain-based systems for secure information management. Blockchain accounting enables the creation of real-time, tamper-resistant data and prevents manipulation by tracking all transactions and alerting users to changes. Altering records outside system rules would require control over 51% of mining capacity, which is virtually unattainable in large-scale blockchains (Parkins, 2015).

With companies like Amazon and IBM offering reliable, flexible, and scalable blockchain platforms, it's only a matter of time before accounting services come to these platforms. Microsoft, Oracle, SAP and Salesforce have already announced blockchain initiatives. In the future, many core business processes will work on or interact with blockchain-based systems. Using blockchain together with enterprise resource planning platforms will allow companies to streamline processes, facilitate data exchange and improve data integrity.

To introduce blockchain technologies into the practice of accounting, accounting science needs to review the basic principles of accounting and supplement them with the following principles:

- the principle of completeness of information, the interpretation of which is that information is always insufficient for an a priori judgment about all possible results of activity, especially in the future, and therefore it is constantly necessary to study information requests.
- the principle of optimality (efficiency) – all information should be formed with a view to obtaining the optimum from the point of view of corporate and social interests.
- the principle of synergism, according to which the main characteristics of economic activity are not statics, but dynamics, and information in the accounting system is created under the minimal influence of a subjective factor.
- the principle of rational transparency (clarity), which involves considering the information requests of users (country, society, counterparties, stakeholders, etc.) and the openness of information to the extent that it does not affect the economic security interests of the economic agent.

There are researchers who are critical of using blockchain technologies in the accounting system (Coyne & McMickle, 2017) and emphasize the cost aspect and economic justification of its implementation (Fuller & Markelevich, 2019). The introduction of fundamentally new technologies, which will lead to the expansion of the methodology accounting or even its change requires investment, but in the context of our research, blockchain technology can become a powerful toolkit for preventing fraud, economic crime and the spread of the shadow economy.

Blockchain technology enables real-time accounting transparency and more effective fraud prevention. If all transactions are digitized, tax evasion becomes detectable and practically impossible, as the network logs all actions and blocks the creation of shadow schemes. Economic activities are digitized, stored on the blockchain, and displayed on platforms capable of automatic tax calculation. Moreover, blockchain addresses issues such as corruption, collusion, resource misuse, service quality, invoice falsification, and embezzlement. It allows both parties to record transactions simultaneously in a shared ledger, moving beyond traditional methods of invoicing, documentation, and inventory systems.

The need for traditional double-entry bookkeeping may be eliminated, as blockchain enables automated verification of the authenticity and legality of accounting records. This technology is viewed as ideal accounting due to its potential to enhance transparency and public trust. The World Economic Forum estimates that by 2027, 10% of global GDP will be stored on blockchain (Deep Shift Technology Tipping Points and Societal Impact). Data from such systems can serve as audit evidence, support tax calculations, legal proceedings, and lending decisions, given its resistance to falsification. While some economic crimes may remain undetectable, increasing the cost of concealment can act as a deterrent. Clear communication of assurance outcomes will support fraud detection and guide regulation development aligned with blockchain's capabilities (Gordon, 2020).

The perspective of accountants and auditors on the shadow economy and corruption

To deepen both theoretical and empirical analyses concerning the role of accounting and digital technologies in counteracting the shadow economy and corruption, a qualitative study was conducted using semi-structured interviews. The qualitative research presented in this article was carried out using a mixed-mode methodology, which involves applying various implementation techniques to conduct the study based on a single questionnaire. Specifically, the study utilized a combination of IDI (In-Depth Interview) and VIDI (Virtual In-Depth Interview) methods.

The study involved a group of 15 professionals: 10 accountants and 5 auditors working in both the private and public sectors in Poland. The interviews were conducted between May and July 2025. Participants were purposefully selected to reflect a diversity of professional experiences, organizational roles, and levels

of digital tool implementation within their institutions. The aim of the study was to identify practitioners' perceived barriers and opportunities related to the use of modern accounting methods and digital technologies in preventing financial irregularities.

The interview scenario was structured around four thematic blocks: (1) general professional experience in the context of financial transparency and professional ethics, (2) the use of digital tools in accounting and their impact on information transparency, (3) the effectiveness of current control and audit practices in detecting fraud, and (4) perspectives on the implementation of technologies such as blockchain, artificial intelligence, and data analytics in accounting practice. To ensure the scientific rigor of the qualitative component, the interview data were subjected to thematic content analysis, which enabled the identification of recurring patterns and categories within the respondents' statements. The coding process was conducted manually, following the principles of inductive analysis, allowing key themes to emerge directly from the empirical material. The analysis of responses enabled a practical and nuanced understanding of how accounting is perceived as a preventive tool against economic crime within the professional community.

In the following section of the article, we present the results of the qualitative interviews conducted within the thematic block "Professional Experience and Practice." The purpose of this part of the study was to explore the challenges accountants and auditors face in ensuring financial transparency and maintaining ethical standards in their daily work. Questions focused on the realities of accounting operations, areas vulnerable to abuse, and the ways professionals cope with pressures related to ethical decision-making.

Most respondents pointed to the complexity and inconsistency of tax regulations and time pressure as key obstacles to achieving full financial transparency. Many also emphasized the interpretive ambiguity of regulations, particularly within a dynamically changing legal and economic environment. Some participants admitted that, despite good intentions, their efforts often amounted to so-called formal compliance, without true control over the economic substance of transactions. One auditor noted:

"Sometimes the bigger problem than fraud itself is the fact that the accounting system doesn't allow us to clearly detect it–even when we want to be 100% transparent."

Significantly, 11 out of 15 respondents acknowledged having encountered ethically questionable practices. These most frequently involved delayed recognition of expenses, creative revenue recognition, or breaking transactions into parts to stay below control thresholds. Some mentioned managerial pressure to "shape" financial outcomes to match predefined scenarios. One private sector accountant stated:

"Sometimes the expectation is not for accurate information, but for information that fits the management's narrative. The line between professionalism and loyalty to the company can be very thin."

The interviews also revealed that early-career accountants tend to feel less confident in situations requiring ethical resistance toward superiors, whereas more experienced professionals more often cited ethical standards and professional guidelines as grounds for refusing unethical instructions. This highlights the importance of ethics training and the need to foster a culture of compliance and accountability within organizations.

The overall conclusion from this block is that financial transparency is not merely a technical issue it requires an integrated approach that includes information systems, organizational culture, and the personal integrity of accountants. According to respondents, the strong role of professional ethics and independence can significantly reduce the space for abuse provided it is supported by management and the institutional environment.

The second thematic block of the interviews focused on the role of digital technologies in accounting practice. Respondents were asked about the extent of digital tool implementation (e.g., e-invoicing, ERP systems, cloud platforms), their impact on financial transparency, and the risks associated with digital data processing. The objective was to determine to what extent digitalization supports accounting in combating fraud and corruption, and what challenges professionals face during implementation.

Most respondents confirmed that the digitalization of accounting processes has significantly improved efficiency and accuracy in record-keeping and has simplified internal control procedures. Emphasis was placed

on the automation of routine processes (e.g., settlements, reporting), which reduces human error and increases the speed of analysis. As one auditor noted:

"Five years ago, reconciling data from multiple sources took us hours. Now the system does it in seconds, which significantly reduces the room for manipulation."

At the same time, respondents agreed that digitalization does not eliminate the problem of fraud it simply moves it to another level. Several accountants pointed out that advanced IT systems can also be exploited by individuals with malicious intent, for example by falsifying source data, bypassing safeguards, or exploiting so called "system loopholes." One participant observed:

"Dishonesty hasn't disappeared it just changed tools. Now the fraudster doesn't forge paper documents but enters fictitious data into the system."

The most frequently cited challenges included poor-quality implementation and insufficient employee training. Respondents consistently argued that in many organizations, digitalization has been approached as a technical obligation rather than as part of a comprehensive transformation of information governance culture. They also stressed the need for close cooperation between IT, controlling, and accounting departments in the design and oversight of these systems.

Digitalization is therefore a necessary condition for increasing transparency but not a sufficient one. Its effectiveness depends on the parallel implementation of security standards, control procedures, and training in professional ethics and accountability. Practitioners view technology as an essential support tool, but not a "magic solution" only its conscious and integrated application can truly reduce the scale of irregularities.

The third block of interviews focused on practices related to internal and external control, financial auditing, and mechanisms for fraud prevention. The goal was to gather the views of accountants and auditors on the effectiveness of current control tools and their ability to detect and prevent actions that violate law or ethics. Interviewees shared experiences from both their daily operational work and institutional-level audits.

Respondents unanimously emphasized that the effectiveness of internal control systems largely depends on the attitude of management and the degree of independence of accounting and auditing departments. In companies where the management supports a culture of honesty and transparency, control procedures function effectively and allow irregularities to be detected as early as the transaction planning stage. In other organizations, however, control systems are sometimes only superficial existing on paper but ignored in practice. As one auditor observed:

"Having an internal control policy isn't enough you have to actually want to use it. Without support from the top, an audit becomes a formality."

Many respondents identified the most common areas of abuse as: undisclosed liabilities, fictitious external service costs, cash transactions, and unjustified dealings with related parties. In such cases, external audits proved effective especially when conducted by independent entities with full access to source data. However, accountants also noted that external audits are often superficial, particularly in organizations with low transparency or limited control budgets.

It was also emphasized that audits internal or external are not sufficient if not accompanied by personal accountability and the ability to sanction misconduct. Some respondents highlighted the importance of implementing whistleblower mechanisms and professional codes of ethics as essential elements strengthening the prevention system. As one accountant stated:

"A well-designed control system is one thing, but the most important factor is whether someone has the courage to say 'no' and knows they won't be punished for it."

The study also reveals the growing role of data-driven auditing, which uses analytical tools, predictive models, and automatic alerts to detect anomalies. Respondents from larger organizations emphasized that such approaches enable faster detection of irregularities than traditional periodic controls. However, it was noted that smaller entities often lack access to advanced tools and must rely on manual procedures.

In the final thematic block of the interviews, respondents were asked to evaluate the role of modern technologies particularly blockchain, artificial intelligence (AI), and big data in shaping the future of accounting and in combatting the shadow economy. Participants were also invited to reflect on the skills they believe will be essential for accountants and auditors over the coming decade. The conversations revealed both enthusiasm and caution regarding the transformative potential of these technologies.

Some respondents reported familiarity with blockchain mainly at a general level as a decentralized data-recording system while only a few had direct professional experience with it. Nonetheless, its potential to ensure data immutability and full transaction transparency was widely recognized, especially in organizations with complex ownership structures or international operations. One auditor noted:

"Blockchain offers a chance to eliminate fraud at the data-entry level. The problem is that, for now, it's just theory implementation would require massive systemic changes."

Much more frequently, practitioners emphasized the growing role of automation and AI in the analysis of accounting data, particularly in detecting anomalies and modeling risk. Applications cited included monitoring expenses, evaluating the reliability of contractors, flagging irregular payments, and predicting accounting risks. According to the respondents, AI serves as an effective support tool but does not replace professional judgment it requires new skills in data analysis and understanding of algorithms.

Experienced professionals noted that the greatest challenge for future accountants will not be the tools themselves, but rather the ability to critically interpret system-generated data and to resist the pressure of automated decision-making. They also emphasized the need to develop soft skills especially ethical and communication competencies as key elements reinforcing the accountant's role as a guardian of transparency. As one respondent put it:

"Machines can do the counting. We're here to understand what the data means and to have the courage to speak up if something isn't right."

In conclusion, this block shows that technology alone is not a solution to the shadow economy or corruption; rather, it is a powerful tool that can support accounting processes. Respondents agreed that effective use of such tools requires not only the deployment of appropriate systems, but also legal adaptation, a shift in professional education, and a redefinition of the accountant's role as an active participant in risk management rather than a mere recorder of events.

The findings from the 15 semi-structured interviews conducted with 10 accountants and 5 auditors indicate that practitioners view accounting not only as a reporting function but also as a key preventive mechanism in the fight against the shadow economy and financial misconduct. Respondents confirmed that ethical challenges and managerial pressure are a frequent part of their work, particularly in the context of ambiguous regulations and expectations to "adjust" financial information.

Digitalization is perceived as an important step toward greater transparency, but its effectiveness depends on the quality of implementation, team competence, and integration with an ethical organizational culture. Internal controls and auditing are considered effective tools as long as they are accompanied by true independence and supported by management.

In the area of emerging technologies, respondents identified the great potential of blockchain and AI in risk identification and fraud prevention. However, they also emphasized that the future of accounting will depend not only on technology, but also on the development of analytical, ethical, and communication competencies so that accountants can actively uphold the integrity and transparency of financial information.

Conclusions

The era of digital transformation continues to challenge all aspects of business. It enables companies to use technologies such as digital payments, the Internet of Things, robotics, and artificial intelligence. At the same time, it also brings new risks of economic crime, regulatory evasion, and unethical practices. In this context,

accounting is no longer a passive record-keeping system it is increasingly becoming a central instrument in ensuring financial transparency, organizational accountability, and the detection of irregularities.

The central hypothesis of this study that improving accounting and auditing practices, supported by modern technologies, contributes to reducing corruption and the shadow economy has been broadly verified through both theoretical and empirical analysis. Bibliometric and conceptual insights have shown the growing integration of accounting with anti-corruption mechanisms, while qualitative interviews with 10 accountants and 5 auditors confirmed that practitioners recognize accounting as a key preventive tool. Respondents emphasized that digitalization, when combined with professional ethics and organizational support, can significantly enhance transparency and reduce the opportunity for manipulation. Artificial intelligence was seen as a strong analytical aid in detecting anomalies, while blockchain was valued for its promise in ensuring data immutability and traceability, albeit still underutilized in practice.

Importantly, the study revealed that technology alone is not sufficient. The effectiveness of anti-corruption measures in accounting depends on a complex interplay of factors: the design and implementation of digital tools, the competence and ethical sensitivity of professionals, and the organizational culture in which they operate. Interviews highlighted common barriers such as ambiguous legal frameworks, poor-quality digital implementations, and managerial pressure to distort information. As one respondent noted, "Transparency requires not only systems, but also courage and institutional protection to act ethically."

This article contributes to the academic literature by presenting the unique perspective of accounting practitioners like accountants and auditors in the context of dynamic digital transformation and the growing challenges related to combating the shadow economy and financial misconduct. By integrating theoretical insights with empirical observations from the professional field, the study offers a deeper understanding of the organizational conditions, competencies, and tools necessary for accounting to effectively serve a preventive function in the realities of the modern digital economy.

While the findings support the hypothesis, the study is not without limitations. First, the empirical component was limited to 15 professionals in Poland, which may affect generalizability to other national contexts or regulatory environments. Second, the data collection relied solely on self-reported perceptions through interviews, which may be subject to bias, memory errors, or social desirability effects. Given these limitations, several future research directions are recommended comparative studies across countries or regions to assess how regulatory environments and cultural factors shape the role of accounting in anti-corruption efforts.

In conclusion, accounting should be recognized not only as a technical function but as a strategic mechanism of risk governance. The findings of this study suggest that the future of accounting lies in the integration of digital innovation with ethical responsibility, and that professionals in this field must evolve into data interpreters, risk managers, and transparency advocates. Building strong institutional frameworks that support ethical behavior, protect whistleblowers, and encourage cross-functional collaboration will be crucial to harnessing the full potential of accounting in the fight against the shadow economy and corruption.

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