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ORIGINAL CONTRIBUTION

Corporate Accounting and Reporting in the Era of Digital Transformation: Innovations and Prospects

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Abstract— The digital transformation of business processes has significantly impacted on corporate accounting and financial reporting. The present paper explores the usage of digital technologies: Artificial Intelligence (AI), Blockchain and Enterprise Resource Planning (ERP) systems, in the accounting departments of medium and large companies. The study assesses these tools in terms of their impact on the accuracy of reporting and uncovers the challenges associated with their implementation. A mixed methods approach, using structured surveys and semi-structured interviews, was adopted. The sample consisted of 42 medium-to-large-sized Ukrainian enterprises, mainly from manufacturing and financial sectors, that responded to surveys filled out by their CFOs and accounting department heads, as well as interviews with the accounting managers of ten of these companies. Descriptive test statistics and paired-sample t-tests were used to analyse quantitative data, and thematic coding was used to analyse qualitative data. This holistic approach included measurable efficiencies and the organizational and behavioural factors influencing digital adoption. The findings suggest that process optimization and reducing errors are beneficial, especially in companies that are implementing automation and AI-driven solutions. Yet, there are still several implementation challenges, such as high implementation costs, inadequate regulations, and a shortage of skilled personnel. The results of this research reveal how digital technologies have changed accounting practice and provide direction for future research.

Index Terms— Corporate accounting, Digital transformation, Artificial intelligence, Blockchain, ERP systems, Reporting automation

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Introduction

Recent developments in digital technologies have significantly influenced the ways businesses manage financial processes and prepare financial reports. Traditional methods of processing and analysing financial data are gradually changing due to various tools such as artificial intelligence,

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routine processes automation, or modern enterprise management programs (Laraichi & Radouani, 2024). They significantly alleviate the working of accountants and financiers every day, as well as contribute to the companies' reporting transparency. Artificial intelligence and blockchain solutions are essential in the field of financial transaction as they promote control, transparency, and traceability (Naumenkova et al., 2023). Sopronenkov et al. (2023) emphasise on the interaction of digital tools with tax policy and the influence on the business development. They also indicate that the traditional accounting standards are no longer necessarily always relevant to the facts of swift technological shift (Bozkurt & varvává, 2022). Artificial intelligence has a unique contribution towards transformation of accounting reporting. According to Hasan (2022), AI enables the automation of accounting and auditing procedures, which not only saves time but also improves accuracy.

Even though a growing number of companies are adopting these innovations, their actual effectiveness and the specific transformations they bring to financial strategies have not yet been fully recognized. Most of the available studies are theoretical or case-specific, which leaves a gap in the knowledge of the general trends across industries.

Thus, the main objective of this article is to explore the impact digital transformation technologies have on the efficiency and accuracy of corporate accounting and reporting in medium and large sized companies. Accordingly, the study addresses the following research questions:

(1) What is the adoption rate of these digital technologies in accounting?

(2) What is the impact of these digital technologies on accounting?

(3) What are the internal elements that affect the successful use of digital accounting tools, including digital readiness, employee competence and management support? What external factors impact on the effective use of digital accounting technologies?

The Technology-Organization-Environment (TOE) framework is used in this study. It describes the technology adoption process as the one that influences such interacting areas of the organization as capacity to adopt technology, technological preparedness, and environmental compulsion. This framework allows the introduction, integration, and use of the digital accounting tools to be interpreted within companies through the prism of both internal and external factors. In addition, the model provides a systematic framework that can be efficiently used to evaluate the main drivers and outcomes of digital transformation in various accounting procedures.

Based on the two dimensions mentioned above, three hypotheses were established:

H1: Digital technologies have a significant impact on the efficiency of the accounting process

H2: Digital technologies help to minimize the risk of errors in the reporting process

H3: There are significant barriers to implementation arising from various environmental factors, such as costs, skills shortages, and regulatory gaps.

The structure of the paper is as follows: the literature review, methodology, results, discussion, and conclusion.

The study is particularly relevant to Ukraine, where post-war reconstruction and alignment with EU standards require not only economic resilience but also modern financial governance systems. Digital accounting tools will be a part and parcel of the country in the quest to promote transparency, attract international investments, and regulatory convergence. Moreover, the increase of the significance of ESG reporting and the pressure from international donors require improved automation and accountability. The study is based on the TOE framework to examine the effect of digital transition on the accounting results for further developing a conceptual model to work with transitional economics, such as Ukraine, where both processes of digital modernization of the economy and institutional adaptation co-exist. Consequently, the research is expected to contribute to the existing body of academic knowledge and offer useful suggestions to decision-makers and practitioners operating in the context of digital transformation in transitional economies.

This study makes three original contributions. First, it is among the first studies to apply the TOE framework to the context of a transitional economy, demonstrating that environmental limits (regulation, costs, and skills) outweighed technological and organisational considerations in explaining digital. The findings did not highlight the adoption outcome, which was not addressed in studies from rich economies. Second, it employs a mixed-methods design that combines quantitative performance metrics with qualitative insights into implementation difficulties, resulting in a more comprehensive analysis. Research that incorporates multiple methods within single method research. Third, it facilitates the identification of potential synergies, mainly in the product trade, which establishes a significant dimension of economic interaction. The integration of technologies, such as artificial intelligence and blockchain into commodity trading, are consequently crucial to study. By enhancing data integrity, transparency, and decision-making processes, these technologies trial traditional methods to digital revolution. An effective transformation of accounting and financial management can be attained through the operative integration of such digital tools.

Literature Review

The digital revolution has transformed the way businesses approach accounting and financial reporting in recent years. The use of smart data, cloud computing and automation technologies has altered the way companies manage their financial operations. According to Kwilinski et al. (2024) these technologies provide more transparent, accessible, real-time, and error-free financial information, which helps organizations make informed decisions. This conclusion is consistent with previous research. Ukrainian businesses with limited resources appreciate the use of digital tools in everyday business processes, as well as in financial reporting (Kudlaieva et al., 2027). Digital innovations, such as cloud technologies, artificial intelligence, blockchain, Big Data, and IoT, have transformed corporate accounting and reporting by automating processes, enhancing

transparency and accuracy of financial reporting, minimizing risks, and making finance data more strategic for making managerial decisions (Ievsieieva et al., 2024; Kurmangaziyeva et al., 2022; Shyra et al., 2020). Automatizing even minor tasks can have a great effect in emerging economies.

The accounting profession is now experiencing both technological and procedural transformationst. As observed by Julius (2024), the digital revolution is challenging traditional accounting norms and prompting the reevaluation of established practices. In addition to technological advancements, Sabuncu (2022) highlights changing professional requirements and the restructuring of accounting units to adapt to these developments. While there are noticeable developments in the digital accounting scene, there are still major differences between countries. In industrial countries such as Germany, the UK, and Estonia, digital accounting is already a valued and part of government policy and law.

Rather than implementing digital technologies from scratch, businesses can integrate them into existing management and regulatory systems. Ukraine is following a similar trajectory, although at a different pace. Reforms are programs on a large-scale statewide. There are, however, a number of bottlenecks: Some places, however, still have a lack of up-to-date digital expertise, unclear rules and regulations, and weak technical bases. When it comes to digital standards, businesses may need to get creative. Since the early 2000s, Estonia has been regularly recognized as being a leader in implementing digital solutions in industry and the state. Estonians not only took up modern technology but also adapted it to everyday use. The adoption of the XBRL reporting format has simplified and increased the transparency of document filing for enterprises and regulatory authorities.

Organisations that successfully combine cloud-based solutions with local technology and ERP are driving the move towards digital accounting processes, as reported by Januszewski and Buchalska-Sugajska (2023). Their report reveals that Europe is moving towards an accounting digitalization. AI based tools and ERP solutions are being adopted by more organisations in Germany for financial management (González Vallejo, 2025). Digitalisation is not just a trend; it is an instrument for everyday working. This means a higher level of innovation in accounting practice. The German Federal Office for Information Security (BSI) provides financial software security recommendations, which help boost the confidence in and uptake of financial software. Medium and large German companies that use RPA solutions for accounting automation have over 80% of their automated accounting operations, freeing up accountants for more strategic duties (Ghosh, 2025; Makani, 2022).

Ukraine's development in digital accounting is not as coordinated. There are some larger organisations, particularly in the banking and logistics sectors, that have adopted ERP software (e.g., SAP, BAS and similar systems). They also have begun digitizing their processes with cloud-based applications (e.g., M.E. Doc), but overall, digital transformation remains incomplete. According to Tenyukh et al. (2022), only 43.4% of the accounting procedures in Ukraine were fully digitalized, and most SMEs still use basic accounting tools like Excel spreadsheet. Few companies use Electronic Document Management Systems (EDMS) Romaniv and Vasyliuk (2023) and less than 10% have implemented secure communication tools such as secure chat or secure consultation (Romaniv & Vasyliuk, 2023).This situation reflects both technological and institutional challenges. Digital reporting rules are widely used in EU countries and digital accounting laws exist in Ukraine, but the regulatory framework remains fragmented. The National Bank of Ukraine and the Ministry of Finance have started testing the digital filing of taxes and automated auditing, but this is not prevalent and does not have enforcement. There is no universal approach to comparing Ukrainian accounting practices with the European practices, including the digital accounting taxonomies such as XBRL or IFRS based tags. According to the results of the study carried out by the National Institute for Strategic Studies (2025) in Ukraine, the conditions for using information technologies in accounting are uneven because the state does not have integrated digital reporting standards, and the process of innovation in accounting is pilot-based with insufficient possibilities for its enforcement.

One of the main challenges for Ukraine is the low level of digital preparedness of the workforce. German and Estonian accountants are continuously trained in AI, cybersecurity and RegTech. Most Ukrainian accounting programs focus on traditional accounting practices and professionals tend to be less experienced with data visualization tools such as Power BI, Tableau, and AI-assisted audit software. There are also specialised opportunities in Ukraine as well, which are undermined by the skills gap and delay the implementation of innovation (Artene & Domil, 2024; Cordos Labaditis et al., 2023). Fintech companies are leveraging AI to combat fraud and blockchain to keep track of transactions. This experience, although not officially supported, demonstrates the possibilities for leapfrogging towards digital maturity.

Further, the modernisation of financial reporting and transparency is encouraged by Ukraine's EU candidate status and reconstruction after the war. According to Sokolenko (2019), the primary way to modernize the Ukrainian economy is to institutionalize the digital infrastructure. While pilot projects are developing in both FinTech and RegTech, there is a need for public-private policies to be integrated to support digital transformation.

Good examples of global best practice can be found in the Netherlands, where the government and industry work together on digital standardisation. Dutch government bodies and businesses have agreed on digital audit trails and real-time reporting via collaborative working groups. The level of coordination between the government and business in Ukraine's digital transformation strategy is not high enough, which makes it difficult to effectively implement the reform. By digitizing finance and accounting, Lulaj et al. (2024) suggest that organization can achieve better operational efficiency and sustainability objectives. Their study further suggests that greater collaboration between the government and industry, particularly through financial incentives, the more likely adoption will be.

Digital accounting is widely adopted worldwide; however, the Ukrainian experience remains distinct. Unlike industrial countries, Ukraine faces not only the problem of disorganised regulation, but also the outdated technology and lack of digital skills of specialists. The experience of

Estonia, Germany, and the Netherlands show the importance of integrated reporting standards, E-LI, cooperation between the government and businesses and enabling law. Adopted in those countries, these are effective practical ways of maintaining transparency and accountability in the financial sector. These examples provide Ukraine with guidance on the gradual use of methods used in Europe. The analysis is comparable with foreign experience and makes it relevant to examine the state of digital accounting in Ukraine and plan future policy and institutional changes.

For an effective consumer behaviour tracking, Karkošková (2022) argues that financial institutions need to make their reporting systems more suitable for digital environments. This recommendation is also applicable to the Ukraine context. The research by Stender et al. (2024) and Yehorycheva et al. (2022) shows that digital tools and data models are increasingly becoming part of the economy. The authors stress on solutions that are flexible, scalable, sustainable and EU compliant. At this moment, though, there are no clear ways to objectively measure the effect of digital developments on corporate reporting. Consequently, it is essential to move from paper-based to a cloud-based solutions. The effectiveness of cloud technologies has been noted in the acceleration and enhancement of the reporting process, which is particularly important in the context of economic instability when timely and rational decisions need to be made (Muliarevych, 2023; Pashakhodjaeva & Abdujalilov, 2025; Spilnyk et al., 2023). Automation technologies, especially RPA Kokina and Davenport (2017) are changing the way auditing is done, allowing data to be consolidated, budgets to be responded to instantly, and adherence to standards to be met. Moffitt et al. (2018) concur that RPA can be applied in practical auditing.

Another important factor is transparency in AI decision-making (Orazbayev et al., 2017). Explainable AI (XAI) is crucial for building trust in accounting systems, where precision and compliance are crucial. Researchers such as Moll and Yigitbasioglu (2019) have suggested that AI systems should be functional, interpretable, manageable, and rule consistent. Although some problems have been resolved, many challenges remain, particularly for SMEs. As mentioned by Sopronenkov et al. (2023) and Naumenkova et al. (2023), the smaller businesses might not have enough cash to invest in digital technologies and face the regulatory complexity. Digital accounting software designed for small businesses need to be easily adaptable and cost-effective. A fast-changing accounting world, as suggested in the literature, has an effect on the financial resource management and reporting process in which digital technologies are playing a role.

The future of digital accounting appears promising; however, significant structural challenges remain. This article aims to address this gap by assessing the role of innovation in the accounting processes from a pragmatic perspective. The three pillars of flexibility, efficiency, and sustainability are adopted to evaluate the impact of innovation on accounting processes from a pragmatic perspective. Digital transformation is not just about adopting new tools or systems; it's about changing the way organizations think about accountability and audit in the digital era, as Argento et al. (2025) describe.

The organizational context was assessed through management support, employee training, and organizational culture towards change. The environment was depicted shifts in regulatory expectations, competition, and external influences. Regulatory expectations, competition, and external shifts. support mechanisms. Within this framework, it was possible to develop three hypotheses: proposed: H1 (digital technologies facilitate accounting efficiency), and based on technological gain), and H3 (digital technologies).H2 (digital technologies – based on technological advantage), H3 (digital technologies). minimize reporting inaccuracies based on capacity of the organization, and H3 (implementing is hindered by environmental constraints) The factors are (e.g. cost, skill, rules). These hypotheses are to be verified under mixed-method design, described below.

Methodology

The study investigates the digital transformation of corporate accounting and reporting practices are investigated in the study. The study implemented a mixed-methods approach that combined quantitative data and statistical analysis with qualitative interviews and observational data. This methodological combination enabled both the measurement of outcomes and the investigation of the behavioural and managerial drivers underlying the adoption of digital technologies in accounting.

The research was based on the data collected from 42 large and medium-sized companies in Ukraine, mostly manufacturing and financial ones. The number of included firms (42) is relatively small, but is suitable for the exploratory mixed-methods approach to the study, in this case conducted in the context of a transitional economy, and in the times of geopolitical instability in which data collection was conducted. Complements the quantitative limitations with complementary depth from the qualitative component using 10 in-depth interviews. The sampling was accomplished using purposive and stratified criteria to guarantee representativeness of organization size and digital level of maturity and sector. The research participants (companies selected from the national business registry) were recruited through social media (LinkedIn), direct email invitations, and professional associations. One of the top inclusion criteria was the use of at least one digital accounting or reporting system within the previous 5 years. These companies were chosen to give a representative sample of companies that are actively using digital accounting technologies. The sample was chosen in a way that it was diverse on the basis of size, industry and depth of technological integration in order to increase validity of cross-sectional comparisons.

The questionnaire was developed through a multi-stage procedure. The first 35 questions based on the TOE model and the past studies of accounting digitalization. They were clustered under the following categories like the technological readiness, company support, culture, and training, and environmental pressures, like competition and regulations (Table I). A Likert scale of five points was carried out. Furthermore,

content validity was established through expert reviews, and the Cronbach's alpha was used to assess the reliability of the instrument. The overall Cronbach's alpha for the survey instrument was 0.87, The internal consistency was good (indicating). Subscale reliabilities were as follows:

- technological context (α = 0.84)
- organizational context (α = 0.81)
- environmental context (α = 0.79)

Table I
Main survey items

TOE Domain	Construct
Technological	Usefulness, use, integration
Organizational	Management support, training, culture
Environmental	Competition, regulatory pressure, external support

Source: processed data

To collect the data, a mixture of semi-structured and structured methods was used. The CFOs and heads of the accounting departments were sent a questionnaire to determine the extent of technology adoption, perceived efficiency benefits, and barriers to implementation. The questionnaire was pre-tested with five accounting professionals who were not part of the final sample. Based on their feedback, these changes were made to the items: three items were reworded for clarity, and two items were eliminated. due to redundancy. A survey was sent to 78 participants fully completed in one form and with a response rate of 53.8%. Early non-response was also evaluated by comparing with non-respondents on important firm characteristics (e.g., size and industry); and there were no significant differences ($p > 0.05$) between any comparisons. Also, 10 accounting managers were interviewed using semi-structured interviews to provide qualitative data on the impact of organisational change, staff adjustment, and the outcomes of transparency. The interview questions (Table II) were based on the key areas of coding that represent the TOE domains. Three coders independently analysed all transcripts. Inter-coder reliability was assessed using Cohen's kappa, yielding an average $\kappa = 0.84$ (range: 0.79 to 0.89), indicating strong agreement. Thematic saturation was achieved after eight interviews, with the remaining two interviews confirming that no new themes emerged.

Table II
Coding themes

Theme	Code
Technological indicators	Data integration issues, system reliability, automation
Organizational indicators	Change-related resistance, leadership commitment, employee skills
Environmental indicators	Modernization pressure, regulatory adaptation, expectations of investors

Source: processed data

An additional comparison of publicly traded financial reports was taken to monitor the level of error in reporting prior to and after the integration of digital technologies.

The quantitative data collected from the questionnaires and document analysis were analysed with the help of descriptive statistics and paired-sample t-tests in SPSS to compare the differences in the performance indicators. Questionnaire structure validation was made possible through the use of a factor analysis. Thematic coding in NVivo was used to analyse qualitative interviews data, where the patterns were able to be identified with respect to the technology-driven alterations in the reporting workflows. Before performing the paired-sample t-tests, the following was done, assumptions were checked: normality of differences (Shapiro-Wilk). The absence of outliers was checked visually (no test), and the absence of extreme values was checked using the Grubbs test ($p > 0.05$) for all variables. The data are checked for normality (using boxplots), and independence of observations.

The case study of Ukraine was purposively selected because the country has undergone a complex transition towards the standards of a digital economy under the conditions of geopolitical and institutional difficulties. The chosen sample is a fair representation of the general digital maturity rates of enterprises in Eastern Europe, which makes it possible to generalize the results with a lack of certainty to other post-Soviet or developing economies. It is also the method to establish the basis of future comparative study in various institutional settings.

The purpose of the study was provided to all the participants, and the written consent was secured prior to data collection. To maintain confidentiality, the responses to the questionnaires and transcripts of the interviews were anonymized and the identifiable information was omitted during the analysis. The information was protected and was utilized in research only. The research was written in accordance with the ethical standards that were relevant to the institutional guidelines and those of the Declaration of Helsinki.

Results

The survey of 42 medium and large businesses in Ukraine revealed a diverse picture of the use of digital technologies. The most widely adopted systems were Enterprise Resource Planning (ERP) systems (e.g., SAP and Microsoft Dynamics) with 64.3% of respondents using it. Those powered by AI analytics tools, such as Power BI and Tableau with Machine Learning (ML) plug-ins were adopted in 45.2% of companies. Robotic Process Automation (RPA) systems were used in 38.1% of organizations and 33.3% of organizations used cloud-based accounting systems. The AI assisted auditing tools were lagging behind with only 21.4% adoption. The adoption rates for core accounting automation tools are presented in Table III.

Table III
Adoption and impact of core accounting automation tools

Technology	Adoption Rate
ERP systems (e.g., SAP, Microsoft Dynamics)	64.3%
AI-based analytics (e.g., Power BI, Tableau with ML add-ons)	45.2%
Robotic Process Automation (RPA)	38.1%
Cloud-based accounting platforms	33.3%
AI-assisted auditing tools	21.4%

Source: processed data

Blockchain adoption among Ukrainian businesses remains low (9.5%), but its potential to transform accounting is significant. According to Moll and Yigitbasioglu (2019), blockchain facilitates tamper-proof and real-time financial reporting, thereby enhancing transparency and efficiency in auditing. Barriers to adoption in Ukraine include, but are not limited to expensive prices, technical complexity, and ambiguous regulations. Similar obstacles were observed in the banking sector, and more research dedicated to these problems in the emerging markets is needed. The role of blockchain to enhance accountability by generating decentralized and transparent records. Nevertheless, digital resistance is still a challenge to overcome culture-wise. Promoting the use of blockchain among Ukrainian accountants may open the perspectives of real-time reporting, which makes the study of the change management strategy even more significant.

Such observations are consistent with the findings of Dospinescu and Buraga (2025), who reported an increasing trend in the accounting field, which involves an ERP and AI integration in Central and Eastern Europe. Similarly, Shahin (2025) reported comparable adoption trends in mid-sized firms in India, where the emphasis is on Robotics Process Automation (RPA) and analytics, and not on the use of advanced AI auditing tools. The comparative low usage of AI-assisted audit in Ukraine can be explained by the complexity, high cost, or incomprehensible regulations, which other upcoming markets are also currently experiencing (Bachev, 2022).

The Key Performance Indicators (KPIs) as the measure of the effects of AI-driven tools before and after implementation were used in the paper. Significant improvements were observed in statistical analysis using SPSS in Table IV:

- Monthly reporting time decreased from an average of 12.3 days to 9.9 days, a 19.5% reduction ($t(41) = 4.72$, $p < 0.01$, 95% CI [1.6, 3.2]).
- Financial reporting error rates dropped from 6.2% to 4.8%, a 22.6% improvement ($t(41) = 3.89$, $p < 0.01$, 95% CI [0.9%, 1.9%]).
- Data reconciliation time (in firms using RPA) decreased by 40.2%, from 10.2 hours per week to 6.1 hours ($t(15) = 5.14$, $p < 0.001$, 95% CI [2.8, 5.4]).

Table IV
Impact of digital technologies on key accounting metrics

Metric	Before Implementation	After Implementation	Change (%)
Reporting Time (days)	12.3	9.9	-19.5%
Error Rate (%)	6.2%	4.8%	-22.6%
Reconciliation Time (hours/week)	10.2	6.1	-40.2%

In addition to the quantitative findings, a synthesis of the survey responses and the literature findings allowed for the identification of the core tools currently shaping accounting practices in Ukraine. These tools not only improved efficiency but also reflected the strategic shift towards data-driven and automated processes in finance departments. Table V summarizes these core accounting automation tools and their respective impacts.

Table V
Core accounting automation tools and their impact

Tool	Function	Impact
BAS, SAP, QuickBooks	Automated accounting and reporting	Reduces manual input, error rate, and saves time
EDMS (e.g., M.E.Doc)	Digital document processing and storage	Improves workflow efficiency and document security
AI-powered analytics	Data analysis, anomaly detection, forecasting	Enhances accuracy and supports strategic decisions
Cloud platforms	Remote access to accounting systems	Enables real-time work and reduces infrastructure costs
Mobile apps	Access to financial data on the go	Increases flexibility and decision-making speed
Blockchain	Secure transaction logging	Boosts transparency and fraud resistance

Author's synthesis from literature and interviews

These findings provide a better understanding of the way enterprises use digital tools and the value they perceived from them. For example, although traditional ERP solutions, such as BAS and SAP, are still considered as their basis, the recent technologies, such as AI and blockchain are becoming increasingly popular with the prospects of scalability and high functionality.

The interviewees particularly pointed to the idea that AI could detect irregularities and providing real-time insights into the finances of the company, which is congruent with the recent studies.

These findings align with Kommineni and Baseer (2024), who also found that neural network-based anomaly detection systems reduced error rates by the same amount. The advantages of predictive automation in tax administration and inventory management were also emphasized by Chakraborty et al. (2026), particularly regarding time savings. The large improvement in the time of the reconciliation testified to the efficiency of RPA in the automation of routine processes, which enabled accountants to work on more valuable activities (Harianto, 2025; Jesus, 2024).

Besides determining which tools were most frequently used by enterprises, the research also focused on the phenomenon of synergy of digital technologies. According to Table VI, certain combinations of technologies were much more effective for achieving specific accounting objectives.

Table VI
Synergistic impact of combined technologies on financial reporting

№	Accounting Task	Cloud Tech	AI	Big Data	Blockchain
1	Accuracy and efficiency in bookkeeping	–	+	–	–
2	Internal management control systems	–	–	+	–
3	Transparency of accounting	–	+	–	+
4	Quality of financial information	–	+	+	+
5	Fraud prevention	–	–	–	+
6	Processing large datasets	+	–	–	–
7	Data integrity	+	+	+	+
8	Automation of accounting procedures	+	+	–	+
9	Simplified taxation	–	–	–	+
10	Continuous audit	–	+	+	–
11	Tax evasion monitoring	–	–	–	+
12	Efficient inventory management	+	–	–	–
13	Fast data processing	+	–	+	+

Author's systematization

The matrix indicates that no single technology is universally applicable across all accounting tasks. Rather, such combinations as AI + Blockchain, or Cloud + Big Data combine much stronger possibilities of addressing the complex accounting issues. For example, the maximum data integrity is attained when all the four technologies are implemented simultaneously. Concurrently, only under the condition of AI and Big Data systems, automated auditing is the most efficient one.

Blockchain is particularly relevant in Ukraine, where it plays an increasingly important role in enhancing transparency, reduce fraud, and ensure payment of taxes within the framework of changing regulatory demands. AI improves the quality of data and automates routine work, whereas cloud technologies increase speed, accessibility, and business continuity. Al-Okaily (2024) emphasize the role of blockchain in the banking sector to have transparent transactions and comply with regulatory requirements. An integrated ecosystem combining AI, blockchain, and cloud solutions that are unique to each company is the most appropriate way to achieve digital transformation in accounting as Kurniawan et al. (2025) claim to enhance the integrity of financial reporting. It has been proven that the combination of digital tools with ongoing staff training and the

acceptance of AI outputs by the regulations is the most powerful in Poland Januszewski and Buchalska-Sugajska (2023) and Jordan (Al-Okaily, 2024). Sectoral differences in technology adoption are illustrated in Table VII.

Table VII
Adoption of digital technologies by sector (% of respondents)

Technology	Finance	Manufacturing	Logistics
ERP systems	81%	66%	55%
AI-based analytics	62%	41%	47%
Robotic Process Automation	54%	38%	59%
Cloud accounting platforms	47%	30%	43%
Blockchain technologies	11%	7%	13%

Survey conducted by the author (2025)

There are sectoral disparities in the use of digital technologies. The financial industry is the sector where ERP systems and AI-based analytics are most widely adopted (81 and 62%, respectively). Manufacturing has a high level of ERP utilization (66) and low AI (41) and cloud tools (30) usage. Logistics lags slightly in the area of ERP adoption (55%), and in the area of RPA shows a more favourable use adoption rate (59%), probably because of the monotony and complexity of workflows, including inventory monitoring and supply chains.

These findings were supported by the interviewees. One logistics accounting manager wrote: ”We do automate all we can - invoices, balances in the warehouse. Three additional days would be added to our monthly close without RPA.

Across all sectors, blockchain technology remained marginally adopted, primarily because of the complexity of implementation, cost, and the lack of clear legal recognition. Nevertheless, logistics companies were comparatively freer to explore blockchain (13%), especially supply chain transparency.

Such findings highlight the role of sector-specific policies in the digitalization policy. Some are universal (e.g. ERP), others, like AI or RPA, must be placed in the first line depending on the specifics of the operations of each industry.

Although the active process of promoting the digital technologies in the financial systems of the world, there are still major difficulties in the digitalization of the Ukrainian accounting sector. Tenyukh et al. (2022) state that the total degree of digitalization of Ukrainian accounting practice was just 43.4% as of 2022. Enterprise automation remains low, as many businesses continue to use spreadsheet programs, including Microsoft Excel.

The survey findings indicate that there are different levels of digital technology integration of the accounting functions in medium- and large-sized Ukrainian enterprises. Although filing reports and paying is a highly digitized process (100% and 76% respectively) as revealed in Table VIII, other functions, such as communication through digital mediums are underutilized.

To gain a better understanding of the combined advantages of emerging digital tools, we examined how the integration of technologies can affect the efficiency of reporting financial issues. The next matrix shows the synergistic effect of the key technologies in case they are combined. The level of digitalization across key accounting activities is shown in Table VIII.

Table VIII
Level of digitalization across key accounting activities (% of enterprises)

Accounting Activity	Digitalization Level (%)
Filing reports	100
Execution of payments	76
Maintaining Excel spreadsheets	64
Digital data exchange with contractors	20
Use of scanned documents	22
Electronic document management (EDM)	13
Communications (chats, blogs, consultations)	9

(Tenyukh et al., 2022)

These findings indicate that although the core compliance-related processes, including reporting and payments are well-supported by digital technologies, there is still a delay in the analytical and communication processes. The fact that Excel is still being used, also shows that they have not fully automated. Interestingly enough, the usage of communication and document management tools, notwithstanding the apparent advantages, is surprisingly low. Their standard would be expected by now but the situation is not the same. The results suggest that noteworthy investment in digital infrastructure, accompanied by extensive staff training and organizational adaptation, remains necessary. In the absence of these measures, comprehensive digital transformation is likely to stagnate and yield only limited benefits. These issues are not isolated but rather represent systemic challenges embedded within organizations. The major obstacles can be divided into three groups as per a summary of

the previous studies. It is close to a trip through a complex labyrinth, one step leads to another and each step is not easy, and it is most often frustrating.

Institutional constraints

Government influence, along with regulatory loopholes, significantly slows the digital transformation. The laws of digitalization in Ukraine resembles a patchwork quilt of incongruent pieces: the laws are present, of course, but they tend to be contrary to each other or ambiguous enough to be interpreted in one way or another. Furthermore, accounting tradition in Ukraine is vastly different as compared to the international standards, resulting in doubts that might turn into the unwillingness to adopt the new digital technologies. This is not about a checklist but a logical national policy that brings the local frameworks into line with optimal international methods.

Infrastructure deficiencies

Most Small and Medium-sized Enterprises (SMEs) are literally unable to afford the cost of using an expensive cloud service, and unreliable internet, particularly in times of war, turns the process of making a living online into a nightmare. The trials become chiefly evident when access to an even internet connection is compulsory but cannot be guaranteed. Coupled with uneven digital infrastructure crossways geographical areas, such limitations donate to a substantial digital divide. Consequently, disparities in access to digital technologies and online services continues, strengthening broader economic and social inequalities.

Ecosystem limitations

Gross shortage of specialists in Ukraine and the current educational programs there cannot keep pace with the scorching IT development. A large number of accountants do not have the digital abilities to capitalize on such tools as artificial intelligence, big data analytics, or blockchain. And the last one is cybersecurity - the fear of data leakage and hackings is present and does not precisely stimulate the shift to cloud-based systems. Obłój and Voronovska (2024) point out that one of the primary challenges facing Ukrainian businesses that are starting the digital transformation are data security and confidentiality. The accounting professionals also need a new set of skills due to the digital transformation. Modern accountants are demanded to have, in addition to technical proficiency in accounting standards, a level of skills in the business setting.

The digital transformation also requires a new skill set from accounting professionals. In addition to technical proficiency in accounting standards, modern accountants are expected to:

- Demonstrate digital literacy and information security awareness
- Operate modern accounting software and digital platforms
- Understand the principles of data protection, copyright, and regulatory compliance
- Apply simulation modelling, neural networks, and real-time analytics tools.

Unfortunately, most existing training programs in Ukraine fail to equip the graduates with these requirements. Next, there is a need to prepare a national initiative of accounting education modernization and promotion of further professional growth. Even though the positive effects of the digital transformation in regard to efficiency can be measured, they have already happened, and one will not be able to measure the whole extent of this phenomenon by a simple number-based study.

The quantitative results were also supplemented by semi-structured interviews with ten accounting managers from various industries. These interviews identified the following benefits of embedding digital tools that are often cited:

1. Greater data accuracy and consistency. Automated systems saved a lot of manpower errors and encouraged uniformity in data processing procedures.

2. Efficiency and less work. Employees said that they spent less time on repetitive activities like data input, matching transactions and generation of reports.

3. Enhanced forecasting capabilities. Accurate and timely financial projections were made available due to the application of machine learning algorithms.

4. Stronger compliance mechanisms. Digital audit trails and automatic alerts enabled enhanced compliance with internal controls and external regulations.

One interviewee from a manufacturing company whose logistic focus is in particular: Now we can simulate a range of fiscal scenarios in Power BI within a few minutes. The AI would require at least three days to accomplish the same in Excel before the AI.

These were actual gains, but it was not an easy ride. Three significant challenges were identified.:

- Human factors. Employee resistance towards change was most evident among the older employees. The absence of technical expertise resulted in bottlenecks and a number of retraining programs were required.
- Technical limitations. Old software systems were not usually compatible with new systems and led to a split data environment. Also, lack of proper computing infrastructure was a limitation to scaling in some organizations.

● Ethical and regulatory issues. Data privacy and especially compliance with GDPR was a crucial issue- especially when using cloud-based technologies. The reliability and legal status of AI-assisted audits were also questioned by the respondents since it lacks clear regulations on AI-assisted audits by the Ukrainian regulatory bodies.

These findings indicate that although the digitisation of accounting practice holds a huge potential, it should be done cautiously to the organisational readiness, investments in the infrastructure, and policy alignment.

This finding aligns with that of Krylova and Shishkin, who emphasized the two-dimensionality of the AI implementation process, which offers efficiency advantages and requires robust managing changes (2022). Another finding of Shveda et al. (2024) is that Ukrainian companies lack a coherent digital transformation plan that delays the payoff of investing in AI tools.

Data collected during the study tested three hypotheses:

H1: The adoption of AI-driven technologies enhances the efficiency of reporting -Supported. Significant decrease in time in reporting (19.5% $p < 0.05$) proves the efficiency gains.

H2: AI application eliminates human error in accounting activities - Supported. The positive change in the percentage of errors (22.6% reduction) ($p < 0.05$) confirms the accuracy.

H3: Human, technical and regulatory barriers impair the adoption process - Supported. The analysis of interviews proved the presence of vast problems in these spheres.

Discussion

The findings confirmed that digital technologies, including ERP systems, AI-based analytics (45.2%), and RPA (38.1%), improved the efficiency and accuracy of corporate accounting in Ukrainian organizations. H1 (improved efficiency) and H2 (reduced errors) were verified by a reporting time reduction of 19.5% and a decrease of 22.6% in error rates. H3 (implementation barriers) was confirmed by the recognition of high costs, skills deficits, and the lack of regulations as key barriers (Stender et al., 2024; Tenyukh et al., 2022). Nevertheless, the cross-sectional design restricted the cause-and-effect interpretations; longitudinal data are needed.

The analysis in the framework of TOE in this research shows that the level of influence of each of the factors on the adoption of digital accounting in Ukrainian companies is clearly defined. The technological context (ERP, AI and RPA adoption) directly contributed to efficiency gains, accounting for 19.5% of the reduction in reporting time. The organizational context (management support, training, culture) was the biggest factor in reducing errors, accounting for a 22.6% decrease in error rates. But the environmental context (regulatory gaps, costs and lack of skills) proved to be the greatest obstacle, even though technological and organizational barriers were still present. This is depicted in the following conceptual model: Technological and organizational factors are enablers while the environmental factors are enablers (regulatory pressure) and barriers (regulatory gaps, costs). While all three contexts play with each other, it appears as though there is a need to work on all three in tandem for digital transformation in transitional economies.

These results are similar to findings from Kwilinski et al. (2024) and Kommineni and Baseer (2024), who reported similar results for automation and AI, including a 40.2% drop-in reconciliation time. A low adoption of blockchain (9.5%) contrasts with its potential for tamper-proof records (Moll & Yigitbasioglu, 2019; Naumenkova et al., 2023). Al-Htaybat and von Alberti-Alhtaybat (2017) highlight the importance of Big Data for corporate reporting, aligning with our AI analytics findings. Agostino et al. (2021) assert that digital tools increase accountability despite regulatory gaps. Automation of repetitive processes via RPA and real-time AI analytics increases efficiency (Kokina & Davenport, 2017; Moffitt et al., 2018). Blockchain offers transparency in limited cases (Beridze et al., 2023). Interviewees cited improved forecasting and compliance, consistent with (Yehorycheva et al., 2022); (Dombrovska, 2023). Spilnyk et al. (2023) and Petcu et al. (2024) note the importance of cloud solutions, consistent with our 33.3% cloud adoption finding. Hasan (2022) advocates for AI in auditing accuracy. Lombardi and Secundo (2020) support frameworks to assess digital tools, aligning with our TOE approach. Bachev (2022) suggests governance models applicable to accounting digitalization.

The results are theoretically supported by the TOE framework. The technological context (usefulness and integration of ERP, AI, RPA) was related to efficiency gains (H1). The organizational context (management support and training) correlated with error reduction (H2). The environmental context (regulatory gaps, costs, skill shortages) emerged as the primary barrier (H3). Compared to advanced economies such as Germany and Estonia, where environmental barriers have been reduced through institutional support, Ukraine's stronger environmental constraints suggest that TOE-based predictions of technology adoption require context-specific weighting in transitional economies.

Regulatory frameworks and state policies significantly influence digital transformation outcomes. Estonia, Germany, and the Netherlands have clear regulations, fiscal incentives, and public-private partnerships to boost AI and blockchain adoption. Argento et al. (2025) state that accountability and audit legitimacy need reconsideration in the age of intelligent systems. Ukraine lacks a coherent digitalization strategy, leading to uneven technology penetration. The absence of standardized digital reporting guidelines, including XBRL, complicates domestic control and delays EU compliance (Artyukh et al., 2023; Hentati et al., 2025). A regulatory void surrounds AI-based audit tools; no legal framework exists for AI-generated audit evidence, cultivating hesitation (Sokolenko, 2019). Tax policy remains unexploited: several EU states offer incentives for digital accounting systems Hrypynska et al. (2020), but Ukraine does not (Cordos Labaditis et al., 2023; Karpenko et al., 2024).An in-depth study of the Estonian, German and Dutch models shows that they are successful because of three interrelated aspects: institutional coordination, financial

incentives and workforce development. The Estonian government's proactive investment in digital infrastructure and the universal adoption of the XBRL standard have created a comprehensive digital ecosystem in which businesses can work in the same digital environment, whilst eliminating the fragmentation and compliance costs. By contrast, Germany's success relies on industry standards such as the BSI cybersecurity certification, which establishes trust among businesses and a reliable cyber system without having to set hard requirements. The Netherlands is a good example of the advantages of co-developing digital audit standards through public-private cooperation and to make the regulations not only practical but technically feasible, government bodies and industry working groups participate in the process. The direct implementation of these models is not fully feasible for Ukraine, due to the country's resource limitations and political challenges. However, Ukraine can move forward with a pragmatic approach such as a single national digital reporting standard (such as XBRL) over time, with a range of targeted tax incentives for investment in certified digital accounting solutions for SMEs, and with industry-academy partnerships to tackle the skills gap with customized training courses. The takeaway here is that digital transformation is about more than simply adopting technology, it's about creating a digital ecosystem that fosters complementary regulation, infrastructure, and human capital. Ukraine's status as an EU candidate gives a special opportunity to harmonize the country's digital accounting reforms with European standards, but it will take political will, investments and coordination from various stakeholders.

Cybersecurity regulation is another key factor. As firms shift to cloud and blockchain, data privacy and breach threats increase. Ukrainian general cybersecurity laws lack accounting- specific provisions. A certification program for accounting software vendors, similar to Germany's BSI system, could build trust (Elnakeeb & Elawadly, 2025). Coordination gaps also persist. Estonia and the Netherlands use inter-agency task forces to synchronize technological, legal, and procedural reforms. The **StrategicStudies.2025<empty citation>** has recommended establishing a Ukrainian cross-agency task force for digital reporting reform.

University programs and professional certification also require revision modernization. Most Ukrainian curricula lack digital literacy, information systems, or AI analytics modules. Similar gaps exist in other developing nations (Julius, 2024; Sabuncu, 2022). Sectoral disparities were observed: financial firms showed the highest ERP (81%) and AI (62%) adoption; manufacturing lagged in AI (41%) and cloud (30%); logistics showed strong RPA adoption (59%). Qualitative interviews revealed that employee resistance and legacy system incompatibility are key barriers, consistent with prior emerging market studies (Cordos Labaditis et al., 2023; Julius, 2024). Another accounting manager in a production company remarked: "Our older employees are not keen on the concept of new tools, and we spent months on elementary digital literacy training before we could get to grips with the new system. Another respondent said it was not the technology itself that presented the biggest problem but the message that people would be better off using automation, rather than being replaced by it. When they realized that manual data entry was being eliminated by RPA their resistance fell drastically. There needs to be a systematic change management strategy to overcome the resistance of the organization. From the analysis of the material from the interviews and literature review, it is possible to identify some strategies that proved effective in the Ukrainian context. First, clear and timely communication regarding the objective and advantage of digital transformation that helps to lower uncertainty and trust amongst workers. Second, the more that accounting personnel are involved in the choice and design of digital tools, the more they feel a sense of ownership of them and the less they feel threatened by the loss of their job. Third, implementation in stages, with some functions being piloted first, helps employees gradually become confident and competent in the use of the learning system without impacting on core functions. Fourth, skill level specific training courses are provided, such as basic digital literacy courses for older employees and advanced analytics courses for younger employees, to tackle the skills gap and to show commitment to workforce development within the organization. Finally, strong leadership commitment and visible support from top management in combination with recognition and incentives for the early adopters help to establish a positive culture of innovation. The strategies, although labour-intensive, are critical in addressing the human challenges to digital transformation that have been identified in this study.

A distinctive contribution is the identification of synergistic effects among combined technologies (Table VI). AI + blockchain yields maximum data integrity; AI + Big Data optimizes continuous auditing. No single technology suffices for comprehensive transformation; firms should pursue integrated accounting systems tailored to specific accounting tasks. Several limitations should be acknowledged. Since this is a cross-sectional study, associations can only be Several gaps between the use of digital technology and performance improvements were identified, and it is not possible to determine the direction of cause. It is likely that more or, simply, efficient firms are more likely to use digital technologies, adoption of digital tools does not lead to efficiency gains. Longitudinal a better tracking of data over several time periods would enable Use of panel data analysis for better causal inferences and the comparison of countries over time. A study of digitalization paths. The sample size (42 enterprises) limits generalizability. Furthermore, the manufacturing and financial industry's dominance may mean that results are not easily extrapolated to other sectors such as services, agriculture or information technology where digital adoption trends and challenges might vary. These sectors were not included in the future research due to their underrepresentation in the current study, which requires further study to obtain a broader understanding of the digital transformation process in the Ukrainian economy. The focus on manufacturing and financial industries may not represent other sectors. The cross-sectional design prevents causal inference. The interview responses showed specific instances of implementation successes and failures and highlighted the practicalities of digital transformation. In one manufacturing company, the RPA implementation proved to be a success and cut down their time of processing invoices from 12 hours to 2 hours per week. The accounting manager said that RPA saved the company from manually entering data on hundreds of invoices monthly, with a ROI being seen after only three months. A logistics firm tried to use AI to predict logistics but gave up the idea after six months. The project was unsuccessful because of the

lack of data quality, poor training and lack of integration with existing ERP systems. The respondent commented: ”We had spent money on sophisticated AI software, but the data we were dealing with was not standardized and the staff weren’t familiar with how to analyze the results, so we ended up using forecasting in Excel instead. The examples demonstrate that even though the technology is successful, the readiness of the data, training of employees, and system compatibility are also key to success.

One of the major concerns raised during the interviews was cyber security. Multiple respondents expressed concern regarding data breaches, ransomware, and unauthorised access to financial systems, especially cloud-based systems. One participant stated: ”The all-cloud solution is not right for us because we do not want to risk data breaches: Our customers entrust us with valuable financial information, and if that gets lost, it is a disaster for us. Concrete mitigation strategies are needed to counter these threats. To minimize human error, companies need to adopt a multi-factor authentication system, conduct regular security audits and educate employees on cyber security. Limiting exposure through data encryption for stored and transmitted data, and access control based on the principle of least privilege, can help. If you are deploying cloud-based systems, look for vendors that are certified to ISO 27001 or other security-related standards for an extra level of protection. Additionally, creating an incident response plan that incorporates regular backups and also strict guidelines for notification in the event of a breach can limit damage and guarantee compliance with regulations. These actions, although they do involve investing in the system, are very crucial to earn trust in digital accounting systems, and to facilitate sustainable digital transformation.

The advantages of digital transformation have been widely reported; however, the potential for side effects of automating and implementing AI in accounting practices. During several interviews, job displacement was a silent worry as participants recognized that some of their day-to-day work is increasingly being automated by new technologies. One interviewee commented: ”There are five junior accountants doing data entry and reconciliation, and now with RPA we only need two, and don’t need to hire new grads for those positions. This trend brings up the issue of social responsibility of companies towards employees who might have their skills become redundant. Use of automation can present another risk, as accountants may not have manual skills to detect and correct errors, which could result in material misstatements where systems fail or misstatements occur. In addition, there are ethical considerations that come with AI decisions, especially in fraud detection and credit scoring, which could be affected by algorithmic bias or lack of transparency, leading to unfair decisions. Understandability of AI decisions is also a big problem, even if they are correct, understanding how they work or why is not acceptable. To address these risks, companies need to put in place supplementary human monitoring systems, reskill and upskill their workforce for higher value jobs, and adopt ethical AI frameworks that emphasize transparency, fairness, and accountability. Guidance for good accountant use of AI, where AI is used in tandem with, but not instead of, professional judgment, should also be included in the framework of regulation.

Digital accounting transformation and reporting on ESG are an area that needs to be explored further. The need for reliable, timely and verifiable Environmental, Social and Governance (ESG) data is growing rapidly as international sustainability reporting standards are converging, such as the European Sustainability Reporting Standards (ESRS) and the International Sustainability Standards Board (ISSB). Digital technologies help to make this possible. AI-driven analytics algorithms can analyze huge volumes of ESG data from various sources that are used for environmental, social, and governance, and can detect patterns and anomalies that might not be identified through manual review. Blockchain technology provides secure and tamper-proof way to monitor carbon emissions, labor practices in the supply chain and other Environmental, Social, and Governance (ESG) metrics, minimizing the risk of greenwashing and boosting credibility. Cloud-based solutions provide the ability to report on ESG in real time, and allow for easy data sharing among companies, auditors, and regulators. The adoption of the ESG reporting system into digital accounting is especially relevant at the moment in the Ukrainian context as the country is a EU candidate, and international donors and investors increasingly demand transparency in reporting on sustainability issues. But there are obstacles to be overcome, such as the absence of common data taxonomies for ESG reporting, where technical skills in sustainability accounting remain limited, and the absence of mandatory reporting requirements. To address these challenges, Ukrainian regulators could gradually adopt the ESG tagging standards based on XBRL that are consistent with international ones, and enterprises could invest in digital tools that would collect, validate, and report on ESG data. Further studies are needed to explore the effect of digital tools on the accuracy and reliability of ESG disclosures and if technology-based ESG reporting leads to better sustainability results and investor trust.

The limitations of this study provide several Stender et al. (2024) directions for future research that will follow a longitudinal set of designs available over time, which allow for panel data analysis. finding a cause-and-effect link between digital adoption and accounting performance. Such studies could include a comparison of whether efficiency improvements are realised over time or reduce in the long term implementation.

Recent studies across multiple disciplines support the findings of this study. Naumenkova et al. (2023) focus on the role of financial innovations in the public finance management system, and Sopronenkov et al. (2023) discuss digital means and taxation policy. Kwilinski et al. (2024) show the environmental advantages of digitalization, while Beridze et al. (2023) focus on uncertainty monitoring in industrial enterprises. The issues of digital transformation challenges and financial stability assessment in Ukraine are discussed by Stender et al. (2024) and (Yehorycheva et al., 2022). Verbivska et al. (2023) discuss an E-commerce innovation and the one by Shyra et al. (2020) is centered on the corporate security strategy. Dynamic programming is used in fund allocation by Hrypynska et al. (2020), and in the study on information system reliability by (Kurmangaziyeva et al., 2022). In the field of warehouse optimization, Muliarevych (2023) discusses cloud-based warehouse optimization, while Orazbayev et al. (2017) explore decision-making under fuzzy conditions. The multi-dimensionality of digital transformation and its impact on accounting, finance and organizational management are further confirmed by these studies.

Based on the findings and limitations of the present study, several research questions that can be developed to investigate further. First, future studies should examine whether the efficiency improvement from the use of AI tools in accounting will persist over a three to five-year period or whether the gains over time will diminish as companies adapt? Second, what are the best practices in organisational change management to address employees' resistance to digital transformation, especially in the context of transitional economies? Thirdly, what is the added value of blockchain technologies in situations of weak regulatory compliance? Fourth, do the accounting performance-digital adoption link vary across sectors (e.g., between service and manufacturing)? From the above questions, the following research hypotheses were developed; H4: Firms with extensive change management programs will have a higher success rate in achieving digital adoption compared to firms that do not have programs of this nature; H5: The relationship between digital tool adoption and accounting performance will be more significant in low-regulatory environments than in high regulatory ones for blockchain adoption; and H6: Sectoral characteristics (transaction volume, data complexity, regulatory intensity) will significantly moderate the relationship between digital tool adoption and accounting performance in the case of blockchain adoption. The hypotheses could be tested with a longitudinal, multi-sector and cross-country approach, which would significantly contribute to the knowledge about digital transformation in transitional and emerging economies, especially in the field of accounting.

Conclusion

This study provides empirical evidence of the transformative effect of digital technologies on corporate accounting in Ukraine and substantiates all three hypotheses. ERP systems (64.3% adoption), AI-driven analytics (45.2% adoption), and RPA (38.1% adoption) significantly increase efficiency (19.5% less reporting time) and accuracy (22.6% decrease in error rates). But significant challenges remain, with high implementation costs, regulatory fragmentation, and skills shortages, which are responsible for the low adoption of blockchain (9.5%). (21.4%) and AI-assisted auditing tools.

This study makes three original contributions to the literature. First, it introduces the TOE model in the context of transition in an economy; demonstrating that environmental restrictions (regulation, costs, skills) have a more important influence on the outcome of adoption than do the technological and organizational factors. Second, it provides mixed-method evidence from Ukraine, a country in the midst of post-war reconstruction and EU integration, where pressures on accounting practices that are not present in developed economies influence the digital transformation of accounting. Third, it is aimed at questioning the idea that a single digital tool is enough for complete transformation by exploring the synergies between various combined technologies (e.g., AI + blockchain for data integrity; AI + Big Data for continuous auditing).

From a practical perspective, companies should aim to implement integrated technological ecosystems rather than fragmented resolutions, supported by continuous staff training and effective change management strategies. Regulatory bodies should develop a national digital accounting agenda, including the adoption of XBRL standards, tax incentives for digital transformation, and a clear legal framework recognizing audit evidence generated through artificial intelligence systems. Similarly, universities and professional institutions need to update curricula to incorporate digital literacy, AI-driven analytics, and cybersecurity competencies.

Several limitations should be acknowledged. The relatively small (42 firms), limits the generalizability of the findings. Furthermore, the study primarily focuses on manufacturing and financial sectors means that the findings may not fully represent other industries, such as services, agriculture, or IT, where digital adoption patterns and barriers may differ. The cross-sectional design is also restricts causal relationships between the variables to be drawn. The digital adoption and accounting performance cannot be securely was established but it is likely that more efficient firms were. simply more inclined to adopt digital technologies. Trend analysis Such a thing as a one-time solution was not possible over time. Future studies should use a longitudinal design. identifies designs, expands to other transitional economies, and explores. The qualitative sample of 10 interviews had some great insight but could have been expanded and spread across more sectors and regions to deepen the findings and allow for the possibility of more meaningful thematic comparisons.

Future research should use other transitional economies, and explore the implications of blockchain and AI in the long term and its potential impact on accounting quality and fraud prevention.

Declaration

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Ethical approval

This study was conducted in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments.

Informed consent

Informed consent was obtained from all individual participants included in the study. Participants were informed of the purpose of the research, the voluntary nature of their participation, and their right to withdraw at any time.

Generative AI statement

During the preparation of this work, the authors used generative AI tools solely for language polishing and grammar checking. No AI tools were used for data analysis, interpretation, or the generation of scientific conclusions. The authors take full responsibility for the content of the publication.

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