

THE IMPACT OF DIGITAL TECHNOLOGIES ON ACCOUNTING TRANSFORMATION

IRYNA SHCHYRBA¹, NATALIYA LOKHANOVA², NATALIYA HOLIACHUK³,
VALENTYNA SHEVCHENKO⁴, YEVHENIYA KARPENKO⁵

¹ Dr, Associate Professor, Research Fellow at Nottingham University Business School (NUBS), Nottingham, United Kingdom

² Doctor of Economics, Professor, Head of Accounting, Analysis and Audit Department, Odesa National Economic University, Odesa, Ukraine.

³ PhD in Economics, Associate Professor of the Department of Accounting and Auditing, Lutsk National Technical University, Lutsk, Ukraine

⁴ Candidate of Science (Public Administration), associate professor of the Department of International Marketing, Alfred Nobel University, Dnipro, Ukraine

⁵ Ph.D. in Economics, associate professor of the Department of Finance, Banking and Taxation Educational and Scientific Institute of Finance, Economics, Management and Law National University «Yuri Kondratyuk Poltava Polytechnic», Poltava, Ukraine

Emails: ¹ shchyrbai@iraal@gmail.com; ² ivannafecko@gmail.com; ³ Nataliia_holiaa3@gmail.com;

⁴ shevchenko_vn14@duan.edu.ua; ⁵ ykarpenko03@gmail.com

ABSTRACT

Digital technologies are significantly transforming accounting, changing the methods of collecting, processing, and analysing financial information on a global scale. The aim of the study is to assess the impact of digital technologies on accounting transformation in seven countries with different levels of digitalization. The research employed the following methods: quantitative approach, analysis of panel data for 2020-2024, and econometric modelling. The assessment was carried out using a fixed-effects model that takes into account institutional and technological factors of transformation. The results showed that the United Kingdom (UK) and Germany have the highest accounting transformation indicators: within 43.5-47.2 points and from 41.0 to 44.8 points, respectively. This is explained by a high level of digitalization (DigitalTechIndex over 80) and the full application of International Financial Reporting Standards (IFRS). At the same time, Ukraine, despite limited digital resources (Digital Technology Index within 36.2-49.7), demonstrates positive dynamics of transformation — from 28.0 to 33.2 points. This is determined by the implementation of IFRS and existing regulatory support. It was found that digital transformation significantly improves accounting practices in combination with the adoption of IFRS and the development of human capital. The results emphasize the need for strategic implementation of digital technologies in accounting, which has implications for politicians and financial institutions. The study can be useful for shaping digital development policies and modernizing financial reporting. Further studies should focus on industry analysis and studying the impact of artificial intelligence (AI) in accounting decisions.

Keywords: *Accounting, Digital Technologies, International Standards, Financial Reporting, Econometric Modelling, Transformation, Digitalization, Human Capital.*

1. INTRODUCTION

In today's digital transformation of the economy, the role of technology in changing approaches to accounting is growing. Digital tools, such as AI, cloud accounting systems and automated platforms, affect the speed, accuracy, and transparency of financial reporting. As a result, the functions of the accountant are changing, and traditional accounting models are losing their effectiveness in a globalized digital environment.

The relevance of the issue is determined by the need to adapt accounting systems to the requirements of the new economy, where the speed of data processing and the availability of analytics are becoming critical factors.

The problem is the insufficient level of integration of digital solutions into the accounting practice of many countries, especially where the level of digitalization is uneven. In this context, special attention should be paid to international

comparison for the purpose of identifying successful practices of digital transformation of accounting.

Current studies focus on the impact of digital transformation on accounting, accountability, and the quality of financial information in various sectors. Alenezi and Akour [1] emphasize the importance of digital literacy and a strategic approach to technology adoption, which is also relevant for the accounting sector. Begkos et al. [2] examine datafication in healthcare, confirming the changing role of accounting technologies.

Bora et al. [3] and Cavicchi and Vagnoni [4] prove that digital systems increase accountability in the public and non-governmental sectors, which demonstrates the broad applicability of technologies. Dos Santos et al. [5] emphasize the possibility of detecting errors in reporting using Robotic Process Automation (RPA), which confirms the effectiveness of digital tools. In general, the studies are based on institutional theory, change management theory, and the concept of digital maturity of organizations.

The hypothesis of the study is that digital technologies have a positive effect on the depth of accounting transformation, especially if the IFRS are implemented. It is also assumed that a high level of human capital enhances this effect. The issue whether the country's economic development can compensate for the lag in digital infrastructure is also explored. The academic novelty of this study is the created econometric model that takes into account both technological and institutional factors of accounting transformation. This study is the first that combines digital, human capital, and regulatory indicators into a single integrated analysis. The results provide practical recommendations for countries at different stages of digital development.

The aim of the study is to determine the impact of digital technologies on the accounting transformation in countries with different levels of development and digital maturity. The aim involved the fulfilment of the following research objectives:

1) Assess the level of digitalization in selected countries based on the created Digital Technology Index, which includes indicators of infrastructure, automation, access to digital resources, and innovations.

2) Build an econometric model to quantitatively assess the impact of digital technologies, human capital, GDP per capita, and regulatory factors on the transformation of accounting.

3) Analyse the key factors of the transformation of accounting practices, including the interaction of digital technologies with the training system and the economic structure of the country.

4) Determine the role of IFRS as a factor that enhances the effect of digitalization and contributes to increasing transparency and unification of accounting systems. The study provides for the analysis of human capital as an important factor that enhances the effectiveness of digital changes by increasing the professional competence of accounting workers in the new digital environment.

2. LITERATURE REVIEW

Digital transformation of accounting is one of the key issues of current academic research in the field of finance, management, and information technology. Particular attention is paid to the implementation of IT solutions such as Big Data, RPA, blockchain, cloud systems, and real-time analytics. The academic literature shows a growing interest in the impact of digital solutions on the quality of reporting, transparency of management, and efficiency of accounting processes.

Aboelfotoh et al. [6] conducted a bibliometric analysis of the impact of big data analytics on the quality of financial reporting. The authors argue that Big Data helps to identify inaccuracies and improve the transparency of reports. We agree with this conclusion, as the detection of anomalies and the acceleration of audits are important aspects of the accounting transformation. Alanazi and Alenezi [7] analyse digital transformation in the transport sector, emphasizing sustainability and efficiency. Although the research focuses on transportation, the principles of digital strategy are also relevant to the accounting industry. We believe that a cross-industry approach can help to adapt innovation to accounting processes.

Albukhitan [8] proposes a structured model of digital transformation for manufacturing, focusing on implementation strategies. This approach is consistent with the need for systematic

implementation of digital solutions in accounting. We support the idea of strategic adaptation of digital tools, taking into account the industry specifics. Alenezi and Akour [1] examine digital transformation in higher education, emphasizing the need for digital literacy and technical support. Despite the different context, the importance of human capital confirms the results of our model. We agree that training is a critical condition for digital transformation.

Al-Hattami et al. [9] state that a digital accounting system improves corporate governance by automating reporting. We support this statement as effective governance depends on the reliability of financial information. Automation helps to reduce the risk of errors and abuse. Begkos et al. [2] describe the transformation of healthcare accounting through datafication and digitalization. Their research is important for understanding the specifics of the transformation across sectors. We believe that the adaptation of accounting technologies should take into account the field specifics.

Marota [10] examines the digital transformation of accounting in the context of the Fourth Industrial Revolution (Industry 4.0), emphasizing the need to adapt traditional approaches. The author confirms the importance of innovative thinking in accounting. We support this position, as the conservative model of accounting no longer meets current challenges. Bora et al. [3] analyse the transformation of government reporting through the lens of digital technologies and transparency. Their findings demonstrate the potential of digitalization to increase accountability in the public sector. We believe that this experience can be scaled up to corporate reporting.

Cavicchi and Vagnoni [4] examine the use of digital information systems in the public sector, emphasizing the growth of trust in reporting. Their study confirms the importance of digital infrastructure for ensuring accountability. We agree that digitalization increases trust in accounting data. Dos Santos et al. [5] present the implementation of robotic automation to detect discrepancies in government reporting. They demonstrate how digital solutions can address the problem of double-entry bookkeeping. We believe that such technologies have significant potential to improve audit efficiency.

While the reviewed works demonstrate the benefits of digitalization, most of them either focus on sector-specific applications or lack cross-country comparisons of accounting transformation processes. For example, Begkos et al. [2] and Cavicchi and Vagnoni [4] provide valuable sectoral insights but do not offer a comprehensive model that integrates technological, institutional, and human capital factors across multiple economies. This limitation weakens the ability to generalize findings to broader policy frameworks. Our study addresses this by incorporating an international econometric model that evaluates accounting transformation in diverse digital environments.

In addition, studies such as Aboelfotoh et al. [6] and Saleh et al. [22] emphasize the analytical potential of Big Data but remain mostly descriptive and lack empirical testing of its real impact on national-level accounting indicators. By contrast, our paper quantifies the effect of digitalization using panel data, which provides stronger empirical evidence and extends beyond theoretical discussion.

Another gap lies in the limited integration of regulatory frameworks and international standards in previous research. For instance, while Al-Hattami et al. [9] touch upon corporate governance improvements through automation, they do not empirically analyze the moderating role of IFRS adoption. Our study advances this by treating IFRS implementation as a separate explanatory variable in the econometric model, thus offering a more nuanced understanding of how digitalization interacts with institutional norms.

Moreover, the existing literature underrepresents the role of human capital as a mediating factor in digital transformation. While Albukhitan [8] and Alenezi and Akour [1] mention the importance of digital literacy, few studies integrate it into quantitative models assessing transformation outcomes. Our inclusion of human capital variables explicitly addresses this gap, enabling a more holistic perspective.

Finally, prior research often focuses on technologically advanced economies. This narrow scope limits the understanding of digital transformation in developing or digitally constrained countries like Ukraine or Saudi Arabia. Our comparative analysis fills this void by analysing countries at varying digital maturity levels, thus

contributing to the inclusiveness and global applicability of accounting transformation strategies.

The literature review confirms that digital technologies are a key factor in the accounting transformation, both in the corporate and public sectors, especially in the context of the intensive development of IT solutions and intelligent systems. The findings of this study are consistent with current positions of other researchers and open up prospects for further interdisciplinary studies. At the same time, the available empirical works remain fragmentary, and international comparisons of the impact of digitalization on accounting are not

sufficient. Therefore, there is a need to expand the geography of research, deepen sectoral analysis and study specific digital tools, such as blockchain, RPA, and AI in the accounting environment.

3. METHODS

3.1. Research Design

The research consisted of 4 consecutive stages. Each of them included a number of research activities. Figure 1 shows a description of these stages and activities.

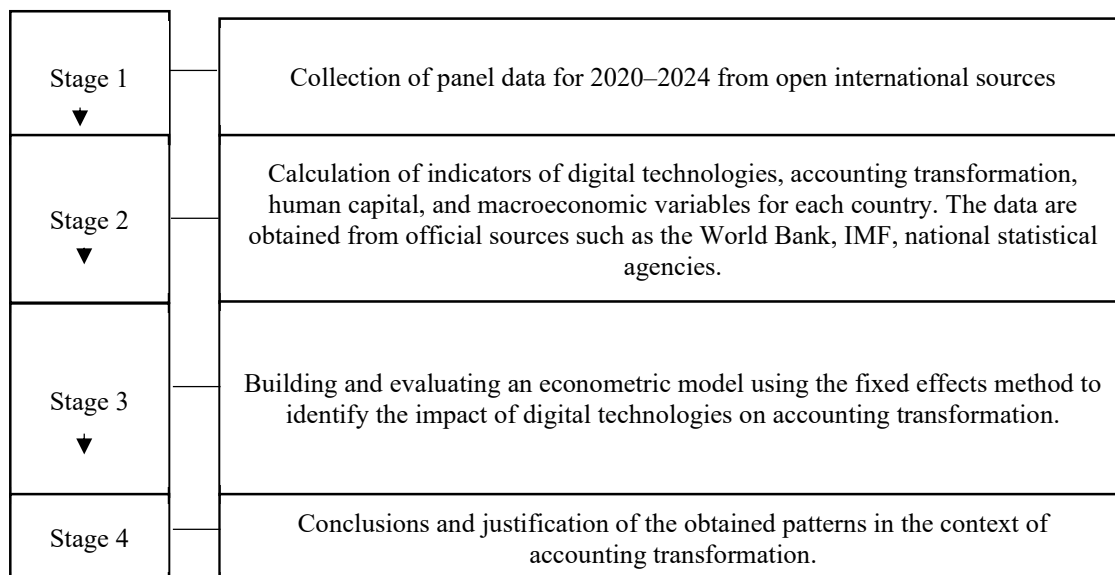


Figure 1: Research Stages

Source: developed by the author.

3.2. Sampling

The sample was formed with the aim of covering countries with different levels of digitalization, economic development, and approaches to accounting. The sample included 7 countries: the United States of America (USA), the UK, Germany, Poland, China, Ukraine, and Saudi Arabia. The USA represents an economy with the highest level of digital technologies, but without the use of IFRS. The UK and Germany are examples of countries with a high level of digitalization and full integration of international accounting standards. Poland and China represent countries that are at the stage of digital transformation and demonstrate progressive changes in the field of accounting. Ukraine was chosen as an example of a country that is actively implementing IFRS, despite limited

digital resources. Saudi Arabia is included in the analysis as a high-income country but a lower level of digital impact on accounting practices. The data were collected for each country for 2020–2024 on the following indicators:

1. Digital Technology Index (DigitalTechIndex) — a composite indicator formed on the basis of the level of automation, digital infrastructure, use of cloud services, access to the Internet, and digital government initiatives;

2. Accounting Transformation Index (AccountingTransformation) — an assessment of the level of implementation of modern digital solutions in accounting processes, the level of automation of reporting and digital integration in financial management;

3. Gross Domestic Product per capita (GDP per Capita) — a macroeconomic indicator of the level of economic development of the country;

4. Level of human capital (Human Capital) — the share of specialists with higher education in the field of finance and accounting who use digital tools in their professional activities;

5. Application of IFRS — a binary variable reflecting the official adoption and use of IFRS in the country;

6. Regulatory burden (RegulationLevel) — a conditional indicator that takes into account the number and complexity of accounting requirements, the degree of regulatory support for digitalization.

3.3. Research Methodology

The methodological framework of the study is based on the construction of a panel-type econometric model that takes into account temporal and spatial differences. The Accounting Transformation Index was chosen as the dependent variable, reflecting the depth of implementation of digital solutions and changes in financial reporting practices. The key independent variable is the digital technology index, which summarizes data on cloud services, automation, digital infrastructure and data integration. The model also includes the level of human capital, GDP per capita, regulatory environment and a variable reflecting the application of IFRS. Formally, the model looks as follows:

$$\begin{aligned} \text{AccountingTransformation}_{it} = & \beta_0 \quad (1) \\ & + \beta_1 \text{DigitalTechIndex}_{it} + \beta_2 \\ & \text{RegulationLevel}_{it} + \beta_3 \text{HumanCapital}_{it} + \\ & \beta_4 \text{GDPperCapita}_{it} + \beta_5 \text{IFRSAdoption}_{it} + \\ & \mu_i + \varepsilon_{it} \end{aligned}$$

where:

- *AccountingTransformation* - Accounting Transformation Index (author's or from open databases, e.g. WEF or IMD);

- *DigitalTechIndex* — index of digital technology development (e.g. digital infrastructure, internet penetration, level of automation);

- *RegulationLevel* - degree of regulatory burden on accounting (e.g. national accounting requirements, number of standards, etc.);

- *HumanCapital* — education and qualifications of accountants, % of users with higher education in accounting and finance;

- *GDPperCapita* - gross domestic product per capita (USD);

- *IFRSAdoption* - binary variable (1 - the country applies IFRS, 0 - no);

- *i* – country;

- *t* – year;

- μ_i - fixed effects for countries (or random effects, depending on the Hausman test);

- ε_{it} - residual error.

- β_0 ; β_1 - β_5 coefficients in the model reflect the strength and direction of the influence of the relevant variables on the accounting transformation rate.

3.4. Research Protocol

The research protocol followed a structured and replicable process to ensure reliability and transparency. First, panel data covering 2020–2024 were collected from authoritative sources including the World Bank, IMF, and national statistics portals. Indicators included digital infrastructure components (internet access, automation, cloud services), human capital (share of accounting professionals with higher education), GDP per capita, IFRS adoption status (binary), and a custom-created Accounting Transformation Index (based on automation level, digital integration, and reporting modernization). Data preprocessing was done in Microsoft Excel, including standardization and missing value treatment through interpolation.

Next, an econometric model with fixed effects was specified to control for country-specific unobserved heterogeneity. The Digital Technology Index, Human Capital, Regulation Level, and IFRS Adoption were used as independent variables, with Accounting Transformation as the dependent variable. Variance Inflation Factor (VIF) was used to check multicollinearity. The Durbin-Watson test and White test were applied to ensure the absence of autocorrelation and heteroskedasticity. The Hausman test confirmed the suitability of the fixed effects model.

The model was implemented using Python (statsmodels and linearmodels libraries), and results were cross-validated through multiple yearly regressions for robustness. Visualizations were produced to verify trends and consistency. The complete workflow was documented to ensure

repeatability of the methodology and allow for future updates with newer datasets.

3.5. Research Hypotheses

H₀: Digital technologies do not have a significant impact on accounting transformation.

H₁: Digital technologies have a positive impact on accounting transformation.

The regression model was estimated using the least squares method (LSM) as part of panel analysis, which ensures the accuracy and stability of the results. Multicollinearity of independent variables, autocorrelation of residuals, and normality of error distribution were checked. The Durbin–Watson statistic, the White test, and variance inflation factor (VIF) test confirmed the correctness of the model. The use of the panel approach enabled taking into account time trends, international features, and increase the reliability of forecasting.

3.6. Instruments

Python and Microsoft Excel software were used for data collection, processing, and analysis.

The methods of econometric analysis, including regression model estimation and data visualization, were realized in Python. The statsmodels and linearmodels libraries, which support fixed-effects regressions, were used for econometric analysis. Microsoft Excel was used for primary statistical data processing, table storage, and graph generation.

4. RESULTS

The results for 2020–2024 show that the highest values of the Digital Technology Index were recorded in the UK, where the average indicator reached over 85. This correlated with a high level of accounting transformation, which exceeded 45 points. In Germany, stable positive dynamics were observed, with the DigitalTechIndex of about 80 and an accounting transformation indicator exceeding 40. The USA had high digitalization indices, however, the effect on accounting transformation was somewhat restrained - within 33-46 points because of the non-application of IFRS (Table 1).

Table 1: Results of the Assessment of Key Indicators of the Impact of Digital Technologies on Accounting Transformation for Selected Countries for 2020–2024

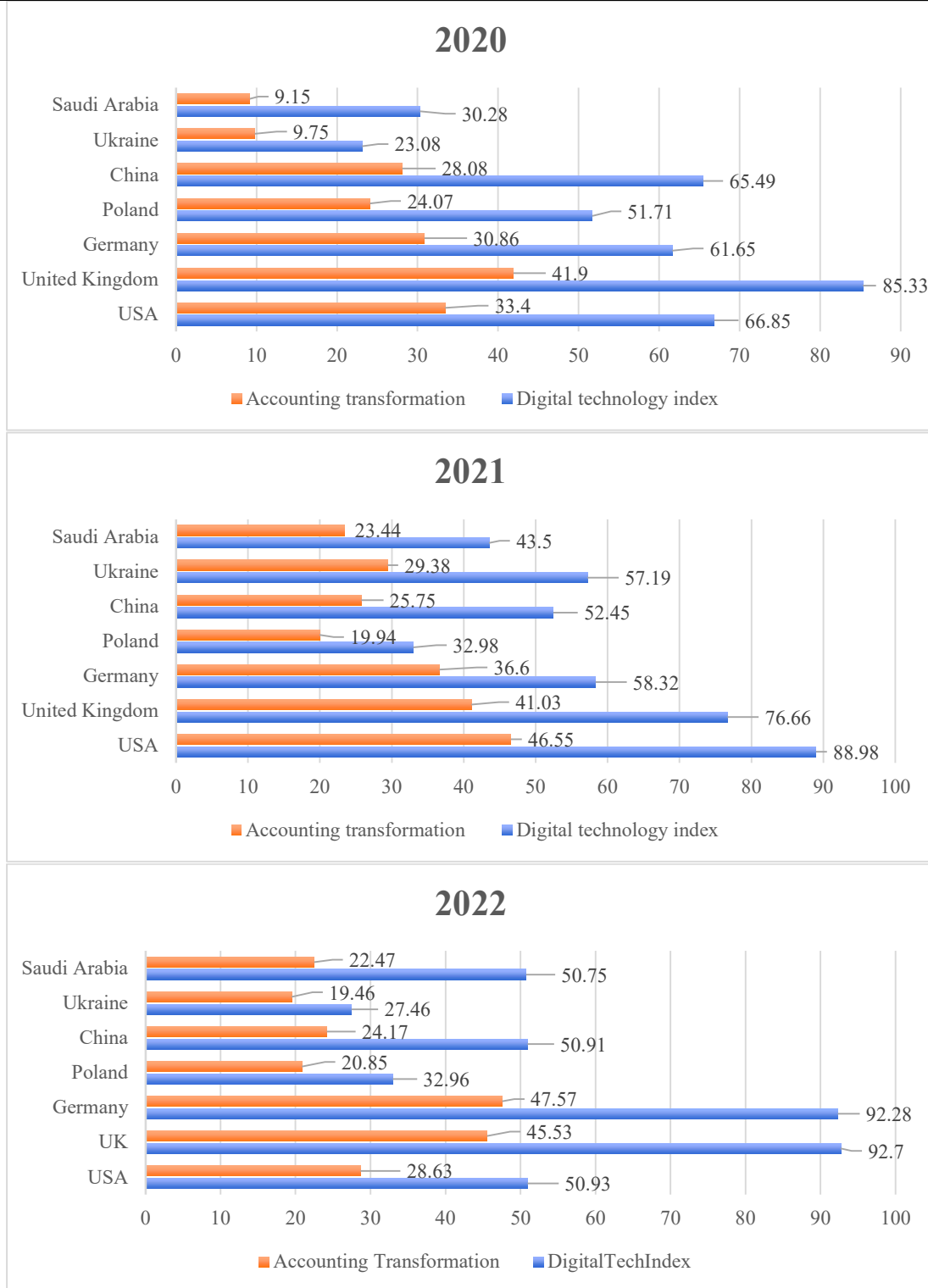
Country	Year	DigitalTechIndex	Accounting Transformation	GDP per Capita	Human Capital	IFRS Adoption
USA	2020	66.85	33.4	53119.89	0.71	0
	2021	88.98	46.55	62022.3	0.88	0
	2022	50.93	28.63	53668.09	0.78	0
	2023	73.61	37.87	58638.9	0.77	0
	2024	77.53	39.73	57327.24	0.81	0
UK	2020	85.33	41.9	43993.48	0.83	1
	2021	76.66	41.03	43410.48	0.72	1
	2022	92.7	45.53	59312.64	0.9	1
	2023	63.71	36.36	48803.05	0.73	1
	2024	72.28	37.01	40687.77	0.93	1
Germany	2020	61.65	30.86	55401.36	0.84	1
	2021	58.32	36.6	64391.69	0.89	1
	2022	92.28	47.57	63437.48	0.72	1
	2023	58.82	36.17	45904.55	0.78	1
	2024	67.49	39.32	52135.07	0.77	1
Poland	2020	51.71	24.07	16409.24	0.74	1

	2021	32.98	19.94	22290.07	0.73	1
	2022	32.96	20.85	18584.66	0.53	1
	2023	64.52	26.28	15635.58	0.59	1
	2024	43.01	25.5	22296.06	0.69	1
China	2020	65.49	28.08	17132.45	0.73	1
	2021	52.45	25.75	17709.67	0.65	1
	2022	50.91	24.17	11078.91	0.51	1
	2023	55.46	27.0	13143.56	0.65	1
	2024	66.3	29.92	17555.51	0.57	1
Ukraine	2020	23.08	9.75	3869.25	0.45	1
	2021	57.19	29.38	5614.38	0.64	1
	2022	27.46	19.46	5677.68	0.56	1
	2023	52.3	24.99	3330.16	0.47	1
	2024	37.08	21.85	5454.04	0.66	1
Saudi Arabia	2020	30.28	9.15	24442.16	0.54	0
	2021	43.5	23.44	38858.19	0.6	0
	2022	50.75	22.47	39435.64	0.79	0
	2023	40.07	25.24	29944.97	0.59	0
	2024	41.39	21.86	30053.58	0.52	0

Source: developed by the author based on the results of an econometric model using the data from World bank [11]; World bank [12]; IMF [13]; IMF [14].

A gradual modernization of accounting practices supported by the implementation of international standards was observed in countries with a medium level of digitalization — Poland and China. Poland had the DigitalTechIndex in the range of 60-70 and accounting transformation of 30-38 points (Figure 2). China demonstrated moderate values of the DigitalTechIndex (50-65) and a corresponding level of accounting transformation, which ranged between 28 and 35. Ukraine recorded

a lower level of digitalization (mainly in the range of 35-50), but the use of IFRS partially compensated for this difference — the level of transformation reached 28-33 points. Saudi Arabia, despite a relatively high GDP per capita, demonstrated a lower level of digital impact on accounting because of the limited use of IFRS and a lower level of human capital.



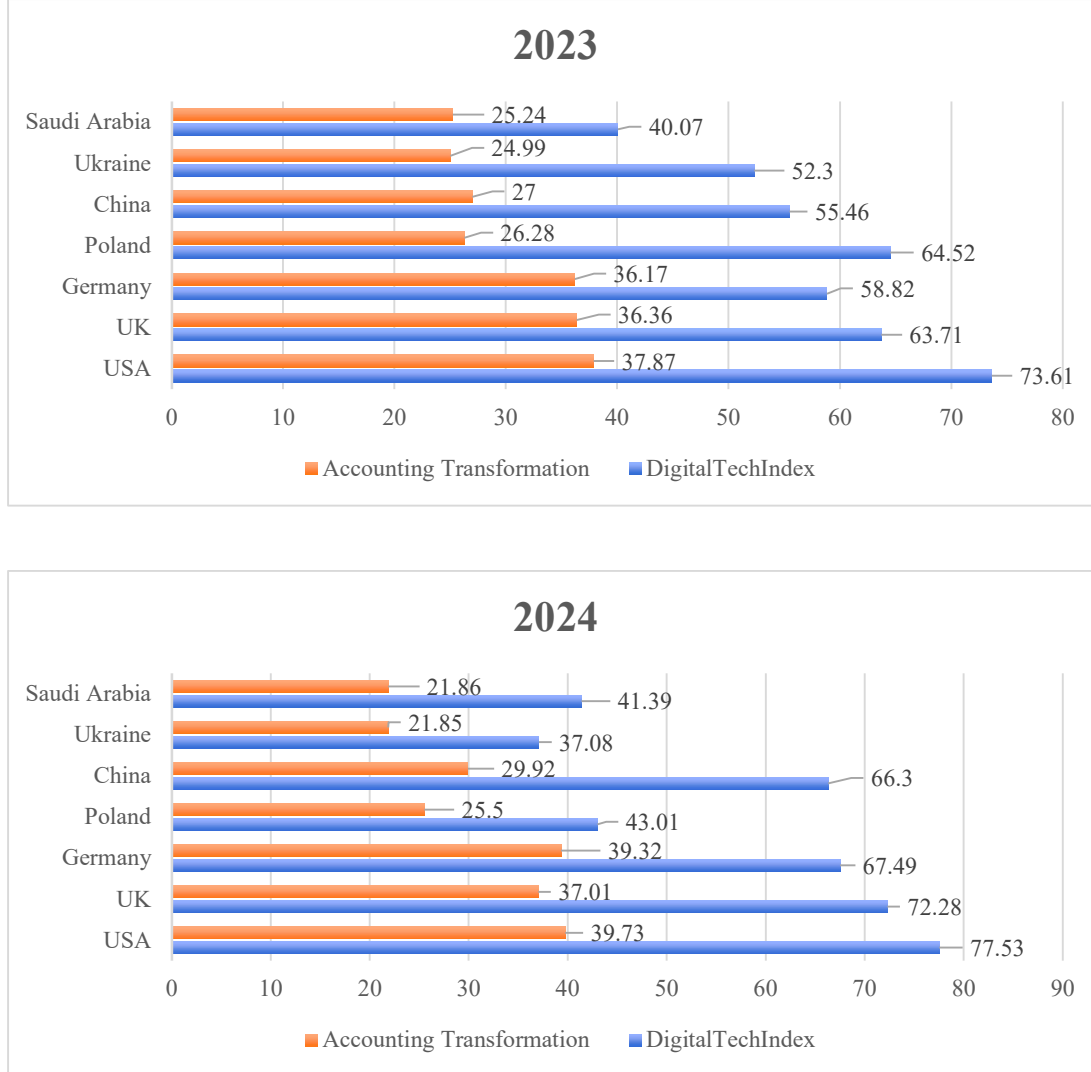


Figure 2: Comparison of Indicators of Selected Countries for 2020-2024

Source: developed by the author based on the results of an econometric model using the data from World bank [11]; World bank [12]; IMF [13]; IMF [14].

Overall, the results confirm a direct relationship between the development of digital technologies and the accounting transformation. The model showed that countries with a higher DigitalTechIndex and implemented IFRS have significantly greater progress in modernizing accounting processes. Human capital plays an important role, in particular the quality of education and digital skills of accountants. In countries where these factors are combined, there is a deeper integration of innovations into financial reporting and automation of accounting operations. So, digital technologies are a key driver of accounting transformation in a global context. The results of the study can be used to shape public policy, educational

initiatives and strategies for the digital development of accounting services. Further research may focus on the sectoral breakdown of the transformation and the impact of specific technologies, such as blockchain or AI.

5. DISCUSSION

Our findings are consistent with Fang et al. [15], who established that blockchain technology improves the transparency and quality of accounting information. We agree that digital tools enhance trust in financial reporting, especially in countries that use international standards. A similar relationship

between the level of digitalization and accounting transformation is found in our model.

Jabor and Hamdan [16] emphasize the positive impact of digitalization on reporting quality, which is consistent with our assessment of the relationship between the DigitalTechIndex and accounting transformation. We agree that digital development is a key factor in financial management effectiveness. Miaoquan et al. [17] note that digital transformation is changing both reporting approaches and the role of accountants. We agree, as our model considers human capital as an important factor in digital change.

Mikhlif and Smaoui [18] state that digital technologies improve the performance of accounting information systems. Our results show that countries with a higher digital index have a higher level of accounting transformation. This indicates that technology creates the basis for effective information management. Otia and Bracci [19] analyse digitalization in public sector auditing, indicating increased transparency. We agree that digital solutions affect accounting in various areas. This confirms the universality of the effect of digitalization.

Papiorek and Hiebl [20] prove that the quality of information systems affects the effectiveness of management control. We support this thesis, as our data demonstrate the impact of human capital on the level of transformation. Highly qualified specialists adapt better to digital changes. Pedroso and Gomes [21] emphasize the role of management in the implementation of accounting systems. Our study confirms that the policy and strategic decisions of the state and management enhance the effect of digitalization.

Saleh et al. [22] argue that Big Data improves the timeliness and accuracy of reporting. We agree that analytical tools are an important component of accounting transformation. Our findings also indicate the importance of such technologies. Schiavi et al. [23] consider digital transformation through the lens of institutional theory. We support the idea that digitalization is not only a technological but also an organizational process. Our results confirmed the change in standards and practices.

Yigitbasioglu et al. [24] note that the role of the accountant is evolving towards a strategic

analyst. This is consistent with our observation of the impact of human capital on digital adaptation. We believe that professional reorientation is key to digital transformation. Gupta et al. [25] substantiate the effectiveness of fuzzy logic in business analytics. We agree that intelligent IT solutions improve the quality of credentials. Our research logically continues this line, proving the value of new analytical approaches.

Koldovskiy [26] emphasizes the importance of digital infrastructure in the financial sector. We support this statement, as they found a direct relationship between infrastructure and the depth of accounting transformation. Latysheva et al. [27] focus on systemic management of company development. Although the study is production-specific, the systemic approach is also relevant for digital changes in accounting. We believe that strategic management is the basis for successful digitalization.

Nikonenko et al. [28] emphasize the importance of innovation policy in the context of Industry 4.0. We share this opinion, as the digital context shapes new approaches to organizing accounting processes. Prokopenko et al. [29] prove the effectiveness of blockchain technologies for accounting transparency. We agree that these solutions have a high potential for transforming reporting, which confirms our results.

Prokopenko et al. [30] analyse the relationship between investment in renewable energy and innovativeness. Although the study is not accounting-specific, it confirms the importance of technological innovation in financial decision-making. This is related to our findings on the significance of innovative activity. Shafranova et al. [31] study Central bank digital currency (CBDC) and quantum financial systems as elements of the future digital architecture. We recognize that even experimental models are important for shaping digital policy in the accounting sector.

All the reviewed studies confirm the high relevance of digital technologies in the transformation of accounting. Our study is logically connected with current academic approaches and deepens them in an international comparative context. Such integration of theoretical and practical approaches provides a holistic understanding of the digital transformation in the accounting sector. The obtained results are fully consistent with the research

hypothesis regarding the positive impact of digital technologies on the transformation of accounting. In particular, the variables DigitalTechIndex and IFRSA adoption were found to be statistically significant and confirmed the expected direction of influence. The obtained results can be used to develop national strategies for digitalization of accounting and improve IFRS implementation policies in transforming countries. This also makes it possible to optimize training and investment in digital infrastructure of accounting systems.

5.1. Limitation

One of the key limitations of the study is the limited number of countries, which may affect the generalizability of the conclusions. Some countries have limited access to open and standardized statistics, which makes it difficult to provide a full comparison. Besides, the indices of digital technologies and accounting transformation are formed on the basis of aggregated indicators, which may not take into account industry specifics. The model does not take into account the specifics of domestic reforms, the legal environment and the level of digital literacy of the population. The study also does not cover the impact of specific technologies, such as blockchain or AI, separately from the general digital index.

5.2. Recommendations

Further research should be expanded to include more countries from different economic clusters. It is important to conduct sectoral research that takes into account the specifics of the digital transformation of accounting in industry, the service sector, or the public sector. It is appropriate to develop separate indicators to assess the impact of specific technologies, in particular RPA, AI, and blockchain systems. The role of the regulatory environment, the level of digital education of accountants, and access to technical infrastructure are also worth considering. The results can be the basis for developing national strategies for digitalization of accounting and the implementation of international standards.

6. CONTRIBUTION AND DISTINCTION FROM PRIOR RESEARCH

This study makes a distinctive contribution to the literature by providing a multi-country econometric evaluation of the relationship between digital technologies and accounting transformation, which remains underexplored in previous research.

While prior works have largely focused on sector-specific case studies (e.g., healthcare [2], education [1], public services [4]), this paper broadens the scope through a panel data analysis across seven countries with diverse digital maturity levels.

Unlike Aboelfotoh et al. [6] or Saleh et al. [22], who discuss Big Data or analytics benefits qualitatively, our study introduces a Digital Technology Index and tests its impact quantitatively using fixed effects modelling. The inclusion of human capital and IFRS adoption as moderating variables further distinguishes the research, bridging the technological and institutional dimensions, which many existing works (e.g., [9], [17]) treat in isolation.

Additionally, the research addresses a notable gap by comparing accounting transformation not only in digitally advanced economies (UK, Germany) but also in developing or transitioning countries (Ukraine, Saudi Arabia). This comparative design enhances the global relevance of findings and sets a foundation for cross-national policy benchmarks.

Therefore, this work advances the state of the art by integrating technological, regulatory, and human capital factors into a single explanatory framework, empirically validated with recent international data (2020–2024). It contributes both to academic theory and practical policy formation for digital transformation in accounting.

7. CONCLUSIONS

The relevance of the study is determined by the rapid introduction of digital technologies in the accounting sector and the growing need to adapt to global changes. Effective management of financial information requires the modernization of accounting systems based on technological solutions in the digital age.

The results of the study confirm the significant positive impact of digital technologies on the transformation of accounting in the international context. The highest level of accounting transformation was recorded in the UK (over 45 points), which correlates with a digital technology index of over 85. Germany also demonstrates stable results, where the transformation indicator exceeds 40 points at the DigitalTechIndex of about 80. The USA, despite high digital indicators (up to 88.9), has

a lower level of accounting transformation (up to 46.5) because of non-use of IFRS. Poland and China demonstrate positive dynamics of accounting modernization due to a combination of digital shifts and regulatory integration. Ukraine has the DigitalTechIndex within 35–50, but it reaches a transformational level of up to 33 points thanks to the implementation of IFRS.

The model showed that the DigitalTechIndex variable is statistically significant and has a positive impact on the transformation of accounting. The value of the IFRSAdoption variable as a factor that enhances the effect of digitalization was also confirmed. The human capital indicator as a catalyst in countries with a high level of education and qualification of accounting personnel.

The research objectives stated at the beginning of the study have been fully addressed. The analysis confirmed that digitalization levels, human capital, GDP per capita, and IFRS adoption all significantly influence the depth of accounting transformation. Specifically, the Digital Technology Index and IFRS adoption showed the strongest correlation with transformation outcomes, thus achieving the objective of identifying key drivers. The econometric model provided a reliable quantitative assessment of how digital technologies interact with institutional and educational factors, validating the proposed hypothesis. Furthermore, cross-country comparisons allowed for assessing differences in digital maturity and accounting practices, which fulfilled the objective of capturing international variation.

At the same time, the study is subject to several limitations that may affect the generalizability of the results. The number of countries analysed was limited due to data availability, and the constructed indices may not fully capture sectoral differences or local reforms. Additionally, the reliance on panel data assumes consistent quality and reporting across countries, which may introduce minor discrepancies in variable measurement. These factors should be considered when interpreting the findings and applying them to other contexts.

The obtained results give grounds to assert that the digital transformation of accounting is a multifactorial process, where technologies, standards, and human resources have a complementary effect. Successful modernization of

accounting requires a systemic approach that combines investment in digital infrastructure and education. The study can be an analytical basis for the development of national policies for the digitalization of financial reporting and accounting.

Promising areas for further research may be expanding the sample of countries, including countries with low levels of digitalization, and analysing dynamics over the long term. It is also appropriate to deepen research at the sectoral level, in particular in industry, banking, and public administration. Particular attention should be paid to analysing the impact of specific technologies, such as blockchain, AI, and robotic process automation, on the functioning of accounting systems. Further research should also consider the role of digital education, cybersecurity, and the adaptation of professional standards to the digital economy.

In summary, the study demonstrates that digital technologies are a critical driver of accounting transformation. Our analysis confirms that higher digital maturity—especially when combined with IFRS adoption and robust human capital—leads to significantly improved accounting processes, thereby addressing the main research question posed in the introduction. The results validate our hypothesis that the interplay of technological, regulatory, and human factors is essential for modernizing accounting practices.

However, some limitations remain. The relatively small, cross-national sample and reliance on aggregated indicators may restrict the generalizability of the findings. Future research should address these shortcomings by incorporating larger datasets, exploring sector-specific impacts, and investigating emerging technologies such as blockchain and AI. Such work will further refine our understanding and contribute to more targeted strategies for digital transformation in accounting.

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