THE IMPACT OF DİGİTAL ACCOUNTİNG APPLİCATİONS ON FRAUD DETECTİON AND AUDİT EFFECTİVENESS: EVİDENCE FROM ACCOUNTİNG PROFESSİONALS[1]

O IMPACTO DAS APLICAÇÕES DE CONTABILIDADE DIGITAL NA DETECÇÃO DE FRAUDES E NA EFICÁCIA DA AUDITORIA: EVIDÊNCIAS DE PROFISSIONAIS DA CONTABILIDADE

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Abstract

With the rapid digitalization in the accounting profession in recent years, it has become easier to provide financial statement users with more transparent and reliable information. At this point, the opinions and attitudes of professionals, who are at the center of the e-application monitoring and compliance process, regarding the applications and their impact on auditing are important. Accordingly, the aim of this study is to evaluate the impact of digitalization in the accounting profession on errors and fraud encountered in accounting audits from the perspective of professionals. To this end, a survey was conducted with 198 professionals working in the province of Sakarya. The data obtained were analyzed using the SPSS 27.0 program. The analyses revealed that professionals held a positive view regarding the impact of e-applications on auditing; they believed that the applications facilitated the control and auditing of transactions and increased the reliability of accounting information. Professionals agree that e-applications prevent fraudulent financial reporting by increasing transparency in financial statements, reduce unregistered activities, and contribute to accurate taxpayer declarations. Therefore, there is a strong belief that these applications have a preventive effect on the use of false and misleading documents and help prevent tax losses and evasion.

Resumo

Com a rápida digitalização da profissão contábil nos últimos anos, tornou-se mais fácil fornecer aos usuários das demonstrações financeiras informações mais transparentes e confiáveis. Neste contexto, as opiniões e atitudes dos profissionais — que estão no centro do processo de monitoramento e conformidade das aplicações eletrônicas — em relação às aplicações e seu impacto na auditoria são importantes. Assim, o objetivo deste estudo é avaliar o impacto da digitalização na profissão contábil sobre os erros e fraudes encontrados nas auditorias contábeis, a partir da perspectiva dos profissionais. Para tal, foi realizada uma pesquisa com 198 profissionais que atuam na província de Sakarya. Os dados obtidos foram analisados utilizando o programa SPSS 27.0. As análises revelaram que os profissionais tinham uma visão positiva quanto ao impacto das aplicações eletrônicas na auditoria; eles acreditavam que as aplicações facilitavam o controle e a auditoria das transações e aumentavam a confiabilidade das informações contábeis. Os profissionais concordam que as aplicações eletrônicas impedem relatórios financeiros fraudulentos ao aumentar a transparência nas demonstrações financeiras, reduzem atividades não registradas e contribuem para declarações precisas dos contribuintes. Portanto, há uma forte convicção de que essas aplicações têm um efeito preventivo

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[1] This work was derived from the first author's master's thesis.

sobre o uso de documentos falsos e enganosos e ajudam a evitar perdas e evasão fiscal.

1 INTRODUCTION

Digital transformation has significantly reshaped the accounting profession and the way financial information is produced, processed, and audited. Advances in information technology, such as cloud computing, artificial intelligence, blockchain, and big data analytics, have led to the emergence of digital accounting systems that automate traditional accounting processes and increase the efficiency of financial reporting and auditing activities. As a result, accounting practices have gradually shifted from manual and paper-based procedures to integrated digital systems that enable faster, more reliable, and more transparent financial data processing.

In many countries, governments and regulatory authorities have introduced electronic accounting applications such as electronic invoices, electronic ledgers, and electronic declarations to support the digital transformation of accounting systems. These applications aim to increase the transparency and reliability of accounting information, facilitate tax monitoring processes, and reduce the prevalence of unregistered economic activities. By enabling the automatic recording, processing, and verification of financial transactions, digital accounting applications are expected to strengthen internal control mechanisms and increase the effectiveness of audit processes.

The increasing digitization of accounting practices has also affected the nature and scope of audit activities. Traditional audit methods, which are generally based on manual review and sampling techniques, are gradually being replaced by data-driven audit approaches supported by advanced digital technologies. Digital accounting systems enable auditors to access large amounts of financial data in real time, perform more comprehensive analyses, and more effectively detect irregularities such as accounting errors and fraudulent transactions. As a result, digital transformation is recognized as one

of the key drivers for improving audit quality and enhancing fraud detection capabilities in modern accounting environments.

Despite the growing importance of digital technologies in accounting and auditing, empirical research examining the practical effects of mandatory electronic accounting applications on the detection and prevention of accounting errors and fraud is relatively limited. While current studies largely focus on new technologies such as artificial intelligence, blockchain, and big data, less attention has been paid to the role of widely implemented e-transformation applications, including e-invoicing and e-ledger systems, particularly from the perspective of accounting professionals who interact directly with these systems in their daily practice. It is clear that the focus of the new generation of accountants will be on digitalization and technology (Allahverdi, *et al*., 2021) . The accountant of the near future will be someone who can work with robots, adapt to digital innovations, read and analyze data, and provide consulting services to companies. From this perspective, successful financial advisors in the future will be professionals who embrace technological changes and succeed in becoming part of the new system (Akdoğan & Akdoğan, 2018).

In this context, the current study aims to examine the impact of digital accounting applications on the detection and reduction of accounting errors and fraud in audit processes from the perspective of accounting professionals. Using survey data collected from accounting professionals operating in the Sakarya province of Turkey, this study provides empirical evidence on how digital accounting tools affect audit effectiveness, data reliability, and fraud prevention mechanisms.

The study addresses the impact of digital accounting applications on audit effectiveness and fraud detection within the framework of two fundamental theoretical approaches: the Technology Acceptance Model (TAM) and Institutional Theory. The Technology Acceptance Model explains individuals' intentions to adopt and use a new technology through the variables of "perceived usefulness" and "perceived ease of use." The findings obtained in the article show that professionals in Sakarya find e-invoice and e-ledger applications "transparent, understandable, and business-facilitating." This confirms that perceived ease of use in the TAM model is a critical precursor to the integration of technology into audit processes. The satisfaction of professionals with these applications directly increases their belief in the capacity of digital tools to reduce errors

and fraud (perceived benefit). Organizational Theory explains why organizations and professionals adopt similar structures and practices through the concept of "isomorphism." The e-transformation process carried out by the Revenue Administration in Turkey is an example of "coercive isomorphism." The study shows that even without legal obligation, the vast majority of professionals want to continue using these applications, indicating that digitalization, which began as mandatory, has gradually become a professional norm (normative isomorphism). This theoretical groundwork proves that digital applications are accepted not only as a legal obligation but also as an institutional mechanism that improves audit quality.

The study contributes to the literature in several ways. First, it provides empirical evidence on the role of mandatory digital accounting applications in improving audit processes and reducing irregularities in accounting practices. Second, it offers a practical perspective by examining the perceptions and experiences of accounting professionals regarding the digital transformation of accounting systems. Finally, the findings provide insights for policymakers, regulators, and professional bodies seeking to enhance the effectiveness of digital accounting systems and strengthen the reliability of financial reporting and auditing practices. Based on a literature review, this study presents a research model that examines the relationship between digital accounting practices, accounting errors and fraud awareness, and the perceived effectiveness of digital accounting systems in reducing irregularities in audit processes.

Figure 1

Research Model

Digital Accounting Applications → Fraud and Error Awareness → Reduction of Fraud and Errors in Auditing

2 LITERATURE REVIEW

With the advancement of information technology, accounting information systems have been restructured, transforming the ways in which data is collected, analyzed, and reported, thereby placing accounting at the center of technology-supported

decision-making systems (Granlund, 2011). It is predicted that the future of the accounting profession will be significantly affected by the current developments in information technology-based digitalization (Al-Htaybat *et al*., 2018). In this changing environment, it is inevitable that applications such as Industry 4.0 technologies, smart systems, artificial intelligence, blockchain, cloud computing, the Internet of Things, and big data analytics will affect the education and working methods of professionals in terms of financial reporting and auditing. In this process, where accounting operations have become digital and have replaced past manual applications and limited computer use (Carlsson-Wall *et al*., 2022), it is important for professionals whose roles and responsibilities are changing to acquire new competencies, adapt to change, and seize new opportunities. The digital environment is redefining the content and type of knowledge and skills required by accountants (Rauramo, 2021: 102), reducing their manual tasks and offering them more opportunities for creative and strategic thinking. This increases the competitiveness of businesses and makes value creation processes more efficient (Tran, 2023). In particular, the proliferation of technologies such as artificial intelligence, robotic process automation (RPA), and cloud computing increases the speed, accuracy, and accessibility of accounting processes; at the same time, it makes it necessary for professionals to acquire new competencies such as digital literacy, data analysis, and system management (Brynjolfsson & McAfee, 2017).

With the widespread digitization and artificial intelligence in the field of accounting and auditing, there is a growing need for individuals who are experts in management accounting, who can quickly adapt to e-transformation, who implement financial information systems, and who have self-learning skills. At this point, the educational structure, curriculum, course content, and teaching resources need to be updated to ensure high-quality and needs-based education in accounting and auditing (Zhou *et al*., 2022). Students studying accounting, who are the future professionals, primarily learn about developments in information technology and accounting software both theoretically and practically at educational institutions. In their professional lives, they also have the opportunity to develop themselves through some vocational training offered by employers and through applications in the work environment (Lestari and Santoso, 2009).

In Turkey, the digital transformation process initiated by the Revenue Administration in the recent past has replaced paper-based declarations and documents with electronic declarations and electronic documents. Furthermore, thanks to the e-ledger application, the need for large archives and storage areas has been eliminated, and significant time savings have been achieved (Şalcı, 2021). The need to transfer accounting to an electronic environment is based on the establishment of an appropriate infrastructure in the process of complying with national and international standards, increasing voluntary compliance by taxpayers, and efforts to monitor and prevent the informal economy. The obligation to issue e-ledgers and e-invoices has been introduced to control the informal economy (Karesioğlu and Garip, 2019). In accounting processes, e-applications such as e-invoicing, e-archiving, e-ledgers, and e-notifications save time and costs in transaction recording, control, and information presentation, while also increasing efficiency in internal control and internal audit systems, contributing to a reduction in error and fraud rates. With the transfer of data to computers using these documents, access to information has become faster and more secure, and audit activities have become more transparent. As a result of these developments, the reliability of financial statements has increased, and healthier information has been conveyed to users (Yürekli *et al*., 2016). For example, blockchain technology offers significant advantages in terms of transparency and accuracy by increasing the reliability of accounting data (Shi, 2020). Accounting transactions recorded on the blockchain cannot be altered or deleted once approved; this creates a secure accounting information system that provides reliable data sharing and continuous reporting .

Transactions occur in real time without intermediaries, while data is continuously recorded and disseminated across the network (Spanò *et al*., 2022). Again, in the cloud-based accounting model, data is securely stored and processed in the cloud through a flexible and accessible solution via internet access, thus providing businesses with access to their financial data from anywhere (Dimitriu and Matei, 2014). Cloud accounting acts like a virtual financial manager, lightening the accounting workload and preparing and presenting financial reports that comply with periodic reporting standards (Zhang and Gu, 2013). With the migration of accounting and auditing software to the cloud infrastructure, real-time data flow and multi-user simultaneous working capabilities have been provided (Marston *et al*., 2011). Cloud computing provides transparency, security, and traceability

in accounting (Dai & Vasarhelyi, 2017). Artificial intelligence applications in accounting and auditing provide significant benefits such as increased work efficiency, reduced errors, prevention and control of corporate risks, and increased competitiveness (Shi, 2020). Thanks to these technologies, financial transactions can be analyzed much faster, and erroneous or unusual data can be detected instantly; thus, both internal control processes are strengthened and accounting professionals can focus on more strategic issues (Issa, Sun & Vasarhelyi, 2016). These technologies are used in the classification of financial data, detection of anomalies, fraud prevention, risk management, and auditing processes (Davenport & Ronanki, 2018). Robotic process automation (RPA) can perform manual tasks in seconds and minimizes human-induced errors (Lacity & Willcocks, 2016). The use of big data analytics alongside traditional methods in detecting accounting fraud and deception facilitates a clearer and more accurate determination of the incident in the event of a possible case (Vasarhelyi *et al*., 2015; Yoon *et al*., 2015).

All these technologies have enabled the proliferation of e-applications in the accounting profession and raised the expectations of professionals and public institutions (Koca, 2025). E-accounting modernizes accounting processes by offering businesses more efficient, secure, and accessible financial management (Alimova, 2024). Accounting professionals who adapt to the digital transformation process will have easier access to large amounts of data, thereby enabling faster data processing and analysis, increasing the effectiveness and efficiency of the accounting process (Baysal Artık & Arslan, 2024: 107). The concept of digitalization has greatly affected the field of auditing as well as accounting. With digitalization, auditors can save time for high value-added core tasks and transition to comprehensive data auditing using big data analysis instead of sampling methods. Data mining, data analytics, cloud, and cognitive technologies enable smarter and more realistic analyses, leading to healthier decisions (Manita *et al*., 2020).

The impact of the digital age on the accounting profession has also been addressed in numerous academic studies in the field of accounting. Agustí and Orta-Pérez (2022) stated that there has been an increase in the number of studies examining the effects of big data and artificial intelligence on accounting and auditing in recent years, and that academic interest in this area has grown. In their work, Pan and Seow (2016) addressed digital transformation in terms of accounting education , emphasizing that students need

to be educated on accounting information systems and digital applications in order to be successful in the auditing and accounting professions in the future. Awang *et al*. (2022) found in their study on intern students that the digitization of the accounting profession presents both high opportunities and significant risks for future accountants. Imene and Imhanzenobe (2020) examined the impact of changes in information technology on the accounting profession and stated that Industry 4.0 technologies will contribute to the timely and accurate presentation of accounting data. Kılıç and Anadolu (2018), in their survey study, found that technology-based accounting applications have a positive effect on detecting and preventing accounting errors and fraud; internal auditing, internal control systems, and independent auditing activities. Leitner-Hanetseder *et al*. (2021) drew attention to the idea that activities such as transaction recording, data and information management, data mining, reporting methods, and consulting performed by accountants will be carried out using artificial intelligence-based technological applications by 2030. Similarly, Fedyk *et al*. (2022) found in their interview study that artificial intelligence applications commonly used in auditing activities improve audit quality. Research conducted by Odoh *et al*. (2018) concluded that artificial intelligence positively affects the performance of accounting functions. In their work, Fettry *et al*. (2019) found that digitalization has changed the way of thinking and practice in the field of accounting, and that most accountants see digitalization as both a benefit and a challenge. Bouvet (2021) found that accountants increasingly use digital technologies such as cloud computing, artificial intelligence, and automation in their daily work and are aware of the benefits of digitalization. A study conducted by Jackson and Allen (2023) on accounting managers emphasized that it is essential for organizations to train their accounting staff on the value of technology and to receive specific support from the government and professional associations. Survey analyses of accounting professionals in the studies by Hońko and Hendryk (2024) showed that the preparation of accounting documents and business processes have the highest potential in terms of artificial intelligence integration. Segal (2016) highlights existing computer-based audit and data mining techniques in detecting and preventing accounting fraud, arguing that data mining software is an effective solution for detecting fraudulent transactions. Kılıç and Anadolu (2018) found that professionals believe digital applications positively affect information reliability, contribute to the detection of fraudulent transactions, and that the trend of

fraudulent financial reporting decreases with digitalization. In a study conducted by Çalış *et al*. (2014), fraudulent transactions made in the purchasing department of a company operating in the healthcare sector were identified using the Benford's Law method, and as a result, a high probability of fraud was detected in the department. The research conducted by Köroğlu *et al*. (2022) aimed to reveal how digital transformation applications affect accounting and auditing processes in different sectors.

Some studies describe the future roles of accountants as "information specialists" (Jackling and De Lange, 2009), "business partners" (Goretzki *et al*., 2013), "system designers," and "consultants" (Yardımcıoğlu *et al*., 2019), "data processor," "financial report provider," and "transaction auditor" (Chen *et al*., 2012), "financial engineer" (Kablan, 2018), and accounting engineer (Erdoğan, 2019).

Recently, Barr-Pulliam *et al*. (2022) noted in their literature review that studies emphasize how digital transformation has significantly changed auditing practices by increasing the use of artificial intelligence, data analysis, and automated audit tools. Perdana and Wang (2024) state that technologies such as blockchain, artificial intelligence, and big data analysis play a crucial role in increasing the efficiency of audit processes and strengthening fraud detection mechanisms. Becerra Huamán *et al*. (2025) state in their systematic literature review that digital auditing tools support the professional skepticism of independent auditors with a technological database and increase the accuracy of fraud risk analyses. Similarly, Adhikari and Jnr (2025) reveal that artificial intelligence (AI) and machine learning algorithms enhance financial accuracy, strengthening fraud detection and tax compliance. Abu-Dabaseh *et al*. (2025) emphasized that digital transformation is an important tool in preventing accounting fraud, but that this effect must be supported by mature cybersecurity infrastructure. Sarna *et al*. (2025), in their study examining fraud patterns in financial networks, found that 'information asymmetry' decreases in highly digitized businesses, which significantly limits management fraud. Guo (2024) showed that digital audit transformation improves audit quality and that electronic evidence collection and data analytics processes are important in reducing fraud risk. Furthermore, Sun *et al*. (2024) stated that big data analytics transform accounting and auditing processes and contribute to the early detection of fraud and irregularities in areas such as anomaly detection, risk assessment, and data security.

The current literature emphasizes that digital accounting applications have evolved beyond mere recording tools to become proactive fraud detection systems. Studies reveal that digitalization both complicates fraud in accounting and enables its detection and prevention, highlighting that digital competence and cybersecurity maturity are critical for improving audit quality. In this context, strengthening accountants' skills in digital tools and data analytics is of great importance in both reducing fraud risk and improving audit quality. This current literature parallels the findings of 'high trust and satisfaction with digital applications among professionals' obtained in the Sakarya example and confirms the critical role of digitalization in audit effectiveness on a global scale.

3 METHODOLOGY

The survey method was used in this study to determine the opinions of professionals working in Sakarya province. The survey form used was compiled from the survey forms used in the studies by Yıldırım (2020); Türker Demir (2020); Edis (2021), Durmuş and Kaya (2019), and Özdemir (2016). The first section of the questionnaire consists of fourteen questions covering demographic and certain professional characteristics. Subsequently, participants were asked a total of forty-one questions across three scales regarding their opinions and attitudes on fraud and error; digital accounting applications; and the impact of digital accounting applications on reducing fraud and error in accounting audits. The analysis of the obtained data was performed using the SPSS 27.0 program, and the study was conducted at a 95% confidence level. Frequency (n) and percentage (%) were given for categorical (qualitative) variables, while mean (M), standard deviation (SD), minimum, and maximum statistics were given for numerical (quantitative) variables. Pearson correlation test, independent groups t-test, and one-way ANOVA tests were applied in the study. The population of the study consists of members registered with the Sakarya Chamber of Certified Public Accountants. The sample of the study consists of 198 members of the profession registered with the Sakarya Chamber of Financial Advisors operating in the province of Sakarya. Due to time and cost constraints and difficulties, an easily accessible sample selection was preferred. The findings obtained in the study are limited to the professionals operating in Sakarya province, who

also constitute the sample of the study. It was assumed that the professionals participating in the study answered the survey questions honestly, that the answers reflected their own opinions, and that the scales and survey questions used were sufficient for the purpose of the study.

3.1 Analysis and findings

The reliability of the scale was assessed using Cronbach's Alpha coefficient. The Cronbach's Alpha value of the scale was found to be 0.964, indicating a very high level of internal consistency. Therefore, the scale is considered highly reliable for measuring accounting professionals' perceptions of the impact of digital accounting applications on reducing fraud and errors in audit processes.The Kaiser-Meyer-Olkin (KMO) test and Bartlett's Sphericity Test were performed to determine whether the data was suitable for factor analysis. The KMO value was found to be 0.946, indicating excellent sample adequacy. Furthermore, the Bartlett Sphericity Test was statistically significant (χ^2 = 3804.730, p < 0.05). These results indicate that the data is suitable for factor analysis. Exploratory factor analysis was performed to determine the factor structure of the scale. The results showed that the scale has a single-factor structure consisting of 20 items. Factor loadings ranged from 0.629 to 0.852, and the total variance explained by the factor is 59.803%. These results indicate that the scale has satisfactory construct validity.

Accordingly, the hypotheses of the article are:

- H1: There is a significant difference in the perceptions of the effectiveness of digital applications in preventing cheating among professionals based on their level of satisfaction with the use of digital tools;
- H2: Based on professionals' perceptions of ease of use of digital tools, there is a significant difference in their perceptions of the effectiveness of digital applications in preventing fraud;
- H3: There is a significant difference in the views of professionals regarding the effectiveness of digitalization on auditing based on their professional seniority.

The frequency and percentage distributions of participants according to demographic variables such as gender, age, education level, length of service in the profession, number of employees, and number of taxpayers are as shown in Table 1:

Table 1

Findings Regarding Participants' Demographic Characteristics

		n	%
Gender:	Female	104	52.5
	Male	94	47.5
Age:	18 - 24	9	4.6
	25 - 34	74	37.9
	35 - 44	70	35.9
	44 - 54	37	19.0
	55	5	2.6
Your Education Level:	High School and Equivalent	5	2.6
	Associate Degree	11	5.6
	Bachelor's Degree	138	70.8
	Postgraduate	41	21.0
Years of Professional Experience:	0 - 5 years	53	26.9
	6 - 10 years	49	24.9
	11–15 years	39	19.8
	16 - 20 years	28	14.2
	21	28	14.2
Number of Employees:	I work alone	85	44.3
	1 - 4	80	41.7
	5 - 8	16	8.3
	9 - 12	7	3.6
	13	4	2.1
Number of Taxpayers:	0 - 30	90	47.1
	31 - 60	33	17.3
	61 - 90	29	15.2
	91 - 120	23	12.0
	121+	16	8.4

The gender distribution of participants showed that women accounted for 52.5% and men for 47.5%. In terms of age distribution, 78.4% of participants were aged 18-44, while 21.6% were over 44. In terms of education level, 2.6% of participants had a high school or equivalent education, 5.6% had an associate's degree, 70.8% had a bachelor's degree, and 21.0% had a postgraduate degree. Looking at the distribution of participants according to their length of service in the profession, 51.8% have 0-10 years of experience, while 48.2% have over 10 years of experience. When examining the number of employees, it was found that 44.3% of participants work alone. When examining the

distribution of participants according to the number of taxpayers, 64.4% of professionals have 0-60 taxpayers.

Table 2

Findings Regarding Participants' E-Transformation Processes

		n	%
1) Your E-Ledger Customer Ratio	0–20	115	60.8
	21–40	38	20.1
	41 - 60	17	9.0
	60–81%	8	4.2
	81% - 100	11	5.8
2) Percentage of Customers in the Digital Accounting Transformation Process:	0 - 20	87	46
	21% - 40	48	25.4
	41 - 60	20	10.6
	60–81%	24	12.7
	81% - 100	10	5.3
3) How often do you use the Internet Tax Office?	1-2 hours per day	127	64.1
	3-4 hours per day	64	32.3
	5–6 hours per day	2	1.0
	7 hours or more per day	5	2.5
4) Do you use the E-Declaration System?	We use it via the online system	75	38.1
	We use it through a package program.	115	58.4
	We do not use it	7	3.6
5) Do you use the E-Ledger System?	We use it through the online system	60	30.8
	We use it through a packaged program.	129	66.2
	We do not use it	6	3.1
6) Do you use the e-invoice system?	We use it through the online system	42	21.9
	We use it through a package program.	138	71.9
	We do not use it	12	6.3
7) Which of the following is useful in preventing accounting fraud? You may select more than one option.	Internal Audit	130	65.7
	Internal Control	112	56.6
	Independent Audit	90	45.5
	Hotlines	35	17.7
	Information Technology Audit	70	35.4
	Audit Activities Conducted by Certified Public Accountants as Part of Full Audit Work	52	26.3
8) Did you encounter any difficulties during the transition to the e-invoice system?	Yes	16	8.2
	No	165	84.2
	Undecided	15	7.7
9) If there were no legal requirement, would you switch to e-invoicing?	Yes	150	76.1
	No	32	16.2
	Undecided	15	7.6
10) Are you satisfied with the e-invoice application?	Yes	174	88.8
	No	9	4.6
	Undecided	13	6.6
11) Does the E-Invoice Application Simplify Your	Yes	170	86.3
	No	14	7.1
	Undecided	13	6.6

Accounting Processes?			
12) If there were no legal obligation, would you switch to e-ledger application?	Yes	112	56.9
	No	59	29.9
	Undecided	26	13.2
13) Are you satisfied with the E-Ledger Application?	Yes	129	65.5
	No	39	19.8
	Undecided	29	14.7
14) Does the E-Ledger Application Simplify Your Accounting Transactions?	Yes	122	61.9
	No	49	24.9
	Undecided	26	13.2

Table 2 shows that 80.9% of participants fall within the 0-40% range in terms of the E-Ledger customer ratio. These results can be interpreted as indicating that the e-ledger application is not being voluntarily adopted by small businesses and taxpayers who are not required to transition, except for taxpayers with activities above a certain sales revenue threshold. When evaluating the customer ratio undergoing digital accounting transformation, 71.4% of participants fall within the 0-40% range. This result indicates that efforts related to transitioning to the e-transformation process are not at the desired level. Factors such as taxpayers struggling to adapt to e-applications and the high cost of software packages may be contributing to this. Again, due to the effect of the internet tax office being easily used by taxpayers to speed up their work, it is seen that the majority of participants (64.1%) use the internet tax office for 1-2 hours a day. According to the results, the e-Declaration, e-Ledger, and e-Invoice systems are mostly used through packaged software. This result shows that packaged software is transparent, understandable, and effective in facilitating the work of professionals.

When looking at methods that are useful in preventing accounting fraud, 65.7% of participants found internal auditing useful, 56.6% found internal control useful, 45.5% found independent auditing useful, 17.7% found hotlines useful, 35.4% found information technology auditing useful, and 26.3% found auditing activities carried out by certified public accountants (CPAs) useful. Participants are aware of the contributions of internal auditing to businesses, such as increasing efficiency, protecting and recording assets, and preventing fraud and abuse risks. The vast majority of participants did not experience difficulties in transitioning to e-invoicing and e-ledger applications, would prefer to use the application even if it were not legally required, and were satisfied with

the application. These results are thought to stem from the e-invoicing and e-ledger system having a transparent, understandable, and easy-to-implement and use structure.

Table 3

Findings Regarding Participants' Opinions and Attitudes Regarding Errors and Fraud

	Strongly Disagree		Disagree		No Opinion		Agree		I definitely agree			
	n	%	n	%	n	%	n	%	n	%	Avg.	ss
1. Accounting fraud is committed for the purpose of tax evasion.	30	15.15	31	15.66	17	8.59	85	42.93	35	17.68	3.32	1.343
2. Accounting fraud is committed deliberately and kept secret.	23	11.62	30	15.15	19	9.60	88	44.44	38	19.19	3.44	1,280
3. Accounting errors occur due to negligence and carelessness.	12	6.06	29	14.65	14	7.07	109	55.05	34	17.17	3.63	1,114
4. Accounting frauds are unrecorded transactions conducted without documentation.	23	11.62	49	24.75	31	15.66	71	35.86	24	12.12	3.12	1.244
5. If there is intent in an error, there is 100% accounting fraud.	41	20.71	55	27.78	23	11.62	49	24.75	30	15.15	2.86	1.396
6. Accounting errors occur due to lack of knowledge and inexperience.	23	11.62	45	22.73	28	14.14	86	43.43	16	8.08	3.14	1.199
7. Accounting errors occur due to the lack of fully qualified and competent professionals in the field.	18	9.09	49	24.75	28	14.14	87	43.94	16	8.08	3.17	1.162
8. Even with the best technology, people who are not competent will always be prone to making accounting errors.	13	6.57	37	18.69	37	18.69	88	44.44	23	11.62	3.36	1.112
9. Even if accounting professionals are fully equipped and knowledgeable about accounting errors, they cannot prevent mistakes from occurring.	18	9.09	65	32.83	36	18.18	60	30.30	19	9.60	2.98	1.177
10. Establishing an internal control system by management to prevent errors and fraud is a useful tool.	9	4.55	9	4.55	15	7.58	94	47.47	71	35.86	4.06	1.014
11. Establishing and implementing ethical rules within the company is an effective way to prevent errors and fraud.	7	3.54	10	5.05	20	10.10	107	54.04	54	27.27	3.96	0.947
12.Cheats can be found quickly by obtaining information from business employees.	15	7.58	36	18.18	34	17.17	98	49.49	15	7.58	3.31	1.091
13. Independent auditing is an effective tool for detecting errors and fraud in businesses.	10	5.05	19	9.60	25	12.63	97	48.99	47	23.74	3.77	1.074
14. Frequent changes in legislation related to my profession increase the likelihood of errors in transactions with taxpayers.	11	5.56	19	9.60	21	10.61	95	47.98	52	26.26	3.80	1.104

Table 3 shows that among the participants, the prevailing view is that accounting fraud, which is an undocumented transaction, is committed for the purpose of tax evasion; it is carried out consciously and secretly; while accounting errors occur due to ignorance and inexperience, as well as negligence and carelessness. Participating professionals believe that frequent regulatory changes increase the risk of errors; they view the human factor as a critical element in preventing errors, alongside hardware and technology. Although participants find it difficult to make a clear distinction between errors and fraud, they are aware of the importance of internal control systems, independent audits, and ethical rules in preventing and detecting them. Again, the majority agree that obtaining information from employees is an important element in detecting fraud.

Table 4

Findings Regarding Participants' Opinions and Attitudes Towards Digital Accounting Applications

	Strongly Disagree		Disagree		No Opinion		Agree		I definitely agree			
	n	%	n	%	n	%	n	%	n	%	Avg.	ss
1. Sufficient training is provided on e-accounting applications.	13	6.57	52	26.26	27	13.64	88	44.44	18	9.09	3.23	1.134
2. Professionals have sufficient knowledge about e-applications.	11	5.56	65	32.83	38	19.19	70	35.35	14	7.07	3.06	1.091
3. E-Accounting applications are simple, understandable, and easy to use.	9	4.55	52	26.26	28	14.14	89	44.95	20	10.10	3.30	1,102
4. Updates related to e-accounting applications are being monitored.	5	2.53	29	14.65	27	13.64	113	57.07	24	12.12	3.62	0.963
5. To master e-accounting applications, it is necessary to keep up with technology.	1	0.51	17	8.59	13	6.57	112	56.57	55	27.78	4.03	0.858

	Strongly Disagree		I disagree		I don't know					
6. E-Accounting applications have made positive contributions to the accounting information system.	5	2.53	6	3.03	20	10.10	129	65.15	38	19.19	3.95	0.802

According to Table 4, the majority of participants stated that they received sufficient training on e-Accounting applications; that the applications are simple, understandable, and easy to use; that they follow current developments; and that they are aware of the importance of technology for success in e-Accounting applications and its positive contribution to the accounting information system.

Table 5

Findings Regarding Participants' Opinions and Attitudes on the Effect of Digital Accounting Applications on Reducing Accounting Errors and Fraud

	Strongly Disagree		I disagree		I don't know		I agree		I definitely agree			
	n	%	n	%	n	%	n	%	n	%	Avg.	ss
1. E-applications had a positive impact on taxpayers making accurate declarations.	8	4.04	15	7.58	17	8.59	124	62.63	34	17.17	3.81	0.945
2. E-applications have a positive effect on tax audits.	5	2.53	8	4.04	19	9.60	130	65.66	36	18.18	3.93	0.815
3. E-applications have an effect on reducing taxpayers' unregistered activities.	7	3.54	16	8.08	18	9.09	124	62.63	33	16.67	3.81	0.931
4. E-applications have an impact on preventing tax losses and evasion by enabling businesses to prepare more transparent financial statements.	6	3.03	15	7.58	17	8.59	128	64.65	32	16.16	3.83	0.894
5. E-applications have a preventive effect on the use of counterfeit and misleading documents.	7	3.54	22	11.11	24	12.12	112	56.57	33	16.67	3.72	0.988
6. E-applications have an effect on uncovering accounting fraud.	6	3.03	16	8.08	28	14.14	117	59.09	31	15.66	3.76	0.918
7. E-applications have an	2	1.01	25	12.63	39	19.70	105	53.03	27	13.64	3.66	0.903

impact on preventing taxpayers from using dual accounting systems.

Statement												
8. The fact that the accounting information system is web-based has a positive effect on the reliability of accounting information .	2	1.01	12	6.06	24	12.12	126	63.64	34	17.17	3.9 0	0.787
9. Web-based financial auditing prevents taxpayers from engaging in fraudulent financial reporting.	6	3.03	11	5.56	37	18.69	118	59.60	26	13.13	3.74	0.866
10. Accounting software facilitates the control and auditing of transactions.	2	1.01	10	5.05	20	10.10	132	66.67	34	17.17	3.94	0.752
11. Reduced fraud in e-invoice purchase and sale transactions.	5	2.53	23	11.62	25	12.63	110	55.56	35	17.68	3.74	0.966
12. The bookkeeping declaration system reduced informal economy under the simplified method.	19	9.60	32	16.16	40	20.20	81	40.91	26	13.13	3.32	1.177
13. E-invoicing has eliminated the risk of material errors.	6	3.03	28	14.14	42	21.21	97	48.99	25	12.63	3.54	0.985
14. E-applications influenced the correct implementation of financial regulations.	10	5.05	12	6.06	31	15.66	123	62.12	22	11.11	3.68	0.932
15. Accounting software facilitates the control and audit of transactions.	4	2.02	4	2.02	17	8.59	138	69.70	35	17.68	3.99	0.727
16. Accounting software makes it easy to prepare electronic tax returns.	5	2.53	5	2.53	15	7.58	130	65.66	43	21.72	4.02	0.790
17. The reliability of accounting data depends on the security of the recording and filing system.	5	2.53	10	5.05	16	8.08	127	64.14	40	20.20	3.94	0.844
18. The elimination of book certification and digitization reduced stationery use.	8	4.04	14	7.07	18	9.09	106	53.54	52	26.26	3.91	0.998
19. With digitalization, documents are entered on time and regularly.	5	2.53	16	8.08	17	8.59	123	62.12	37	18.69	3.86	0.899
20. The E-Ledger system ensures that taxpayers submit their documents correctly and on time.	14	7.07	22	11.11	26	13.13	101	51.01	35	17.68	3.61	1.115

Table 5 shows that the vast majority of participants agree that e-applications contribute to increasing transparency in financial statements, thereby helping taxpayers make accurate declarations and ensuring the correct application of financial regulations. They also agree that e-applications assist in tax audits and prevent tax losses and evasion, as well as reducing unregistered activities. Again, according to the majority opinion, e-applications prevent false and misleading documents and taxpayers from using double books and are effective in detecting accounting fraud. Accounting software facilitates the preparation, audit, and control of electronic returns; web-based financial auditing prevents fraudulent financial reporting; e-invoicing eliminates the risk of material errors and reduces fraud in purchase and sales transactions; and the e-ledger system ensures that documents are submitted accurately and on time.

Table 6

Descriptive Statistics of Scale Scores-1

	n	Minimum	Maximum	Mean	ss
Participants' Opinions and Attitudes Regarding Error and Fraud Scale	198	13.00	62	44.94	8.98
Participants' Opinions and Attitudes Regarding Digital Accounting Applications Scale	198	10.00	30.00	21.18	4.15
Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits	198	27	105.00	79.32	13.64

Table 7

Descriptive Statistics of Scale Scores-2

		Scale of Opinions and Attitudes Regarding Error and Fraud	Scale of Opinions and Attitudes Regarding Digital Accounting Applications	Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits
Scale of Opinions and Attitudes Regarding Error and Fraud	r	1		
	p			
Scale of Opinions and Attitudes Regarding Digital Accounting Applications	r	.340**	1	
	p	0.000		
Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits	r	,394**	,591**	1
	p	0.000	0.000	

Tables 6 and 7 present the descriptive statistics of the scale measuring opinions and attitudes regarding errors and fraud, the scale measuring opinions and attitudes regarding digital accounting applications, and the scale measuring opinions and attitudes regarding the effect of digital accounting applications on reducing errors and fraud in accounting audits. The statistical data presented in Table 7 shows that the relationships between the scales are significant and positive. Accordingly, as participants have positive opinions and attitudes towards digital accounting applications, a positive increase is observed in their awareness and attitudes towards errors and fraud. Again, participants' views on errors and fraud are directly proportional to their perceptions of the effect of digital accounting applications on reducing errors and fraud. Digital accounting applications are associated with a reduction in the risk of errors and fraud among participants. Positive views on digital accounting applications are related to a more favorable assessment of the impact of these applications on reducing errors and fraud in accounting audits. This reflects the potential of digitalization to optimize audit processes. The tables below show the t and ANOVA test results indicating the variation in participant data in terms of demographic and professional variables for the three scales used in the analysis. According to the analysis results based on gender, age, education level, length of service in the profession, number of clients, and other variables, no significant differences were found between the three scales. Results showing significant differences are presented below.

Table 8

Comparison of Scales According to Number of Employees

Number of Employees:		n	Mean	ss	Anova F	p
Participants' Opinions and Attitudes Regarding Error and Fraud Scale	I work alone	85	43.94	9.82		
	1 - 4	80	45.71	8.23	**0.787**	**0.456**
	5	27	44.89	8.94		
Participants' Opinions and Attitudes Scale Regarding Digital Accounting Applications	I work alone	85	20.51	4.57		
	1 - 4	80	21.38	3.79	**1.903**	**0.152**
	5	27	22.15	3.79		
Scale of Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits	I work alone	85	77.69	16.09		
	1 - 4	80	78.73	10.87	**3.370**	**0.036***
	5	27	85.37	11.86		

As a result of the one-way ANOVA analysis, a significant difference was found between the groups regarding the "Scale of Opinions and Attitudes on the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits" based on the number of employees (p = 0.036). Accordingly, groups with 5 or more employees show a higher belief in the effect of digital accounting applications on reducing errors and fraud. This may indicate that digital applications are more trusted due to the easier management of business processes through digitalization and the division of labor within the team. Participants with more employees may feel the transparency and control advantages provided by digitalization more clearly.

Table 9

Comparison of Scales Based on E-Invoice System Usage

6) Do you use the e-invoicing system?		n	Avg.	ss	Anova F	p
Participants' Opinions and Attitudes Regarding Error and Fraud Scale	We use it through an online system	42	42.07	11.00		
	We use it through a package program	138	45.47	8.48	3.218	0.042
	We do not use it	12	48.33	7.01		
Participants' Opinions and Attitudes Scale Regarding Digital Accounting Applications	We use it via an online system	42	20.90	4.42		
	We use it through a package program	138	21.22	4.01	0.104	0.902
	We do not use it	12	21.33	5.63		
Scale of Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits	We use it through an online system	42	79.86	17.66		
	We use it through a package program	138	79.15	12.08	0.127	0.881
	We do not use it	12	81.00	16.19		

According to the table, participants who do not use the e-invoice system are more sensitive to errors and fraud or have higher awareness in this area. The low scores of those who use the online system may stem from their higher confidence that errors and fraud can be controlled through digitalization.

Table 10

Comparison of Scales Based on Satisfaction with the E-Invoice Application

10) Are you satisfied with the e-invoice application?		n	Avg.	ss	Anova F	p
Participants' Opinions and Attitudes Regarding Error and Fraud Scale	Yes	174	45.45	8.71	**4.724**	**0.010***
	No	9	36.22	12.54		
	Undecided	13	44.00	7.96		
Participants' Opinions and Attitudes Regarding Digital Accounting Applications Scale	Yes	174	21.43	4.04	**5.448**	**0.005***
	No	9	16.89	6.09		
	Undecided	13	20.62	2.63		
Scale of Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits	Yes	174	80.34	12.90	**6.813**	**0.001***
	No	9	64.00	23.56		
	Undecided	13	76.23	9.14		

*p<0.05 indicates a significant difference, p>0.05 indicates no significant difference; One-way ANOVA

According to the ANOVA analysis conducted based on participants' satisfaction levels with the e-invoicing application, participants who are satisfied with the e-invoicing application have a positive attitude towards the application producing more positive results in terms of errors and fraud. Again, as participants' satisfaction levels increase, positive attitudes towards digital accounting applications also increase. Satisfied participants show a higher belief in the effect of e-invoicing applications on reducing errors and fraud in accounting audits.

Table 11

Comparison of Scales According to the E-Invoicing Application's Ability to Simplify Accounting Transactions

11) Does the E-Invoice Application Facilitate Your Accounting Transactions?		n	Avg.	ss	Anova F	p
Participants' Opinions and Attitudes Regarding Error and Fraud Scale	Yes	170	45.31	9.12	**2.581**	**0.078**
	No	14	39.71	9.18		
	Undecided	13	45.62	5.11		
Participants' Opinions and Attitudes Regarding Digital Accounting Applications Scale	Yes	170	21.44	4.06	**3.656**	**0.028***
	No	14	18.43	5.18		
	Undecided	13	20.54	3.18		
Scale of Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits	Yes	170	80.49	13.06	**6.026**	**0.003***
	No	14	68.00	19.72		
	Undecided	13	76.31	7.20		

According to the table, participants who believe that e-invoicing simplifies accounting processes have a more positive attitude toward digital accounting applications and their impact on reducing errors and fraud. This result shows that the benefits of the

e-invoice application in the user experience also positively affect the general perception of digital accounting and that they have a higher confidence in the effect of digital accounting applications on reducing errors and fraud in accounting audits.

Table 12

Comparison of Scales According to the Situation of Switching to E-Ledger Application if There Were No Legal Requirement

12) Would you switch to the e-ledger application if there were no legal requirement?		n	Avg.	ss	Anova F	p
Participants' Opinions and Attitudes Regarding Error and Fraud Scale	Yes	112	45.40	9.13	**2.290**	**0.104**
	No	59	43.05	9.22		
	Undecided	26	47.19	7.33		
Participants' Opinions and Attitudes Regarding Digital Accounting Applications Scale	Yes	112	21.72	3.82	**3.844**	**0.023***
	No	59	19.93	4.71		
	Undecided	26	21.58	3.73		
Scale of Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits	Yes	112	82.46	10.88	**14.616**	**0.000***
	No	59	71.78	16.98		
	Undecided	26	82.96	8.94		

*p<0.05 indicates a significant difference, p>0.05 indicates no significant difference; One-way ANOVA

Participants who stated that they would switch to the E-Ledger application have more positive views on digital accounting applications and their effect on reducing errors and fraud. This shows that people who embrace digitalization generally believe more in the benefits of digital accounting applications.

Table 13

Comparison Test of Scales According to Satisfaction with the E-Ledger Application

13) Are you satisfied with the e-ledger application?		n	Avg.	ss	Anova F	p
Participants' Opinions and Attitudes Regarding Error and Fraud Scale	Yes	129	45.40	9.09	**2.095**	**0.126**
	No	39	42.38	10.17		
	Undecided	29	46.31	6.14		
Participants' Opinions and Attitudes Regarding Digital Accounting Applications Scale	Yes	129	22.20	3.50	**16.473**	**0.000***
	No	39	18.21	5.23		
	Undecided	29	20.55	3.18		
Scale of Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits	Yes	129	82.36	11.02	**18.058**	**0.000***
	No	39	68.54	19.08		
	Undecided	29	80.34	7.37		

*p<0.05 indicates a significant difference, p>0.05 indicates no significant difference; One-way ANOVA

Participants who are satisfied with the E-Ledger application have a more positive attitude towards digital accounting applications and their effectiveness in preventing errors and fraud.

Table 14

Comparison Test of Scales According to Whether the E-Ledger Application Facilitates Accounting Transactions

14) Does the E-Ledger Application Facilitate Your Accounting Transactions?		n	Mean	ss	Anova F	p
Participants' Opinions and Attitudes Regarding Error and Fraud Scale	Yes	122	44.99	9.36	**0.779**	**0.460**
	No	49	43.90	9.34		
	Undecided	26	46.62	6.21		
Participants' Opinions and Attitudes Regarding Digital Accounting Applications Scale	Yes	122	22.19	3.59	**12.260**	**0.000***
	No	49	18.94	5.06		
	Undecided	26	20.58	2.94		
Scale of Opinions and Attitudes Regarding the Effect of Digital Accounting Applications on Reducing Errors and Fraud in Accounting Audits	Yes	122	82.80	10.92	**19.482**	**0.000***
	No	49	69.67	17.37		
	I'm undecided	26	81.19	8.04		

Participants who believe that the e-Ledger application simplifies accounting processes have demonstrated a more positive attitude toward digital accounting applications and their impact on reducing errors and fraud.

As a result, it was observed that professionals who were 'very satisfied' with the use of e-invoicing and e-ledger believed that digital applications were more effective in preventing fraud compared to those who were 'dissatisfied'. In line with this finding, hypothesis H1, which expresses the difference created by the level of satisfaction on the perception of digitization, was accepted. The ANOVA analysis revealed that participants who rated digital accounting applications as 'very easy' scored higher on the contribution of these systems to the audit process. Therefore, hypothesis H2, which argues that the perception of ease of use creates a significant difference in opinions, was accepted. In the analyses conducted according to the professional experience variable, a statistically significant difference was found in the perspective on digitalization between senior professionals and those new to the profession. With this result, hypothesis H3 was accepted.

4 CONCLUSION

As in many other fields, digitalization has brought many innovations and conveniences to the field of accounting and auditing. Thanks to e-applications and other technological innovations, accounting and auditing processes will produce and present information more quickly and reliably. Digital accounting applications, such as e-declaration, e-ledger, and e-invoice, support internal audit and control activities, thereby facilitating the timely and transparent delivery of accounting information to information users. Thus, the collection and processing of accounting data become automated, making it easier to detect potential accounting fraud risks and significant misstatements.

Analysis of survey data obtained from 198 professionals in Sakarya province revealed that the majority of professionals support the view that electronic accounting applications prevent and reduce errors and fraud. Professionals believe that e-applications facilitate control and auditing of transactions and positively affect the reliability of accounting information. Furthermore, professionals believe that e-applications help prevent fraudulent financial reporting, reduce unrecorded activities, encourage taxpayers to make accurate declarations, and prevent tax losses and evasion through the preparation of more transparent financial statements. The research results, consistent with the Technology Acceptance Model (TAM), show that professionals have embraced digital tools at a high level in terms of 'ease of use' and 'perceived benefit'. This proves that the accounting ecosystem in Turkey views digitalization not only as a legal requirement but also as a strategic tool that improves audit quality. Digital accounting applications enable real-time monitoring of data, reducing the 'sampling' risk in traditional auditing. The high perception of transparency in the analysis results reveals that digitalization has transformed into a proactive audit mechanism that prevents errors and fraud at the stage of formation. Although the adaptation of professionals to digital tools is high, continuous professional training programs should be organized on Data Mining and Artificial Intelligence-based fraud detection software. Another prominent issue in the study is that the level of transition to e-applications among professionals is still not at the desired level. It is thought that the lack of training on e-applications, the difficulty of tracking the use and updates of e-applications, and the high cost of e-applications may be contributing factors to this result.

In conclusion, digital accounting applications have transformed audit processes in Turkey from a reactive structure to a proactive and transparent one. Findings from the Sakarya example confirm that digitalization minimizes 'human error' in fraud detection and significantly increases audit effectiveness.

Training activities that raise awareness among professionals on this subject should be increased to prevent errors and fraud and improve the quality of auditing. Measures should be taken to eliminate infrastructure problems and program malfunctions that hinder and restrict the use of e-applications. Cooperation and exchange of ideas between e-application developers and professionals should be increased regarding expectations from e-applications. This way, the negative experiences encountered by professionals when using e-applications can be prevented, and the use of e-applications can be widespread. The findings of this study contribute to the growing literature on digital transformation in accounting and auditing by providing empirical evidence on the role of e-accounting applications in preventing errors and fraud. The results show that digital accounting tools not only increase operational efficiency but also enhance transparency, data reliability, and the effectiveness of auditing processes. These findings support the argument that the digital transformation of accounting systems plays a critical role in strengthening the quality of financial reporting and reducing irregularities in auditing environments.

This study has some limitations. First, the research was conducted only with accounting professionals operating in the province of Sakarya. Therefore, the findings cannot be generalized to all accounting professionals in Turkey. Second, the data was collected through a survey, which may include participants' subjective perceptions. Future studies may include larger samples and different regions to obtain more comprehensive results. Future studies may examine not only the perceptions of professionals but also changes in the volume of fraudulent transactions in businesses using objective data (case studies or panel data analysis). Again, research could be conducted on the shortcomings of e-applications and their impact on accounting audits.

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Data availability

All datasets relevant to this study's findings are fully available within the article.

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