Exploratory study on the use of CAAT and on the work environments of small and medium audit entities*

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Abstract

This research explored the application of computer-assisted audit techniques (CAAT) and the extent of self-threat that exists in small and medium-sized audit companies due to the applied digital environments. The study used a focus group analysis method based on interviews to explore the types of CAAT applied by small and medium audit companies in Romania. The results of the present research can aid decision makers in small and medium-sized audit firms with respect to the application of CAAT in their audits. Furthermore, the early exploratory study presented here opens up new opportunities for research and a deeper understanding of the application of CAAT by audit companies.

Keywords: digitalisation; CAAT; audit; SME; work life
JEL CLASSIFICATION: M42

Introduction

Digital transformation has or will have a significant impact on the audit system (Tiberius & Hirth, 2019). However, a comprehensive picture of the influence of digital transformation, the stage of digitisation or the potential of digitization in the audit system is not yet available, especially for emerging countries (Guşe & Mangiuc, 2022). Also, here it should be remembered the different historical characteristics and the divergent structures between the responsible bodies and the economic sectors involved in the dual vocational training, but also due to the heterogeneous examination requirements between the professions, it is assumed that the examination system has a high level of diversity in what refers to digital features. In addition, as we also find in the specialised literature, the

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examination system and its digitisation potential encompass much more than the methods and tools for determining even complex analyses and decision-making.

The present research explored the current situation in terms of the application of information technology in the audit field by small and medium-sized entities, particularly considering aspects that could affect the daily activities of affected employees. Therefore, our research contributes to a better understanding of the basic determinants of the adoption of CAAT and its influence on employees. The results of the exploratory study revealed that the perceived usefulness of the new technologies was positive, allowing CAAT were deemed to introduce positive aspects into financial audit activities.

The strategy focusses on making the most of the opportunities presented by digital transformation for small and medium-sized audit companies, especially in emerging markets such as Romania, while minimising possible risks. Central to this are the introduction and optimisation of computer-assisted audit techniques (CAAT), managing digital work environments, promoting employee well-being and reducing self-threats, complemented by continuous feedback and adaptation as well as collaboration. with regulatory authorities and industry. These approaches aim to increase the efficiency and quality of audit work while supporting the well-being and professional development of audit professionals, effectively managing both the challenges and opportunities of digital transformation.

The results of the study can be useful for companies in the field that are reluctant to apply new innovative technologies, as well as for application providers who support auditors and regulatory authorities who can encourage entities to utilise CAAT to increase their efficiency.

To achieve our objectives, the central research question we posed was as follows. How is CAAT used and what are the work environments of small and medium audit entities?

Our research focused on the adoption of CAAT by small and medium-sized entities in Romania through a better understanding of their use by Romanian auditors. Furthermore, this study presented the main problems that affected employees in their daily activities. Thus, the research can be a theoretical basis for future extensive research on the testing of the application of CAAT by audit firms in Romania.

In the framework of this research, the reasons behind the application of new technological innovations in the audit field were examined. In this regard, small and medium companies were the focus, considering the slower adaptation of these companies to new innovative technologies, due to the small number of employees, compared to large companies that are active at the international level.

The present research first addressed the theoretical aspects and the current state of research on the individual components of the research question. In the first step, the dissolution of labour boundaries under the influence of digital media was explained, since this is a basis for potential self-harm and ethical issues. The practical relevance of the research aim was then clarified before a detailed description of the methodological procedure. The research findings were then presented and discussed. Finally, a critical evaluation was presented and a conclusion and possible research perspective were disclosed.

Literature review

Computer-assisted audit techniques (CAAT) are supported by several theoretical approaches that support their understanding and application. Agency theory addresses trust and monitoring between principal and agent, while systems theory views organisations as networked systems that can be effectively analysed through CAAT. Information theory helps to process and analyse large amounts of data to detect anomalies. Contingency theory emphasises the adaptability of CAATs to specific organisational conditions, and behavioural theory examines behavioral patterns to identify risks. Cognitive load theory shows how CAATs reduce auditor cognitive load by automating manual reviews. The Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) examine the acceptance and diffusion of CAATs, while the Resource-Based View (RBV) views CAATs as valuable resources for an organisation's competitive advantage. Together, these theories provide a comprehensive basis for the implementation and effective use of CAATs in practice.

The diffusion of innovation (DOI) theory, developed by Everett Rogers in the 1960s, describes how, why and at what speed new ideas and technologies spread in a society. According to Rogers, innovations follow an adoption curve process, distinguishing five different categories of adopters: innovators, early adopters, early majority, late majority, and laggards. These categories are based on individuals' willingness and ability to adopt new ideas. The process is influenced by several factors, including the perceived benefits of innovation, compatibility with existing values and practices, complexity of the innovation, testability, and visibility of results. DOI also highlights the role of social media and communication channels in the diffusion of innovations, and opinion leaders playing a crucial role in motivating others to adopt new ideas. This theory has found wide application in fields such as marketing, technology, healthcare, and education, as it provides valuable insight into the dynamics of acceptance and diffusion of new technologies and practices. Furthermore, demographic changes are leading to a shortage of qualified specialists, which also affects Romanian companies that use Computer-Assisted Audit Techniques (CAATs). To counteract this, companies should create attractive working conditions, specifically

promote young talent through cooperation with universities, and invest in the further training of their employees. International recruiting, the use of technology and automation, and the development of a strong employer brand (employer branding) are other important measures. Additionally, alumni networks and partnerships with other companies can help develop recruiting strategies. These measures can help overcome the shortage of skilled workers and ensure competitiveness.

In addition, the reference to the new EU regulations, which increase the workload for auditors, is particularly relevant. In particular, the requirements for auditing and consulting in the field of sustainability reporting are complex and time-consuming. CAATs provide an important solution to more efficiently manage these additional tasks. They allow auditors to analyse large amounts of data quickly and accurately, which not only improves the quality of audits, but also meets increasing regulatory requirements.

There are several regulations and guidelines in the European Union that affect the use of computer-assisted audit techniques (CAAT). These regulations are not specific to CAATs alone, but include general standards and requirements for audit performance, data integrity, information security, and data protection. Here are some of the main EU regulations and guidelines relevant to CAAT:

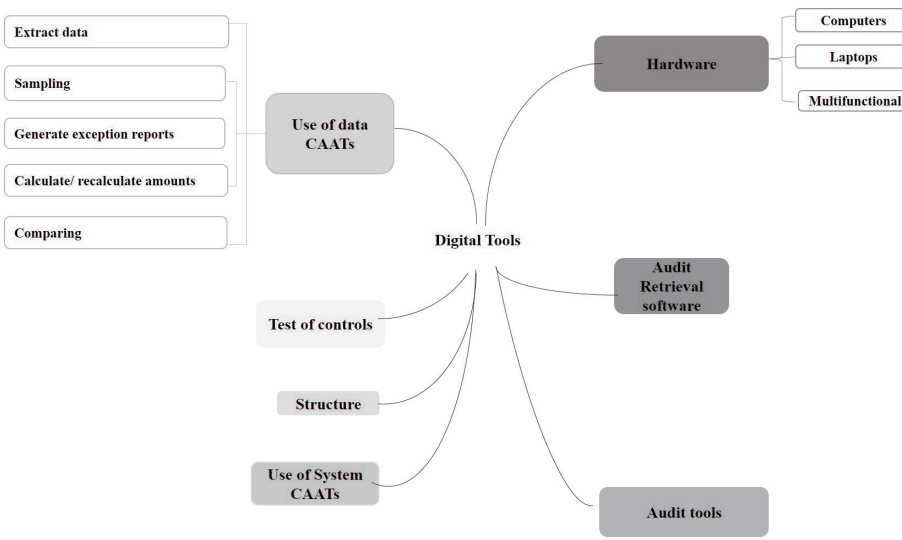
Table 1. Regulatory framework for the use of CAATs in the EU

Reglementation	Implications
EU Directive 2014/56/EU on statutory audits	This policy aims to improve the quality of audits and promote the use of modern technologies, including CAATs. It emphasises the need for auditors to have adequate means and methods to perform their audit duties effectively and efficiently.
Regulation (EU) no. 537/2014 regarding the specific requirements for the audit of entities of public interest	This regulation establishes special requirements for the audit of public interest companies. It promotes the use of advanced auditing techniques and emphasises the importance of transparency and independence in auditing practice.
General Data Protection Regulation (GDPR)	GDPR is central to all audit processes that involve personal data. CAATs must comply with the provisions of the GDPR, in particular with regard to the processing, storage, and security of personal data.
EU Directive 2013/34/EU on annual accounts, consolidated accounts and related reports of certain companies	This policy contains requirements for financial reporting and auditing of financial statements. Supports the use of modern technologies to ensure the accuracy and reliability of financial reports.

Reglementation	Implications
International Auditing Standards (ISAs), adopted by the EU	ISA standards, which have been adopted into national legislation by the EU, contain guidelines and recommendations for the use of CAATs in audit work. These standards emphasise the importance of technique in testing and provide specific instructions for the application of CAATs
Directive (EU) 2016/943 on the protection of confidential know-how and confidential commercial information (trade secrets) against unlawful acquisition, use and disclosure	This policy protects confidential information and trade secrets, which must be taken into account when applying the CAAT, particularly in relation to access and processing of sensitive data.

These regulations and guidelines provide the regulatory framework for the use of CAATs in the EU and ensure that tests are carried out efficiently, safely, and while maintaining high quality standards, using modern technologies. (see Table 1)

Figure 1. Digital technologies



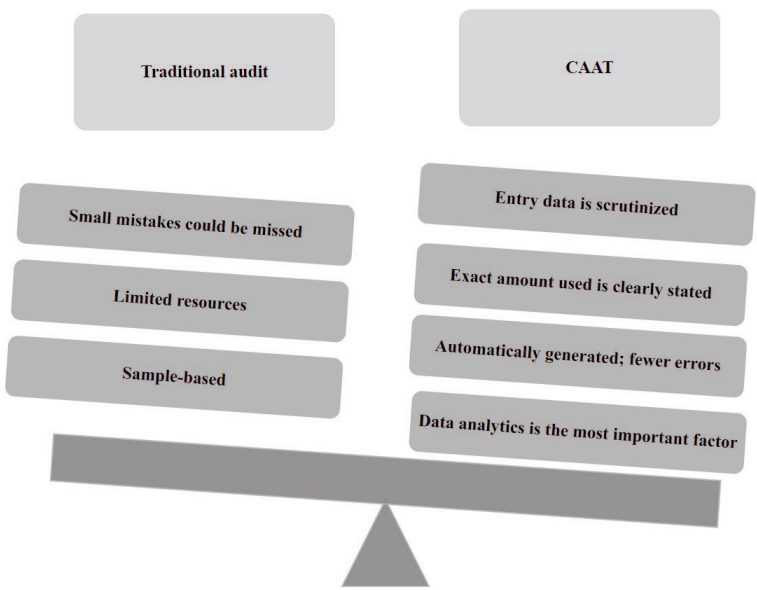
The COVID-19 pandemic has impacted the global business world in terms of remote work, in which the home office became a reality overnight due to mobility restrictions (Appelbaum/Budnik/Vasarhelyi 2020; Boitan / Tefoni, 2023). Consequently, auditors have been forced to adapt to new market requirements and particularly new digital technologies (see Figure 1). Taking into consideration the definition of the Chartered Institute of Internal Auditors, CAATs refers to the use of technology to help you evaluate controls by extracting and examining

relevant data. Sophisticated use of CAATs can be known as 'data analytics' and is increasingly being used in the profession.

Technology drives change in society, and various professions are rediscovering their role and aligning themselves with future technological directions. This includes members of the auditing profession. Technologies that can potentially have considerable effects on society have been implemented sooner than expected. Blockchain, robotic process automation, artificial intelligence (AI), and machine learning are no longer just topics discussed in research journals, but processes with practical applications in the auditing world (Fotoh/Lorentzon, 2021; Samagaio/Diogo, 2022; Fotoh/Lorentzon, 2023).

Science and technology surpass the analyses performed by accountants. Robotic process automation has the potential to perform repetitive inspection work more accurately, reliably and tirelessly in a fraction of the time. This technology will enable auditors to perform at a higher level and focus on more meaningful aspects of their work (Pedrosa/Costa/Aparicio 2020; Sujanto/Lindawati/Zulkarnain/Liawatimena 2021).

Figure 2. Traditional audit vs. CAAT

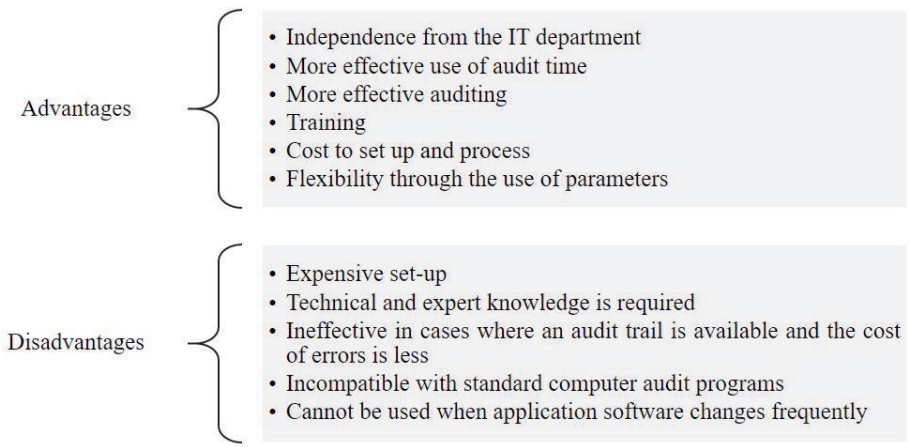


Computer-assisted audit tools or CAAT are commonly used by auditors for simple practices using MS Office to complex software applications for data analysis and sampling (Serpeninova / Matarenko / Litvinova 2020). CAAT represents a growing sector in the audit industry due to the increasing use of innovative new technologies that contribute to the efficiency and effectiveness of audits.

By considering artificial intelligence, which can replace human activity in some instances, we can understand how important CAAT are for audit activities. This is a growing sector in which innovations occur daily (Daoud/Marei/Al-Jabaly/Aldaas 2021). If we compare traditional audit activities with those based on CAAT, we can clearly notice a tilt toward the new digital technologies (see Figure 2).

However, there are limitations to the new CAAT technologies, such as knowledge of the application, which requires a human resource, and methods to save and import data into different software (Chan/Chiu/Vasarhelyi 2018). Figure 3 depicts the main advantages and disadvantages (Marei/Iskandar, 2019; Serpeninova/Makarenko/Litvinova 2019; Mohamed/Muhayyidin/Rozzani2019) of CAAT.

Figure 3. Advantages and disadvantages of CAAT



Future auditors will focus on performance auditing and the creative and intelligent side of auditing. Keeping current with science and technology changes and adapting to future governance models requires that existing skills must be improved, and new skills must be acquired to improve workflows and optimise employment strategies (Thottoli/Ahmed/Thomas 2022; Manurung 2023; Robu/Aevoae/Mardiros/Herghiligiu 2023).

According to Ley (2018), 'digitisation is bringing the biggest change to our world of work since the industrial revolution'. Hence, the current period is described as the "digital age" (Eshet 2012). This evolution has led to a serious change in work structures that has been evident for two decades (Petrillo/De Felice/Petrillo 2021). Due to the increase in flexibility, speed, and entrepreneurial thinking, employees in modern work structures must acquire new skills (Handoko/Thomas, 2022).

Employees must think more economically by understanding the goals of the company, observing competition, and taking economic responsibility for their part in company activities (Pyrrho/Cambraia/de Vasconcelos 2022). This requires considerable ability for self-organisation and self-control. Employees must be attuned to external market influences and make decisions quickly and independently (Eklinder Frick/Fremont/Åge/Osarenkhoe 2020). This coupling of employees with the demands of the market means that entrepreneurial thinking must be integrated into everyday activities. The subjectification of work leads to indirect control and replaces the precise distribution of tasks in classical economic models. Thus, employees approach the aspects of a "limited company" that can trigger increasing pressures to perform. In addition to organisational and control skills, an employee must be aware of his own limitations to cope with pressure (Gawer 2022).

The pressure to perform increases the need for rapid communication with flexible and permanent availability. Digital media such as laptops, tablets, and smartphones play an important role in this aspect (Kossek, 2016), since they can provide employees with company data in an intelligent cluster in real time through a permanent connection to the Internet. This ability to access company information at any time promotes the autonomy of employees with increasing independence from time, place, and people and creates the necessary flexibility potential, coupled with strong self-organisation skills and permanent accessibility. Therefore, employees can be linked to market demands through digital media, as their portability allows permanent access to company, market and customer data, and more flexibility in communication channels. Technological advances in the form of mobile IT are often considered positive and convenient. Some employees consider their mobile devices valuable supports in their daily work. Whether it is the opportunity to scan your emails in the evening, on the weekend or on vacation, or to hold a conference call abroad after work, modern means of communication eliminate the limits to accessibility (Whaibeh/Mahmoud/Naal 2020).

The increasing dissolution of the boundaries between work and private life is the most fundamental change in the organisation of work and the most important feature of modern work structures. In addition to the general societal trend toward continuous availability and the resulting dissolution of work boundaries, this process is a strategy by companies to release more resources and potential of the labour factor (Yavorsky/Qian/Sargent 2022).

The purpose of this study was to discover how modern forms of work are managed, which has been little explored in previous research, and to find the triggers by which working with digital media can lead to self-harm. The influence of possible triggers is especially important in small and medium-sized entities since their structures and forms of work are more strongly shaped by digitalisation

due to high demand orientation and competitive pressures, and therefore they represent possible future trends (Kossek 2016; Ollier-Malaterre/Jacobs/Rothbard 2019; Whaibeh et al., 2020; Novikova/Shamileva/Khandii 2021; Christopher, 2021; Meiryani/Oktavianie/Teresa 2022). These research objectives are incorporated into the following exploratory research question: The use of CAAT and in addition on the work environments of small and medium audit entities?

The current "digital age" requires adaptation to environmental demands through speed, flexibility, and mobility. Since predicting the future and deriving effective strategies has become increasingly difficult, enhanced digital agility is necessary. This agility is characterised by above-average attention, quick decision-making and implementation abilities, and the increased involvement and responsibility of each employee toward the objectives of the company. In addition, many employees desire flexible working hours in digital work environments, which is why these conditions can be a decisive factor in the "war for talent" in the labour market.

Based on these factors, emerging companies that aim to remain competitive cannot evade modern digital forms of work. The demands for different forms of work and digital work environments will continue to increase; therefore, the potential risk of self-harm by employees will also increase and actions need to be in place to manage this potential. Investigations should be conducted to determine whether working in digital environments leads to self-injury and what factors trigger self-harm in employment situations. The results of these evaluations can then be used to manage digital working environments to fully exploit the positive effects of these environments for successful advertising for the company and minimization of potential health-threatening behaviours.

The use of qualitative methods was deliberately chosen for the research question as these methods involve an open approach to the topic.

The methodological approach then presented an applied analysis to answer the research question. First, the scope of the investigation, sampling, and access to informants were described.

The purpose of our research was to investigate subjective opinions and feelings about possible triggers of self-harm behaviours among employees of small and medium company employees in the audit field in Romania. The selection of test participants used a strategy based on the snowball sampling method (Goodman 1961; Naderifar/Goli/Ghaljaie 2017; Köktener/Tunçalp 2021). The focus was based on previously established criteria of small and medium-sized companies' employees in the audit field in Romania because we believe that these businesses must have a high degree of digitisation to compete in a market that is dominated by large audit companies that operate at an international level.

Research methodology

The ability to work from any location at any time of the day has caused digital work environments to obscure the boundary between work and private life. Previous research has indicated that this dissolution of boundaries is strongly connected with health-damaging and life-threatening behaviors (Kossek 2016; Ollier-Malaterre et al., 2019; Whaibeh et al., 2020; Novikova et al. al., 2021).

For the analysis of the interview texts, we applied the thematic analysis method used by Braun and Clarke (2006), which is based on the qualitative content analysis according to Mayring (2015). Qualitative content analysis is a systematic approach that follows explicit rules. She would like to analyze linguistic material *"by dissecting and processing it step by step, developing a theory-guided category system on the material and defining in advance the aspects of analysis"* (O'Kane/Smith/Lerman 2021). Braun and Clarke (2006) present a concrete diagram of the procedure (described in simplified form) within the thematic analysis. Based on the recommendations found in the specialised literature, we chose to conduct 14 interviews.

However, the direct link between time- and location-independent work and the occurrence of self-harm by employees in digital work environments has not been determined. To address this research gap, this study aimed to gain insight into whether self-endangerment occurs when employees are involved in digital work environments.

The target group for the survey included employees of small and medium-sized audit companies. The market requirement to remain competitive along with the increased demands for flexibility translates into an increased use of digital media in the daily lives of employees. Therefore, employees of small and medium companies are particularly affected by the clouding of the distinction between professional and private life, reinforced by the intensive use of digital work environments. Therefore, these workers represent an interesting occupational group for studying possible self-endangerment.

In the specialised literature section, we described a number of possible triggers for self-injury behaviour; however, the use of digital work environments in this context, especially in relation to small and medium-sized companies, has not yet been examined in detail. For this reason, ideas were generated and information was collected as part of a focus group interview with four test persons from small and medium audit entities. Subsequently, based on the results of the group discussion, questions and guidelines were created for the final focus group, which included 14 interviews with individuals from small and medium audit entities in Romania.

The focus on small and medium-sized accounting firms (SMAs) in adopting and using CAATs is due to several factors. SMAs often have limited financial

and human resources, which is why the use of CAATs can significantly increase their efficiency and competitiveness. While large audit firms already have access to advanced technologies, SMAs need more support to implement similar technologies and meet increasing regulatory requirements. CAATs provide scalable solutions that enable SMAs to efficiently process larger amounts of data and therefore serve larger customers without incurring a disproportionate increase in workload. There are also special funding programmes that aim to support the digitalisation and technologization of small and medium companies to ensure that they can also benefit from the advantages of modern technologies. These measures contribute to a more balanced competitive environment and an overall higher quality of audit services.

An overview of the interviewees is shown in Table 2. All interviews were anonymised to obscure the identities of those involved, and this aspect was presented to the interviewees at the beginning of the discussions to ensure unbiased results.

Table 2. Overview of the interviews conducted.

Interviewee	Date	Managing position	Age of the company
P1	07.04.2023	No	5 years
P2	07.04.2023	Yes	4 years
P3	07.04.2023	No	5 years
P4	07.04.2023	No	7 years
P5	15.06.2023	No	9 years
P6	15.06.2023	No	3 years
P7	15.06.2023	Yes	7 years
P8	15.06.2023	No	8 years
P9	15.06.2023	No	10 years
P10	15.06.2023	No	6 years
P11	15.06.2023	Yes	4 years
P12	15.06.2023	No	5 years
P13	15.06.2023	No	7 years
P14	15.06.2023	No	2 years

The test personnel were specifically addressed during the sampling strategy according to previously defined criteria. The sampling strategy proved to be particularly suitable for our research question, as it involved an investigation group that was based on the results of existing research and criteria specific to the study (Naderifar et al. 2017).

The snowball sampling strategy was a useful method since interview partners of small and medium companies recommended other interview partners, which

allowed us easier access to the target group. Although this method could induce network effects (homogeneity) and possible collusion among interviewees, it has proven to be an excellent entry into data collection and focus group acquisition. Since qualitative interviews (focus groups) require a relatively large amount of time and communication, they require a high willingness to participate by test individuals (Misoch 2019).

An interview of the group (focus group) was conducted to determine subjective views toward the possible triggers of self-harm in the digital work environments of small and medium companies in Romania. This was particularly aimed at generating ideas and gathering information for the main research phase (Ritchie, Lewis, Nicholls, and Ormston 2013). Using a realistic discussion, this method is particularly suitable for stimulating and developing statements constructively through provocative discussions. By discussing different collective perspectives, a group dynamic is created that includes authentic attitudes and opinions. With the help of a prior focus group interview, it was possible to capture the underlying attitudes, values, and opinions regarding our research question, which can only occur if the individual is encouraged to provide input to the group. Therefore, the purpose of the group discussion was to collect initial ideas and information to answer the research question and to explore subjective perspectives on possible triggers of self-injurious behaviour in digital work environments.

After conducting the focus group interview, a transcript was created based on the recordings using the simple rules of transcription according to Morgan (1996) and the qualitative content analysis procedure of Krueger (1997).

The results were presented after processing of the information obtained from the group made up of employees from small and medium-sized audit companies in Romania.

Results and discussion

The global volume of electronic data is growing at an almost incomprehensible rate. Filtering and selecting crucial information while avoiding redundancies to avoid inflating the volume of data further is a major challenge for companies. This large volume of information creates issues regarding cybercrime and industrial espionage within companies, which have become more common in recent years; therefore, data security is an increasingly important matter. In addition to the increasing volume of data, the possibilities for manipulation and misuse of data and fraudulent activities within companies are on the rise. These additional concerns affect audit procedures, as more emphasis on IT-supported audit procedures and data analytics, especially for mass data, in conjunction with classical audit procedures. Mass data (Big Data) characterises databases that have become large and complex and are difficult to verify effectively and efficiently with conventional testing methods. The requirement for digital data

analysis through computer-aided audit tools and techniques (CAAT) is evident; therefore, the influence of these tools on employees in terms of their efficiency and effectiveness must be analysed.

The diffusion theory presented by the communication scientist Everett Rogers (2003) explains the development of innovations and their expansion into the market. Diffusion occurs because innovations such as new services or products are usually adopted over a period of time. The potential of an innovation generally changes by the following gradual stages:

- Open potential: the innovation is still unknown to potential buyers/users.
- Takeover potential: takeover unit's familiar with the innovation hesitate or anticipate a decision to take over the innovation
- Existing potential: Acquisition units have adopted innovation.
- Both companies and households or individuals can assume the role of a takeover unit. Consumers can be divided into types according to their willingness to innovate based on their social status, income level, and age.

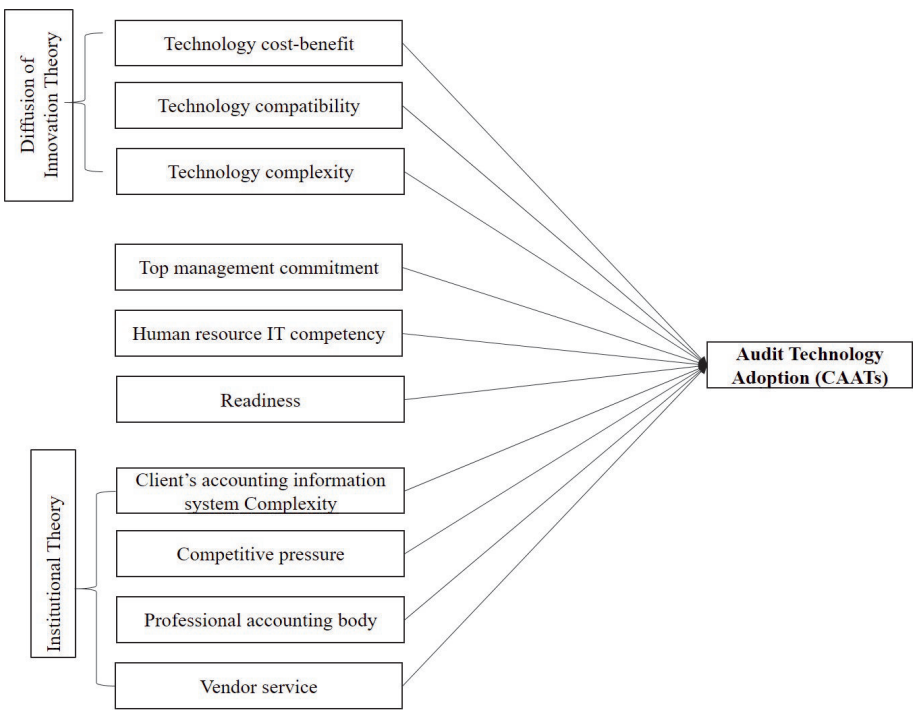
The fundamental ideas, terms, and concepts of neo-institutional organisational research were developed in key texts by Meyer and Rowan (1977), DiMaggio and Powell (1983), and Weick (1976), which subsequently stimulated a large number of theoretical and empirical works.

An example is the technology-organisation-environment (TOE) framework which Awa, et al. (2017) reiterated can be used for organizational-level analysis. This framework focusses on high-level attributes (ie, technological, organizational, and environmental contexts) rather than detailed behaviours of individuals within the organisation when addressing the adoption of technologies at the individual level. To understand this, behavioural models such as the theory of reasoned action, the theory of planned behaviour, and the technology acceptance model should be applied.

Figure 4 depicts the contextual framework of this study, which was developed based on the TOE framework by Tornatzky and Fleischer (1990). This research framework provided the technological, organisational and environmental factors that affect the adoption of audit technologies; thus, it addressed the research question about the adoption of these technologies. The framework was strengthened by the diffusion of innovation (DOI) (Rogers 2003) and institutional (DiMaggio and Powell 1983) theories to better explain the technological and environmental influence on the adoption of audit technology by audit firms. The TOE framework may only provide a general technological aspect without specifically addressing the characteristics of the technology (Rosli/Yeow/Siew 2012). The gap in this technological aspect could be supported by factors explained by DOI theory.

According to DOI theory, the adoption of technology is influenced by its perceived benefits or relative advantage. According to Rogers (2003), a relative advantage exists when a technology is "perceived to be better than the idea it replaces", or "offers improvements over currently available tools". As expected, a positive cost-benefit ratio is required for small and medium enterprises to be encouraged to adopt new innovative technologies. However, it also plays an important role in the adoption and use of new technologies that are compatible with existing systems. Thus, we assumed that the cost-benefit ratio can also positively influence the adoption of new CAAT technologies in the audit profession.

Figure 4. Contextual framework



DOI theory defines complexity as the degree of difficulty in understanding and using a specific system (in this case, CAAT). If entities and auditors perceive that the use of CAAT is excessively complicated, they will be reluctant to adopt these digital technologies (see Figure 4). Therefore, the complexity of CAAT could have a negative effect on their adoption and application; therefore, a method is needed to increase their allure. This is where management has an essential role, whereby, through proactive involvement, they can support the adoption of new CAAT and encourage their use. This participation and commitment of managers can positively influence the adoption of the new CAAT.

In addition to instilling the desire and motivation for the application of CAAT, the company must have the financial resources and be prepared for the investment required. Previous literature on the adoption of computer-assisted auditing tools has emphasized that the physical facilities and technological infrastructure influence the motivation to adopt computer-assisted audit tools (Krieger/Drews/Velte 2021). Therefore, the financial resources and preparations of society could positively influence the adoption of CAAT.

As argued by the TOE framework, a knowledgeable and competent workforce is necessary for a firm to successfully adopt new technologies (Tornatzky & Fleischer 1990). For this reason, we believe that the IT competence of human resources will positively influence the adoption of audit technology. Furthermore, the application of new technology by the client can induce the auditor to use new technologies to remain competitive in the market. As the TOE framework and previous studies have indicated, firms are more likely to adopt an IT when competitors in its industry are using similar technologies (Tornatzky & Fleischer 1990; Daoud et al. 2021).

Furthermore, the literature implies that there is a relationship between professional association and technology adoption (Rosli/Yeow/Eu-Gene 2013; Siew/Rosli/Yeow 2020). The normative view of institutional theory states that a firm will follow the norms of its professional groups and react to its environment (DiMaggio & Powell, 1983). Services offered by professional bodies and society in the adaptation of new technologies must also be considered.

Table 3. Descriptive statistics.

Attribute	Mean	Standard deviation	Factor Loading	Cronbach's Alpha
CB1	3.73	0.95	0.85	
CB2	4.07	0.92	0.91	0.932
CB3	3.93	1.07	0.83	
TC1	3.68	0.94	0.91	
TC2	3.92	0.72	0.86	0.823
TC3	3.29	0.84	0.81	
TComp1	3.39	0.93	0.85	
TComp2	3.83	0.72	0.87	0.853
TComp3	3.62	0.91	0.88	
TMC1	3.01	0.96	0.78	
TMC2	2.89	0.97	0.91	0.902
TMC3	2.92	1.12	0.85	
HR1	3.25	1.10	0.89	
HR2	3.28	1.01	0.90	0.887
HR3	3.31	0.98	0.92	

Attribute	Mean	Standard deviation	Factor Loading	Cronbach's Alpha
OR1	3.38	1.13	0.89	
OR2	3.72	1.02	0.86	0.889
OR3	3.26	0.98	0.82	
AIS 1	3.53	0.97	0.81	
AIS 2	3.42	1.02	0.79	0.798
AIS 3	3.62	0.99	0.83	
CP1	3.12	0.97	0.71	
CP2	3.15	0.99	0.82	0.735
CP3	2.98	0.83	0.80	
PAB1	3.07	0.93	0.79	
PAB2	3.24	0.83	0.82	0.769
PAB3	3.44	0.85	0.69	
V1	3.65	0.83	0.76	
V2	3.43	0.85	0.93	0.934
V3	3.24	0.81	0.85	

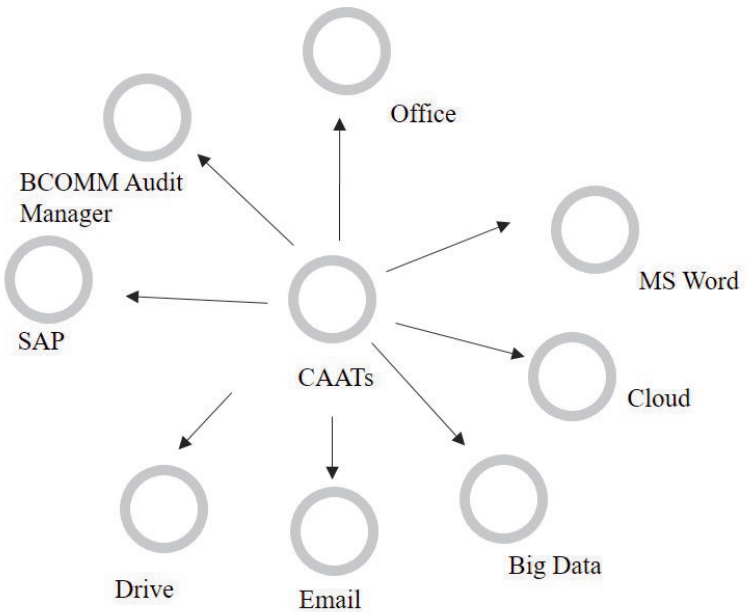
The factors included in our model had an influence on the results, as expected (see table 3). To extract further details, we continue with the focus group to learn more from the auditors involved. The results obtained from the focus group were consistent with those of the questionnaire carried out at the beginning of the study.

Seven people in the group stated that they had positive and negative feelings about being constantly available in a digital work environment. Their perceptions were controlled by three factors in particular: the time period, the type of environment and contact person. For example, on the first factor, most people tested in the group discussion said that they were often disturbed during breaks or contacted by colleagues on sick days when working in a digital environment.

In our research, we transitioned from a general approach to a particular one. In the first step, we tried to identify the types of CAAT adopted by small and medium-sized audit entities (see Figure 5), we then analysed the reasons for the adoption of these innovative technologies, and finally we assessed the positive and negative implications of this adoption on employment.

The results related to the first secondary objective regarding the different types of CAAT adopted by small and medium entities showed that medium-sized entities tended to apply SAP, internal, or commercial software such as BCOMM Audit Manager. In contrast, small entities worked mainly with Microsoft Office for data analysis and sampling. These firms generally had predefined worksheets that were linked to MS Word for automatic report creation.

Figure 5. Use of CAAT



In addition, cost was a central element for medium-sized entities. One of the respondents was passionate about using SAP because of its complexity and efficiency, but also emphasised the importance of understanding this software. Another respondent used in-house software to analyse and sampling data. The respondent mentioned that the software used by the client in the preparation of financial statements and the ability to export the files and reimport them after the audit were important components of a specific technology.

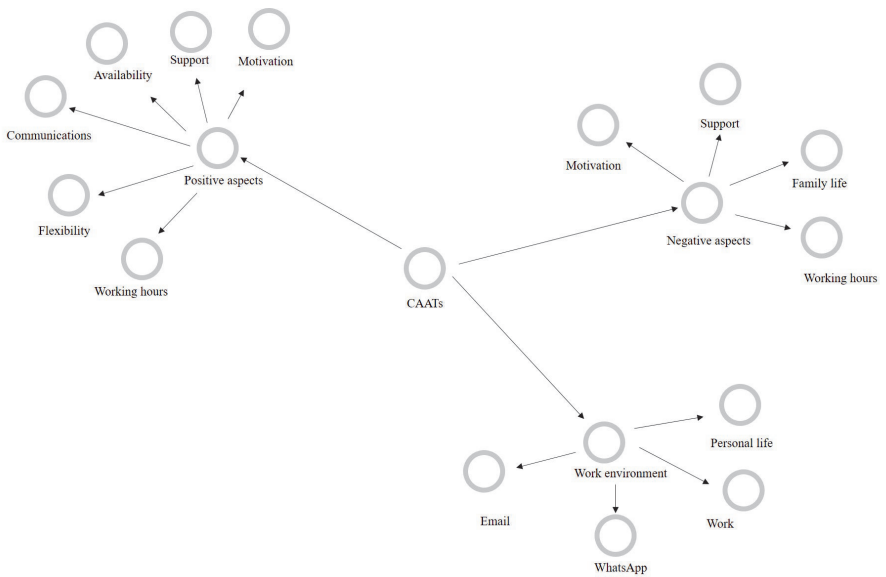
If the client does not use software to prepare their financial statements, which is an uncommon occurrence, the situation becomes complicated. In this case, the results for small audit firms are similar to those of medium-sized firms. Smaller firms tend to use MS Office for data analysis and sampling because they find it accessible, relatively inexpensive, and reliable over a long period. The Microsoft Excel software is sufficient for data analyses of smaller databases, and a small audit firm is unlikely to conduct an audit for a large firm as it does not have the required capacity. The essential problems of small audit firms are the financial ability to purchase and use advanced software for data analysis and sampling, and the drive to apply new technologies to remain competitive. For small audit entities, the cost-benefit ratio for the technology is negative, but over time this may change. Respondents considered that currently, CAAT require a series of expenses that cannot provide them with commensurate benefits. In addition to the costs of purchasing the software, there are expenses relating to

staff training and considerations regarding the reluctance and unresponsiveness of these employees to new activities.

We then focused on the perception of those who enjoy using digital media. Positive and negative perceptions of the influence of the digital workplace were observed. Based on the statements made by the interviewees, a trend should be evident with respect to the development of self-injurious behaviour through digital work environments and the associated personal feelings.

A first overview of the positive and negative aspects and related external factors (that is, environmental aspects) was determined for the behaviour of the employees based on the responses from the respondents (see Figure 6).

Figure 6. Positive and negative aspects in relation to the work environment



Regarding the type of digital environment, the group discussion participants stated that it was more difficult to respond to an email over the weekend because they had to consider wording, sentence structure, and other grammatical issues than just writing a short WhatsApp message.

The results of the contact person discussion indicated that the focus group participants did not find it stressful if a team member contacted them on the weekend. They quickly responded by saying that they liked being there for their team. The situation differed in terms of customer concerns, which they indicated that they would prefer to answer during regular business hours.

All respondents identified positive aspects regarding the use of CAAT in their audit activities and believed that digital environments could increase their efficiency. Those surveyed saw the use of digital work environments as an opportunity to learn about upcoming tasks before the workday began and plan accordingly. The ability to make initial preparations, when necessary, was perceived by the respondents as a positive aspect. Thus, respondents believed that deadline pressures would be reduced by having the ability to obtain details in advance. According to one respondent: *"Although sometimes I feel pressure on myself due to a busy week, when I notice ahead of time the activities that are due to me, and especially when I can prepare them the night before, my stress level drops considerably. From a mental point of view and the delimitation of the activity from work and personal life, it suffers due to the fact that I allocate personal time for work, however, I feel calmer. "*

Moreover, activities conducted outside of working hours had a positive influence on productivity: *"We certainly have the feeling that we work more due to the fact that we work in our free time, but we are more efficient at work due to the fact that some activities already I prepared them."*

The flexibility to work at any time and place was also a considerable advantage, as one participant: *"I appreciate that I can work from anywhere and anytime so I can manage my time best."*

Despite these positive aspects, negative statements were also provided about the use of digital work environments. Several respondents admitted that it was difficult to work outside of regular hours as a result of the digital environments. *"Normally and without realising that I'm outside of working hours or even on vacation, I check my email and if necessary, I complete my tasks even though I shouldn't. Yes, this aspect can be considered negative, but here our culture and how we educate ourselves also come into play. We must impose ourselves and realise that a delimitation must be made between work and personal life, especially for our mental health. Rest is vital to dealing with everyday challenges and if we cannot detach from work, we don't have time for rest."*

Regarding their active work environments, respondents believed that there should be a delimitation of work from family life because families are often disturbed by work activities occurring during their free time. *"The family feels neglected because I always occupy it with work, this aspect became more visible with the pandemic when I started working a lot remotely, that is, from home because I no longer had a structured schedule but was on the option whenever and sometimes where I work. I am often told: Man, work hours are over, now put your cell phone away."*

Thus, we note that digital environments and special CAAT can bring both benefits and impediments to audit work.

The respondents mentioned the following possible factors that could influence their behaviour or lead to self-harm: communication, availability, support, and motivation.

Different communication channels are used in organisations for various purposes, and respondents perceived their effects differently. In general, emails, WhatsApp messages, and telephone calls were reported the most. *"There are so many different channels through which you can be contacted that sometimes it is already hard for me to keep track of them all, so I unconsciously access them all in my spare time."*

Respondents say that they will read emails outside of work hours but do not feel obligated to respond. However, they stated that they would not expect others to respond if they emailed them outside of office hours. Receiving e-mails outside of work hours created no pressure and was perceived as a minimal annoyance because the sender was not notified when the employee reads the email.

Other results were found regarding WhatsApp messages. This communication channel, which was generally described as more private, was used in all the organisations studied. WhatsApp messages were received primarily from peers or supervisors and often created pressure on respondents to respond immediately or promptly. This is partly due to the assumption that unimportant questions will not be answered using WhatsApp, but rather via email. It is obvious that a prompt response was usually expected to increase the efficiency of the activity. *'I would say that if I have a problem now, I would immediately write a WhatsApp or even call my direct colleagues. I generally prefer calls like that, because I think then it will clear up immediately and I don't have to wait forever for someone to answer me."*

Respondents viewed telephone calls as the most urgent means of communication and are only used when an immediate response is required. Since the only options are to accept or ignore the call, they create considerable pressure and are perceived as inconvenient.

In terms of culture, respondents identified influencing factors that can promote self-injurious behavior. As discussed in previous sections, the line between work and leisure is increasingly indistinct, favored by flexible working times and the possibility of working from home. Furthermore, there are time pressures in the companies under audit, whereby working hours often have to be extended and break times are not respected.

In addition, the respondents identified that a high level of work motivation among the other employees of their company pressures them to maintain high performance.

In terms of motivation and work structures, two key points were identified that encouraged self-expert behaviour. All companies surveyed had flexible working

time models that did not include any control. This lack of control generally resulted in work being performed after agreed working hours. This is furthermore discussed in the second point, which is meeting deadlines. Employees were given considerable responsibility and projects that could be accomplished independently. This resulted in increased pressure and a desire to complete the work successfully within a given time frame; therefore, the employees used their free time to meet this goal.

Leisure use is generally considered critically. Constant availability led to negative feelings in all test participants and included feelings of constant pressure and a lack of recovery time. These results were similar to those of Hilty (2016) and Singh et al. (2022), who discussed an always-on mindset that prevents periods of rest and can result in detrimental health effects.

Conclusions

The present research proposed two main objectives. First, an investigation was performed on the adoption of digital media, especially CAAT, in small and medium-sized audit entities in Romania, and second, the self-harm of employees due to the use of new digital media was explored.

The purpose of this research was to qualitatively analyse the working methods in small and medium audit companies in Romania in terms of adaptation to new digital technologies and the influence of these technologies on engagements. As no concrete research has been identified on the application of CAAT and employee self-harm in small companies and audit environments in Romania, the selected sample was approached openly. A focus group interview was conducted to collect initial ideas and the research team conducted information, and outcome assessments and individual factor analyses together. All passages retrieved from the interviews were discussed among the team, which allowed for a more objective assessment than would occur with individual evaluations. The anonymity of the respondents was ensured throughout the study.

The development of the audit market requires that the audit process be optimized. Therefore, IT-supported audit procedures are increasingly important. CAAT are expected to be the buzzword and auditing revolution over the next few years, and audit firms are urged to focus on digital data analysis and mass data processing tools. In the long term, the examination process will move further toward digital examinations and mass data analytics will be used on a greater scale than in previous audits.

Many CAAT-based audit tools and techniques are currently in use, but a continuous evolution of these tools and techniques is required in the field of data analysis, as many questions remain unanswered.

The findings of this study reveal that small and medium-sized entities generally try to stay abreast of trends in the market and test different CAAT programmes within their financial limits. Small audit firms tend not to use complicated software but remain with commonly used programmes such as MS Office. In addition, this study examined the reasons for small and medium-sized entities to choose CAAT software or rely on existing applications. The findings indicated that the financial aspect or cost-benefit analysis was the main determinant for the purchase of complex software for analysis and sampling in the audit. In conclusion, the adoption of CAAT software among audit firms likely depends on the availability of financial resources, the expertise of the partners, and the nature of the operations of their clients.

This study showed that small and medium companies in the audit field have a high degree of digitisation and that the use of digital work environments in free time is a common method of extending the work schedule. This extended accessibility was used by all tested people and often led to negative feelings; therefore, there was a potential for self-endangerment. This self-threat through extended accessibility was considerably influenced by digital work environments, but, as is evident from previous research, digital work environments were not the trigger for the participants in this study, but rather a means to an end.

The representativeness of this study should be viewed critically. Due to the small number of respondents, qualitative studies can only show aspects that are limited in scope. However, this study provides a focused qualitative perspective, and the results obtained may be helpful in designing further studies.

When examining potential triggers, the use of digital work environments in leisure time resulted from a high workload, but it could not be clarified whether complex market demands or career aspirations influenced this workload. The indirect pressure from the social environment had an effect, in small and medium-sized companies, a high level of social ties with the company and colleagues appeared to create expectations that resulted in the indirect pressure to be constantly available. We believe that our research results can incite new research and discussions in the field that can bring positive changes to the accounting profession to the extent that the relationship between the cost and benefit of advanced audit software is identified. Moreover, we believe that the results can be useful both to practitioners and to academics. Like any research, face-to-face studies present a series of limitations. The current study was exploratory and utilised a focus group and the results of those surveyed could confirm or deny our results. Furthermore, the scope was limited to audit firms in a specific regional area. We believe that the results obtained could be a guide for small and medium-sized entities that have not yet considered digital media. Furthermore, we determined that close social relationships could be a reason why private media are used for professional purposes and that the boundaries between work-

ing hours and free time are becoming increasingly indistinct. This development must be viewed critically, especially in the case of availability during vacation and sick time. Furthermore, more studies should address the lack of rest periods during the regular work week and weekends.

Declarations

Disclosure statement

The authors declare that they have any competing financial, professional, or personal interests of other parties.

Conflict of Interest

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

Author Contributions

All authors made the same contribution to the article. All authors have read and agreed to the published version of the manuscript.

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References

Appelbaum, D./Budnik, S./Vasarhelyi, M. (2020): Auditing and accounting during and after the COVID-19 crisis, in: The CPA Journal*,* 90, 6, 14–19.

Awa, H.O./Ojiabo, O.U./Orokor, L.E. (2017): Integrated Technology-Organisation-Environment (TOE) taxonomies for technology adoption, in: Journal of Enterprise Information Management, 30, 6, 893–921. https://doi.org/10.1108/JEIM-03-2016-0079

Boitan, I.A./Ștefoni, S.E. (2023): Digitalization and the Shadow Economy: Impact Assessment and Policy Implications for EU Countries, in: Eastern European Economics, 61, 2, 152–180. https://doi.org/10.1080/00128775.2022.2102508

Braun, V./Clarke, V. (2006): Using thematic analysis in psychology, in: Qualitative Research in Psychology, *3*, 2, 77–101.https://doi.org/10.1191/1478088706qp063oa

Chan, D.Y./Chiu, V./Vasarhelyi, M.A. (2018): Continuous auditing: theory and application. Emerald Publishing Limited.

Christopher, D./Tano, M.D. (2021): Factors influencing utilization of computer assisted audit techniques in Tanzania, in: IAA Digital Repository, http://dspace.iaa.ac.tz:8080/xmlui/handle/123456789/1890

Daoud, L./Marei, A./Al-Jabaly, S./Aldaas, A. (2021): Moderating the role of top management commitment in usage of computer-assisted auditing techniques, in: Accounting, 7, 2, 457–468. https://doi.org/10.5267/j.ac.2020.11.005

DiMaggio, P.J./Powell, W.W. (1983): The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields, in: American sociological review, 48, 2, 147–160. https://doi.org/10.2307/2095101

Eklinder Frick, J./Fremont, V.H.J./Åge, L.-J./Osarenkhoe, A. (2020): Digitalization efforts in liminal space–inter-organizational challenges, in: Journal of business & industrial marketing, 35, 1, 150–158. https://doi.org/10.1108/JBIM-12-2018-0392

Eshet, Y. (2012):Thinking in the digital era: A revised model for digital literacy. in: Issues in informing science and information technology, 9, 2, 267–276.

Fotoh, L.E./Lorentzon, J.I. (2021): The impact of digitalization on future audits. in: Journal of Emerging Technologies in Accounting, 18, 2, 77–97. https://doi.org/10.2308/JETA-2020-063

Fotoh, L.E./Lorentzon, J.I. (2023): Audit digitalization and its consequences on the audit expectation gap: A critical perspective, in: Accounting Horizons, 37, 1, 43–69. https://doi.org/10.2308/HORIZONS-2021-027

Gawer, A. (2022): Digital platforms and ecosystems: remarks on the dominant organizational forms of the digital age, in: Innovation, 24, 1, 110–124. https://doi.org/10.1080/14479338.2021.1965888

Goodman, L.A. (1961): Snowball sampling, in: The annals of mathematical statistics, 32, 1, 148–170. https://www.jstor.org/stable/2237615

Guşe, G.R./Mangiuc, M.D. (2022): Digital transformation in Romanian accounting practice and education: Impact and perspectives, in: Amfiteatru Economic, 24, 59, 252–267. https://doi.org/10.24818/EA/2022/59/252

Handoko, B.L./Thomas, G.N. (2022): How Mental Health Program Moderate Remote Audit, Computer Literacy and CAATs Impact on Auditor Work Performance during Pandemic Covid-19, in Proceedings of the 6th International Conference on E-Commerce, E-Business and E-Government (ICEEG '22). Association for Computing Machinery, New York, USA, 96–102. https://doi.org/10.1145/3537693.3537754

Hilty, R. (2016): Exhaustion'in the Digital Age, in: Research handbook on intellectual property exhaustion and parallel imports, Cheltenham, Elgar, 64–83. 10.4337/9781783478712.00011

Köktener, B./Tunçalp, D. (2021): Old game, new rules and ‘odd friends’: Digitalization, jurisdictional conflicts, and boundary work of auditors in a ‘big four’professional service firm, in: Journal of Professions and Organization, 8, 3, 349–373. https://doi.org/10.1093/jpo/joab016

Kossek, E.E. (2016): Managing work-life boundaries in the digital age, in: Organizational Dynamics, 45, 3, 258–270. https://doi.org/10.1016/j.orgdyn.2016.07.010

Krieger, F./Drews, P./Velte, P. (2021): Explaining the (non-) adoption of advanced data analytics in auditing: A process theory, in: International Journal of Accounting Information Systems, 41, 100511. https://doi.org/10.1016/j.accinf.2021.100511

Krueger, R.A. (1997): Analyzing and reporting focus group results (Vol. 6). Sage publications. https://doi.org/10.4135/9781483328157

Ley, M. (2018): *Professional Workforce Solutions: Neue Personalkonzepte für die digitale Transformation der Wirtschaft*, in: Wirtschaftsinformatik und Management, 10, 2, 86–90. https://doi.org/10.1007/s35764-018-0048-3

Manurung, E.T. (2023): The effect of computer-assisted audit techniques and professional ethics on audit performance, in: Proceeding International Conference on Accounting and Finance, 1, 10–18. https://doi.org/10.20885/InCAF.vol1.art2

Marei, A./Iskandar, T.B.M. (2019): The impact of Computer Assisted Auditing Techniques (CAATs) on development of audit process: an assessment of Performance Expectancy of by the auditors, in: International Journal of Management and Commerce Innovations, 7, 2, 1199–1205.

Mayring, P. (2015): Qualitative content analysis: Theoretical background and procedures, in: Approaches to qualitative research in mathematics education (pp. 365–380). Springer, Dordrecht. https://doi.org/10.1007/978-94-017-9181-6_13

Meiryani, M./Oktavianie, H./Teresa, V. (2022): Understanding Determinants of Computer Assisted Audit Techniques (CAATs) Adoption Intention Among Auditors in Indonesia, in: Proceedings of the 2022 3rd International Conference on Internet and E-Business, 117–124.

Meyer, J.W./Rowan, B. (1977): Institutionalized organizations: Formal structure as myth and ceremony, in: American journal of sociology, 83, 2, 340–363. https://www.jstor.org/stable/2778293

Misoch, S. (2019): *Qualitative interviews*. De Gruyter Oldenbourg. https://doi.org/10.1515/9783110545982

Mohamed, I.S./Muhayyidin, N.H.M./Rozzani, N. (2019): Auditing and data analytics via computer assisted audit techniques (CAATS) determinants of adoption intention among auditors in Malaysia, in Proceedings of the 3rd International Conference on Big Data and Internet of Things (BDIOT 2019). Association for Computing Machinery, New York, USA, 35–40. https://doi.org/10.1145/3361758.3361773

Morgan, D.L. (1996): Focus groups, in: Annual review of sociology, 22, 1, 129–152. https://doi.org/10.1146/annurev.soc.22.1.129

Naderifar, M./Goli, H./Ghaljaie, F. (2017): Snowball sampling: A purposeful method of sampling in qualitative research, in: Strides in development of medical education, 14, 3, e67670. https://doi.org/10.5812/sdme.67670

Novikova, O./Shamileva, L./Khandii, O. (2021): Quality of working life in view of digitalization of the economy: Assessment and development trends, in: Journal of European Economy, 20, 3, 369–389.

O'Kane, P./Smith, A./Lerman, M.P. (2021): Building transparency and trustworthiness in inductive research through computer-aided qualitative data analysis software, in: Organizational Research Methods, 24, 1, 104–139. https://doi.org/10.1177/1094428119865016

Ollier-Malaterre, A./Jacobs, J.A./Rothbard, N.P. (2019): Technology, work, and family: Digital cultural capital and boundary management, in: Annual Review of Sociology, 45, 425–447. https://doi.org/10.1146/annurev-soc-073018-022433

Pedrosa, I./Costa, C.J./Aparicio, M. (2020): Determinants adoption of computer-assisted auditing tools (CAATs), in: Cognition, Technology & Work, 22, 565–583. https://doi.org/10.1007/s10111-019-00581-4

Petrillo, A./De Felice, F./Petrillo, L. (2021): Digital divide, skills and perceptions on smart working in Italy: From necessity to opportunity, in: Procedia Computer Science, 180, 913–921. https://doi.org/10.1016/j.procs.2021.01.342

Pyrrho, M./Cambraia, L./de Vasconcelos, V.F. (2022): Privacy and health practices in the digital age, in: The American Journal of Bioethics, 22, 7, 50–59. https://doi.org/10.1080/15265161.2022.2040648

Ritchie, J./Lewis, J./Nicholls, C.M./Ormston, R. (2013): Qualitative research practice: A guide for social science students and researchers. SAGE Publications Ltd.

Robu, I. B./Aevoae, G.M./Mardiros, D.N./Herghiligiu, I.V. (2023): Mergers & Acquisition Decisions in the Energy Sector Based on Financial Transparency and Audit Opinions, in: Eastern European Economics. https://doi.org/10.1080/00128775.2023.2225484

Rogers, E.M. (2003): Diffusion of Innovations (5th ed.). New York: Free Press.

Rosli, K./Yeow, P./Eu-Gene, S. (2013): Adoption of audit technology in audit firms, ACIS 2013 Proceedings, 43, 1–12 https://aisel.aisnet.org/acis2013/43

Rosli, K./Yeow, P.H./Siew, E.G. (2012): Factors influencing audit technology acceptance by audit firms: A new I-TOE adoption framework, in: Journal of Accounting and Auditing, 2012, 1–11. https://doi.org/10.5171/2012.876814

Samagaio, A./Diogo, T.A. (2022): Effect of computer assisted audit tools on corporate sustainability, in: Sustainability, 14, 2, 705. https://doi.org/10.3390/su14020705

Serpeninova, Y./Makarenko, S./Litvinova, M. (2020): Computer-assisted audit techniques: Classification and implementation by auditor, in: Public Policy and Accounting, 1, 1, 44–49. https://doi.org/10.26642/ppa-2020-1-44-49

Serpeninova, Y.S./Makarenko, S./Litvinova, M. (2019): Computer-assisted audit techniques: main advantages and disadvantages, in: Вісник СумДУ. Серія «Економіка», 3, 53–58. https://doi.org/10.21272/ 1817–9215.2019.3 – 8

Siew, E. G./Rosli, K./Yeow, P.H. (2020): Organizational and environmental influences in the adoption of computer-assisted audit tools and techniques (CAATTs) by audit firms in Malaysia, in: International Journal of Accounting Information Systems, 36, 100445. https://doi.org/10.1016/j.accinf.2019.100445

Singh, P./Bala, H./Dey, B.L./Filieri, R. (2022): Enforced remote working: The impact of digital platform-induced stress and remote working experience on technology exhaustion and subjective wellbeing, in: Journal of Business Research, 151, 269–286. https://doi.org/10.1016/j.jbusres.2022.07.002

Sujanto, M./Lindawati, A.S.L./Zulkarnain, A./Liawatimena, S. (2021): Auditor's Perception on Technology Transformation: Blockchain and CAATs on Audit Quality in Indonesia, in: International Journal of Advanced Computer Science and Applications, 12, 8, 526–533.

Thottoli, M.M./Ahmed, E.R./Thomas, K.V. (2022): Emerging technology and auditing practice: analysis for future directions, in: European Journal of Management Studies, 27, 1, 99–119. https://doi.org/10.1108/EJMS-06-2021-0058

Tiberius, V./Hirth, S. (2019): Impacts of digitization on auditing: A Delphi study for Germany, in: Journal of International Accounting, Auditing and Taxation, 37, 100288. https://doi.org/10.1016/j.intaccaudtax.2019.100288

Tornatzky, L.G./Fleischer, M. (1990): The processes of technological innovation. Lexington: Lexington Books.

Weick, K.E. (1976): Educational organizations as loosely coupled systems, in: Administrative science quarterly, 21, 1, 1–19. https://doi.org/10.2307/2391875

Whaibeh, E./Mahmoud, H./Naal, H. (2020): Telemental health in the context of a pandemic: the COVID-19 experience, in: Current Treatment Options in Psychiatry, 7, 2, 198–202. https://doi.org/10.1007/s40501-020-00210-2

Yavorsky, J.E./Qian, Y./Sargent, A.C. (2022): The gendered pandemic: The implications of COVID-19 for work and family, in: Sociology Compass, 15, e12881. https://doi.org/10.1111/soc4.12881