# ETHICAL CONCERNS ASSOCIATED WITH ARTIFICIAL INTELLIGENCE IN THE ACCOUNTING PROFESSION: A CURSE OR A BLESSING?

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**Abstract.** Due to the progress of digitization and the associated use of artificial intelligence in the economic and especially the accounting field, the cooperation between man and machine is becoming increasingly prominent in society. The objective of this research to address the ethics of using artificial intelligence in the accounting firms by looking at the novel challenges that it brings to the field. The research adopted a deductive approach, starting with the basic concepts and then conducting an empirical study based on an interview. The results of the interview were processed with the Nvivo12 application, through which a thematic analysis was carried out in order to present the results. The research results indicate that most of the accountants involved in the study have a basic knowledge of artificial intelligence but that few of them fully understand the phenomenon. However, they all believe that the ethics of artificial intelligence is vital and that the involvement of regulatory bodies in ethical legislation regarding artificial intelligence is indispensable. The results obtained can serve as an X-ray of the current situation and can be used to derive practical and managerial implications.

**Keywords:** artificial intelligence, accounting, ethics, digitization, business environmental, accounting profession.

**JEL Classification:** M41, G20, O30.

## Introduction

In recent years, in the context of digitization and the digital age, artificial intelligence (AI) is being applied in a growing number of fields. In the accounting profession, for instance, the

introduction of AI seemed inevitable given that the field relies so heavily on various repetitive processes. AI comes from the computer field and has the role of transferring a level of intelligence to machines/robots that for many years was associated only with humans (Cho et al., 2020). Due to AI's rapid evolution in the Information Technology (IT) field, a number of new technical opportunities have arisen for AI to be used in various processes and to come to the aid of workers through various AI-based applications (Loureiro et al., 2021). By means of AI, Big Data can be more efficiently collected. This means that large volumes of data can be processed in a much shorter time and then quickly evaluated and restructured in order to search for different specifications and items, thus saving time and resources and providing much faster solutions for various decisions (Bakarich & O'Brien, 2021).

According to the current technical progress, AI-based computers, machines, and robots have been able to simulate the technological aspect of human intelligence (Cho et al., 2020). However, although we live in an increasingly digital world, AI still suffers from various limitations, such as the challenge of reproducing and storing human emotions – or, in other words, the ethics of AI (Stahl et al., 2022). Just as for almost all activities and professions, there is a code of ethics associated with AI, and we must act in accordance with this code of ethics. Here, for the purposes of this paper, we specifically refer to the ethics of AI in the field and profession of accounting (Jobin et al., 2019; Ashok et al., 2022).

The question of ethics in connection to AI is no doubt a concern because of the long-held fear that robots may take over various activities that until now have been carried out by humans who are guided by an ethical code and who act independently (Jobin et al., 2019; Sena & Nocker, 2021; Stahl et al., 2022). Moreover, we must also consider the responsibility we have as accounting professionals when we use the information given to us by our clients, which is increasingly becoming the responsibility of AI (Loureiro et al., 2021). Moreover, the large and changing volume of legislative regulations that accounting professionals are required to follow by completing accountancy courses will soon be taken over by AI (Leitner-Hanetseder et al., 2021; Pazarskis et al., 2022). It is noted that the aspects of liability and the application of various legal provisions play a crucial role in the field of AI applied in the accounting field as well as other fields. The impact of processing and evaluating information cannot be clearly determined using AI because AI has not yet been able to reproduce human emotions and therefore cannot evaluate the effects of this and, moreover, cannot make decisions based on professional judgment. As a first observation, we can underline the fact that at the moment, AI cannot replace the accountant but can support him in regard to repetitive, routine activities (Loureiro et al., 2021).

Taking this into consideration, we note the importance of dealing with the ethical aspects of AI in the accounting field (Pazarskis et al., 2022). Moreover, considering that it is a nascent field for the accounting profession, we were particularly motivated to discuss and analyze the position of accounting professionals regarding the ethical aspects of AI in the accounting field (Leitner-Hanetseder et al., 2021; Pazarskis et al., 2021). The purpose of this paper is therefore to present and analyze the various ethical aspects of AI in the constantly evolving and changing field and profession of accounting. The main focus will be on identifying ethical issues that may arise when using AI in accounting. The novelty of this paper comes from its attempt to analyze the position of accounting professionals regarding the ethics of

AI, a field at the beginning of the road in an emerging country imposed to some extent by the health crisis caused by COVID-19 (Stahl et al., 2022).

We aim to introduce the main concepts of AI and the way in which they link to ethical challenges in the accounting field. It should not be overlooked that this research will encourage further work in the future, hopefully bringing about new insights. With this in mind, it is entirely possible that some aspects of this debate will change as AI starts to become increasingly human-like. The two fields of ethics and economics are in conflict in terms of both value creation and cost pressure in the development of artificially intelligent systems. More specifically, economics is about making financial profits, which involves optimizing and reducing process costs, whereas ethics is concerned with pursuing the common good for society and the preservation of human autonomy. Ideally, both interests should receive equal attention and be continually weighed against each other. Using the example of AI development, though, it is clear that such a goal provides many challenges.

The overall objective of this study is to identify potential ethical issues that the accounting profession should consider as they adopt AI technologies. Instead, we focus on practical ethical issues that arise, given the features of AI at the technology and artifact levels. Given that technology grows exponentially fast, the profession will have less time to consider the ethical challenges of AI. As such, a proactive, as opposed to a reactive approach to the ethical implications of AI, is warranted. There is a need for ethical governance of AI within the firms that implement it. Additionally, regulatory guidance and oversight, supported by updated standards which adapt to technological advances, is also required.

In the literature we find a series of research on the ethics of artificial intelligence. This is reflected by many findings in academia, politics, and the media. While such work is important and has contributed to the quality and visibility of the debate, it leaves a gap in our understanding of how AI ethics is perceived and approached by accounting firms. The paper thus makes an important contribution to the discussion of AI ethics, which is generally weak in terms of empirical support and insights, particularly in terms of the actual practices used to respond to these issues. Such a perspective is needed to inform academic debate, but also, and perhaps more importantly, to provide input into ongoing policy discussions and to establish good practice on which organizations can build.

This paper is structured as follows: it begins with an introduction, then it conducts a literature review of the relevant research for the scientific approach undertaken, after which it presents an empirical study on AI ethics followed by a data analysis, before finally discussing the findings and offering conclusions.

## 1. Literature review

Digitization and new technologies are shaping our present and will determine our future, so we must be proactively involved in keeping up with changes in the field and emerging market demands (Miller, 2019). As accountants, we are obliged to align ourselves with the demands of the market and our clients in order to remain competitive. Innovations such as AI, Cloud, Blockchain, and Big Data come with enormous economic potential (Brougham & Haar, 2018; Pazarskis et al., 2022).

According to studies in the specialized literature and various professional bodies, the automation of industries and services significantly increases their efficiency, effectiveness, and speed. Thus, it can be said that digitization has become an indispensable engine in business development, having both major economic and social effects (Ionescu et al., 2022). However, any innovation that brings a benefit also comes with a series of challenges, uncertainties, and risks (Di Vaio et al., 2020; Sena & Nocker, 2021). Trust in digitization in the economic field has been affected by various cyber-attacks that have led to data leaks, data misuse, and privacy violations, which in turn has led to a reluctance on the part of companies to implement and realize the potential that new AI-based technologies and innovations can have (Ionescu et al., 2022). In order to restore companies' trust in digital innovations, an ethical approach to technological innovations, and especially AI, is required. Just as the level of trust in audit missions has fallen following big financial scandals, so has it decreased in response to digitalization, primarily due to various cyber-attacks and information leaks (Stahl et al., 2022).

It is difficult to compare professional ethics with AI ethics given that AI is a term that is often used but rarely truly understood (Anica-Popa et al., 2021). In fact, to date there is no unanimous definition of AI (Loureiro et al., 2021). However, it is generally agreed that even the idea of automating human intelligence or human thought processes through the use of robots/machines is not a simple process, nor is it a new one. The subject of AI approach has been a focus of interest since it was broached at the Dartmouth College conference in 1956. According to specialized literature, a simplistic representation of what AI-based systems depict, aims to achieve perception-understanding and, respectively, action (Figure 1).



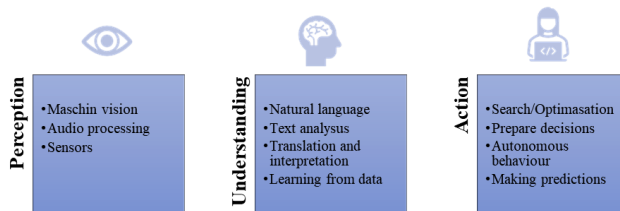| Perception | Understanding | Action |
|---|---|---|
| • Maschin vision<br>• Audio processing<br>• Sensors | • Natural language<br>• Text analysus<br>• Translation and interpretation<br>• Learning from data | • Search/Optimasation<br>• Prepare decisions<br>• Autonomous behaviour<br>• Making predictions |

Figure 1. Characteristics of AI-based systems (source: own projection)

The term AI can be derived from the intelligence that is naturally present in humans (Ruiz-Real et al., 2021). Human intelligence is able to independently process the information it receives and to apply it to almost any combination of questions and problems. These properties are to be transferred to machines in such a way that the machines can take on tasks that previously could only have been tackled through human intelligence (Cho et al., 2020; Ionaşcu et al., 2022a). In addition, AI is considered part of digitization, which is a diverse and complex field and therefore difficult to precisely delineate and define (Sena & Nocker, 2021). One of the main tasks of AI is to process a large volume of data according to certain criteria and specifications. In this context, flexibility, based on human skills, also plays a significant role, because existing knowledge should be adapted to different cases in order to solve them (Ionescu et al., 2022).

The main difference between human intelligence and AI lies in humans' own consciousness and the ability to see complex problems in a larger context. Moreover, unlike AI, humans possess an inherent understanding of language and logic (Loureiro et al., 2021). AI, by

contrast, works with the help of mathematical calculations but lacks its own consciousness. AI should therefore be strongly adapted to human intelligence. The main goal is not to limit its application to a specific case, but to enable it to adapt to and constantly learn from new conditions (Pazarskis et al., 2022).

In a world where digitization is increasingly finding its way into people's daily lives, the question of digital ethics has become central. Digital ethics deals with standards of action and benchmarks in a digital world (Munoko et al., 2020). Based on Maslow's pyramid of needs, which Spiekermann (2015) adapted into a pyramid for the digital age, it has become clear that characteristics such as knowledge, freedom, security, and trust, as well as dignity and respect, are of central importance to the needs of humanity and therefore they should always be emphasized (Figure 2).
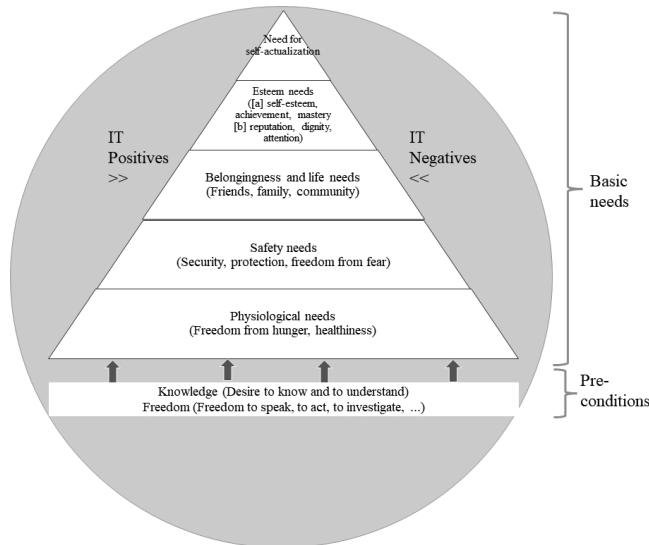


Figure 2. Maslow's hierarchy of needs for the world in digitization according to Spiekermann (2015, p. 8)

Prerequisites are seen as the lowest level and express basic needs in terms of freedom and knowledge acquisition. Above these are the basic needs, which include the need for security, the desire for a social belonging, and the striving for appreciation and recognition.

Digital ethics thus play a key role in technological transformation (Munoko et al., 2020; Guşe & Mangiuc, 2022). Corporate digital responsibility is more than a buzzword or sales pitch. It describes efforts to engage in the correct corporate behavior and the possibility of ensuring responsible behavior for the benefit of all in the digital age (Ionaşcu et al., 2022b). Digital ethics can thus lead companies to act responsibly and credibly through the process of technological transformation (Stahl et al., 2022).

In relation to ethics, the concept of morality has also developed, which is closely related to ethics. Morality is subordinate to the concept of ethics and reflects the behavior of people in relation to values and norms. The focus is on interpersonal relationships and people's behavior. Everyone has their own idea of morality, both as an in a collective sense, because each person follows their own values and principles conducting themselves as a member of society

(Stahl et al., 2021). From an ethical perspective, the correctness of a moral action is judged. Ethics is part of the field of philosophy and in this context provides certain guidelines for moral behavior. Different ideas and priorities of one's own behavior can lead to conflicts in communication and coexistence with other people. However, the common goal of all ethical models and theories is that all individuals should act with positive intentions and treat each other with kindness and compassion.

There is also a lack of recognized ethical rules to promote trust in the digital economy, which is problematic because trust is one of the central resources of the digital world (Munoko et al., 2020). Broad social acceptance is necessary for the success of new technologies and business models. This can be created by companies, but only through a value-oriented design of digital transformation (Di Vaio et al., 2020).

Emphasis should be placed on ethical guidelines when introducing AI into work processes. In this sense, the European Commission is concerned with digital development and related guidelines, with guidelines being issued *"for reliable AI"* (Smuha, 2019, 2021).

For the successful implementation of ethical aspects in the use of AI in practice, the triad – technology, work, and individual – must be considered (Zirnig et al., 2021). This model makes it possible to gain a holistic and human perspective on the implications of AI at work. When introducing AI into work processes, the specifics of these processes must be taken into account. At the same time, it is important to preserve the necessary freedom of action for employees (Kot et al., 2021). It is also vital to react to changing environmental conditions, which is especially true in situations where unprogrammed responses are required in the form of experience-based decisions. This requires a comprehensive perception of the entire situation, which goes beyond the capabilities and technical possibilities of AI systems and, in particular, takes into account the interactions between people (Ruiz-Real et al., 2021). In such unpredictable and open situations, technology must be designed in such a way that people can access the data at any time and understand how it was generated, what possibilities and limitations it faces, and what options for action arise from it. Especially in the case of human-machine interfaces, attention must be paid to whether the technology enables or supports human actions. AI systems that operate in the background must be designed to be transparent to all relevant parties. This can be achieved if both the project itself and its introduction take place in a participatory manner, involving as many participants as possible. This means considering the application of AI at the individual level (Stahl et al., 2021), which relates to the concept of psychological ownership, whereby participatory design and decision-making processes promote a feeling of personal involvement and control among employees (Kot et al., 2021). Moreover, a participatory approach can help workers to identify with their work if the work is perceived holistically – that is, if the work is meaningful to them and they receive feedback (Zirnig et al., 2021).

The main difference between human and artificial intelligence lies in people's own consciousness and the ability to see complex problems in a larger context. Moreover, whereas humans inherently have a basic understanding of language and logic, AI works with the help of mathematical calculations, meaning it lacks its own consciousness.

## 2. Empirical study on AI ethics in the accounting profession

Intelligent systems, which are becoming increasingly independent and have increased access to the human environment, must be human and value oriented. It therefore needs to be clarified under what conditions the use of AI is ethically justified and what requirements result from it.

In both areas (economics and IT), AI raises hopes for further development. From an economic perspective, successful transactions can be made. At the level of ethics and society, AI supports actions and facilitates individual processes, such as data recording, with the help of robots or autonomous control of systems (Bakarich & O'Brien, 2021). The central question is whether these two fields can be combined and to what extent. On the one hand, the economy exploits the full potential of digitization at all levels to make all procedures and processes more efficient. On the other hand, ethical considerations are neglected, such as the possible consequences of AI in terms of job loss or privacy abuse.

Based on the theoretical foundations addressed regarding AI and the associated ethical challenges, we chose to conduct an interview with individuals from accounting firms that already apply AI-based procedures such as for processing invoices (Luo et al., 2018; Bakarich & O'Brien, 2021). Considering that the number of companies that can afford and have the courage to use more advanced AI such as AI-based invoice processing and not just image processing is small, we decided to opt for the approach adopted by the authors Braun and Clarke (2006, 2012, 2013, 2019). Braun et al. (2016) suggested six interviews as a minimum sample size for thematic analysis, but this is a generalized suggestion that does not take into account the specifics of particular research questions and designs (some researchers have used thematic analysis in case study research with a smaller number of participants) (Cedervall & Åberg, 2010).

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). A 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 et al., 2021). Braun and Clarke (2006) present a concrete diagram of the procedure (described in simplified form) within the thematic analysis (Figure 3).
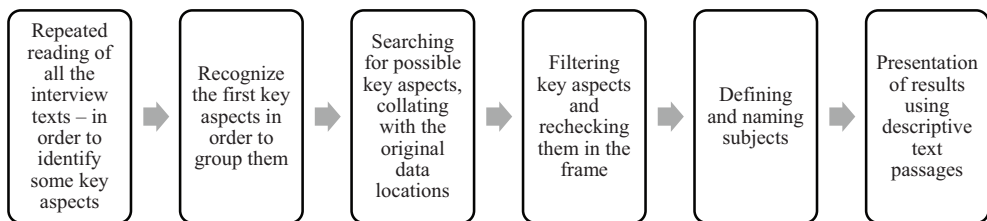


Figure 3. Simplified model of the interview procedure according to Braun and Clarke (2006) (source: own projection)

Based on the recommendations found in the specialized literature and considering the small number of companies in the field of accounting that use these new technological innovations, we chose to conduct 12 interviews with individuals from companies whose processes and activities related to AI, ethics, and the challenges of digitization.

## 3. Data analysis and discussion of findings

Interview guidelines with open-ended questions were developed for the interviews, resulting in an open communication process in which situational questions could be asked, individual priorities could be set, and the order of questions could vary. By adopting this flexible approach, we ensured that additional questions could also be asked if there were any ambiguities or if certain aspects were not addressed directly by the interviewees. The first step was to conduct the interviews in accounting firms which were recorded and transcribed in full with the consent of the interviewees. Before participating, the interviewees were guaranteed anonymity, so that in the transcripts of the interview all mentions of the names of persons or companies were anonymized. The profile of each of the interviewees is presented in Table 1.

Table 1. Profile of the interviewees (source: own projection)

| Interview | Position | Age | Years of Experience | Interview duration |
|---|---|---|---|---|
| 1. | Employer in accounting IT department | 30–35 | 9 | 24:17 |
| 2. | Employer in controlling department | 30–35 | 10 | 21:30 |
| 3. | Income invoice responsible | 40–45 | 15 | 23:45 |
| 4. | Import/ export department | 40–45 | 17 | 25:30 |
| 5. | Employer in accounting IT department | 30–35 | 8 | 20:45 |
| 6. | Head of financial accounting | 45–50 | 24 | 26:30 |
| 7. | Employer in accounting department | 25–30 | 5 | 17:45 |
| 8. | Employer in controlling and IT department | 30–35 | 8 | 21:35 |
| 9. | Head of financial accounting | 35–40 | 14 | 24:15 |
| 10. | Head of financial accounting | 45–50 | 25 | 22:10 |
| 11. | Employer in controlling and IT department | 35–40 | 17 | 26:15 |
| 12. | Head of financial accounting | 35–40 | 13 | 23:10 |

As a second step the individual interview transcripts were merged into a single document (145 pages) and uploaded into Nvivo 12 software, a web application used for qualitative content analysis (Mayring & Fenzl, 2019). The entire coding process was done using Nvivo 12 software. In order to obtain the results, we apply the methodology indicated by Braun and Clarke (2006) in the six phases.

As we observed from the literature, a solution has not yet been found regarding how large volumes of data should be handled and what information can be evaluated by AI-based programs today, so we decided to focus on this topic, as just a few years ago the use of large volumes of data and computing was out of the question, so it was not even bent on this issue leaving room for the new innovations that we face today or will face in the future (Miller, 2019). From an accounting perspective, we believe that our understanding of AI's impacts is still in its infancy due to the changes imposed by the market and the digital age and the fact that this profession still has a long way to go in adapting to these new technologies and inno-

vations (Pazarskis et al., 2021). Moreover, as can be seen from the interview responses, there exists a scepticism among accounting professionals regarding new technologies – indeed, accountants are becoming increasingly confused as to whether they are playing the role of accountants or computer scientists. Associate to basis of Maslow's hierarchy of needs, which Spiekermann (2015) developed according to the digital age we can remark the importance of knowledge the need of information and the usefulness of the information's.

As a first step we wanted to determine how familiar our respondents were with the digitization of the accounting field, so we began with a question related to how AI is used in the accounting profession.

*RQ1: What are the processes in which you use AI?*

As we note from the results obtained, all those who were interviewed are familiar with the general aspects of digitization, but when we turned to the subject of AI, they were no longer entirely sure whether certain processes fall under AI or not (Table 2 and Figure 4).

Table 2. Thematic analysis of nodes and references for RQ1 (source: own projection)

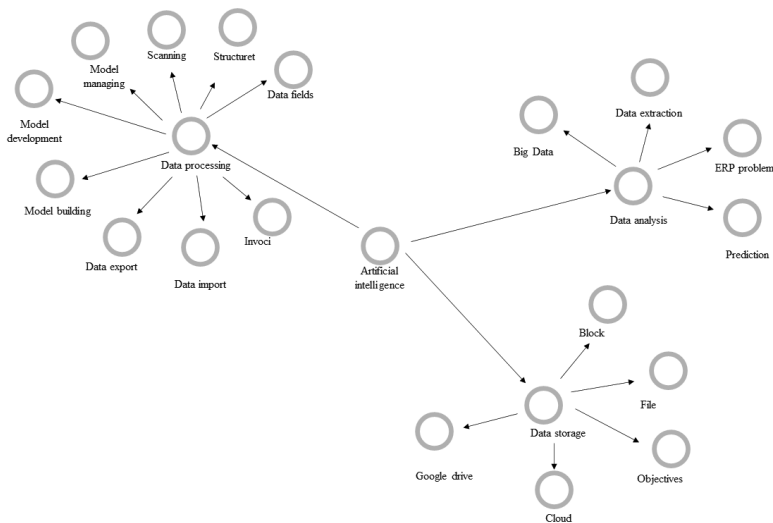| Sub-Theme | Number of Nodes | Frequency of References |
|---|---|---|
| Data processing | 9 | 63 |
| Data analysis | 4 | 37 |
| Data storage | 5 | 43 |



Figure 4. Processes using AI (source: own projection)

"I have to confess that I am not very familiar with the differences between digitized, robots, AI, Big Data, etc. I have heard of them, and I am convinced that I use them, but I do not know how to differentiate between them because I have never had an inclination towards the IT side. However, we understood that if we want to be competitive on the market, we must adapt to these technologies".

In another statement it was emphasized that in the present working environment, accountants are working with a much larger volume of data than ever before: *"The volume of data is much larger today than before, thanks to AI and digitization itself. If we think that not long ago, I was still with a pencil and an eraser in my hand and I was keeping the accounts"*.

To learn about the main risks (Di Vaio et al., 2020; Sena & Nocker, 2021), problems and consequences of AI, the following question was asked:

*RQ2: How safe is the use of AI and what could be the main risks that AI brings with it?*

The interviewees offering up a range of responses (Table 3, Figure 5). One of the issues they raised concerns data protection, fear, and anxiety in the event of a cyber-attack or data destruction: "What happens to customer data? Who is responsible in case of a cyber-attack?"

Table 3. Thematic analysis of nodes and references for RQ2 (source: own projection)

| Sub-Theme | Number of Nodes | Frequency of References |
|---|---|---|
| Future Technologies | 3 | 27 |
| Discrimination | 4 | 34 |
| Reputational | 3 | 23 |
| Legal | 6 | 53 |
| Environment | 4 | 23 |
| Social | 3 | 21 |



Figure 5. Risk associated with artificial intelligence (source: own projection)

The interviewees also expressed concerns regarding future technologies and what such technologies might be capable of: *"How will AI develop in the future? How will this affect my job? Will the robot be able to replace me?"* That AI systems are associated with job loss is one

of the well-known consequences fuelling the progress of digitization, including AI systems. There is much discussion about the issue of human–machine interaction in working life, as there is a risk that machines will increasingly replace human activities – and do so successfully (Cho et al., 2020). These interview responses also chime with the views we commonly see expressed in the media and in public debates.

Another issue raised by the interviewees concerns discrimination: *"Are we all the same? Can robots act without professional reasoning?"* A lack of transparency was also mentioned, which, in turn, led to a lack of understanding regarding the true motivations behind the use of AI and anxiety over data protection. Indeed, the issue of responsibility for robots and especially for AI has been a topic of heated discussion over the last decade (Bakarich & O'Brien, 2021).

Another potential ethical risk associated with the use of AI is reputational risk. In the accounting field, the reputation of an accounting service is strongly influenced by the relationship between the accountant and the client (Luo et al., 2018). If the client does not trust the work of their accountant, the reputational risk increases, as was the case during financial scandals where auditors suffered due to the loss of confidence in their activity. Similar damage could be done to accountancy firms if their clients do not trust the AI systems that they employ.

The risk related to legal aspects, meanwhile, also falls within the scope of risks related to AI-based systems. When developing an AI system, applicable law must be followed. The first step is to determine the legal framework within which AI operates so that it can be used in a planned and regulated manner (Di Vaio et al., 2020; Sena & Nocker, 2021).

Neglecting environmental aspects regarding the use of AI can also involve some risks. Therefore, it is critical for accounting professionals to consider the environment in which they plan to use AI.

A possible conclusion at this point is that fears and concerns are heightened due to insufficient information and lack of understanding. Indeed, unfounded doubts often arise purely because the field of AI is not sufficiently well understood in society, even though its influence is starting to be felt more and more in everyday life and developments. Moreover, taking in consideration the Maslow's pyramid for the digital age, we can see a clear connection between knowledge, trust respectively security that have a central place in the needs of mankind and this always should be in the foreground (Spiekermann, 2015).

Another issue raised concerned ethical principles related to AI. Specifically:

*RQ3: What are the ethical principles you apply in your work and what do you think should be the ones applied by AI?*

Taken from the 12 interviews, the number of nodes for each sub-theme and the frequency of references to each category (node) of problems are described in Table 4 and Figure 6.

Table 4. Thematic analysis of nodes and references for RQ3 (source:own projection)

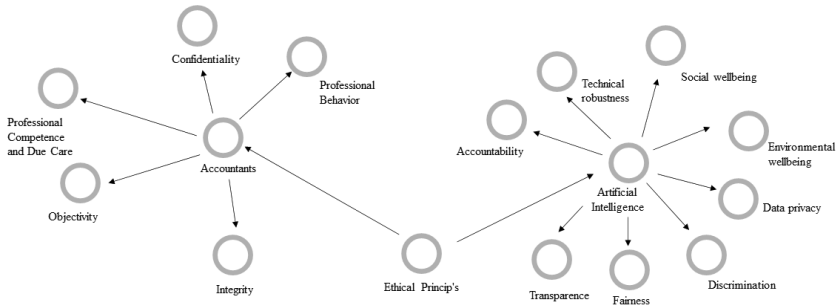| Sub-Theme | Number of Nodes | Frequency of References |
|---|---|---|
| Accountants | 5 | 60 |
| Artificial intelligence | 8 | 54 |

Figure 6. Ethical principles (source: own projection)

Guidelines on ethical principles must be tangible and have an immediate effect (Ashok et al., 2022). On the one hand, this requires discussion spaces that promote dialogue. On the other hand, proper training in the ethics of AI and digitalization should be invested in. The topic of digital ethics is closely related to the topics of trust and responsibility, so it is important to define accountability in order to ensure traceability and transparency for all involved.

Technological change will not occur without reasonable and respectful interaction among people, business partners, and society in general (Di Vaio et al., 2020). While AI blindly follows rules, humans possess the capacity for moral reasoning and deliberation (Stahl et al., 2021). Thus, technology's potential for moral decisions and actions does not come close to that of human consciousness. AI lacks the various levels of morality, duty, and existence which flow together in consciousness in varying qualities, intensities, and shaped by individual development or social influence.

On a similar note, technologies must be thought of as lacking any kind of free will or autonomy because, ultimately, they are designed, developed, and manufactured by humans, Thus, machines will always remain trapped by the ethical norms that we impose upon them. Another way of looking at it is that self-learning machines also go back to a first line of code, which always comes from humans.

This is an important issue because, without freedom, technologies cannot be given autonomy. While it is normal for humans to recognize general moral rules and principles and to base their actions on such rule and principles, technologies cannot do this. Technologies are primarily designed for practicality and as self-learning systems can set rules, e.g., to achieve an increase in efficiency. However, these rules have no ethical quality because machines will always be beholden to the principle of generalization.

Based on the interviewees' answers, it became clear that there is a desire to incorporate the ethical perspective but it is not known how: *"I think we have to ask ourselves first what are the ethical principles that we apply and by which we are guided because we all know the ethical code of the professional accountant but I personally have not heard of a code of ethics for robots more than that I tend to believe that that robot is not based on ethical and moral principles. So maybe we need to think more deeply and analyze our attitude towards the responsible use of technology? Should we teach it? Can we learn it? However, I am convinced that I, as an accountant, cannot do this, maybe a computer scientist could help me explain in more detail how my robot works. I only know that if I give him a set of invoices, he knows how to process the*

*information there, but I don't know how he does it. And I haven't even thought until now who is responsible if he doesn't do well!"*

On the other hand, those who were more familiar with the digitization of accountancy spoke about the opportunities that have been created by AI systems. It is conceivable that AI is so deeply ingrained in everyday life already and is so fundamental to many of our daily habits, that there is no longer room for critical questions: *"I can't imagine going back to pencil and eraser as our professors used to tell us in college. With the amount of documents and data I work with, I can't imagine working without a computer, a multifunctional, without the Cloud and many others, even calls or voice commands that are also based on AI."*

Ethics play an important role, including in AI developments. This result was expected, since the majority of the target group also deals with ethical issues in other contexts, and here we refer primarily to the ethical principles imposed by the accounting profession. *"I believe that the real ethical problem we face is: How do we deal with information?"*

For most of the interviews, the question of ethics is crucial. Theoretically, it is easy to argue the importance of ethical values. The question is whether attitudes change in a real context. The result reflects that ethics is also important for the target group in economic contexts. *"Ethics in general refers to the question of what values we want to live by and how we want to shape society in a positive way. Even more so if we think about digital ethics or even AI ethics and this contributes to the shaping of society and the economic market. Digital ethics is a topic that requires the highest level of attention. Therefore, it should be on the agenda of professional bodies in order to find solutions for the accounting field. In this way, the importance of the subject to the whole company and to the clients would become visible if I think from the perspective of a professional accountant."*

The use of data generated in social contexts is particularly critical. Above all, a discussion of the ethical dimensions of the spread of AI must address the concrete use of AI-based systems and their embedding in socio-technical structures, instead of only the "ethically correct" programming of algorithms. *"We need an ethics of AI use of robots of various applications based on these technologies not just an ethics for accountants. Until now I didn't think seriously about this problem, but now discussing it I realized that in fact the robot that processes the invoices does not apply any ethical principle and if it makes a mistake, it does not answer for the mistake because it has no morals, it has no responsibility."*

In the future, more attention must be paid to methods of data generation, use, decision-making, and delegation of activity to AI-based processes (Miller, 2019). Today it is known that AI cannot take responsibility and cannot make decisions based on professional reasoning, but perhaps with the implementation of ethical principles and digital evolution this point will also be reached. *"I believe that a solution should also be found for ethical and social responsibility issues, both for innovative technologies as it exists for the individual. But I am convinced that a robot will not be able to replace an accountant in the next 20 years, possibly taking over routine or repetitive work from him because this robot does not have professional moral reasoning or decision-making instinct based on individual thinking as this cannot be programmed."*

To prevent any misunderstanding: Ethical rules can be programmed or trained into AI to ensure that a machine acts in a legitimate ethical way. As a result, humans bear the sole

responsibility for establishing ethical principles, establishing moral and legal norms, and defining the framework, goals, and limits of digital transformation and the use of AI.

## Conclusions

Living in such a dynamic world, it is natural to defend new innovations and new technologies. The important thing is to be able to adapt to these new technologies so that they are beneficial for both society and the environment. Considering the latest advances in the accounting field – especially in regard to the accounting profession and the gradual adaptation to digitization and new technologies and innovations – in the present paper we have synthesized the application of AI in the accounting profession and its connection with ethics. Using AI in accounting can bring a variety of benefits. Thus, AI, especially in the accounting field, is used increasingly to ease and support the accountant in the document processing process. Since AI can learn independently based on input data and special algorithms, this may lead to certain ethical issues.

The present research addresses the ethical issue of AI in the accounting field. To this end, the basic elements of AI and professional ethics were first explained before we explored the interconnection between the two. This approach led to a first overview of the continuous development of digitization and AI in particular and also to the basis for answering the central question of this paper.

Technical progress and the possibility of applying and using AI in the accounting field has become increasingly important, especially given the impact of the COVID-19 pandemic. Considering the ethically sensitive field of accounting, it is important to consider the different sides of ethics so that AI can work well not only from a technical perspective but also from an ethical perspective.

For most companies in the accounting field, it has been a major challenge to apply and adapt to new innovations and technologies. Thus, the consideration of ethical aspects for the use of AI has likely been neglected due to the minimal knowledge of AI. Hence, in order to successfully integrate ethical aspects in the processes carried out by AI, a pro-active collaboration between accountants and IT specialists is required.

The principles of the accounting profession and the general principles of ethics are already known, but the question remains as to how we can apply and develop these ethical principles related to AI in a way that acts on the established commands and algorithms of people.

Various approaches to the integration of ethics in the development and use of AI have already been defended in the computer field and in other areas where the application of AI is much more advanced. Even the European Commission is concerned with this issue of AI ethics and is pro-actively involved in the continuous development of it.

In terms of the ethical aspects of AI, the issue of responsibility for decisions plays a major role. We believe that for the development of AI ethics, the existing considerations and theories of computer ethics can be used, since they deal with, among other things, the ethical aspects of AI systems; these can then be adapted to each domain. In addition, work is being done in the field of computer ethics to transfer human morality to robots, with the help of which the solution to ethical problems can be advanced, but it is an arduous process and requires time and resources.

Cooperation between different institutions and fields is important to ensure that ethical factors are taken into account when using AI in accounting. As noted previously, and based on the empirical research conducted, most of the individuals we interviewed lack a basic understanding of AI, which fuels their basic fears surrounding it. Based on our survey, it can be seen that the majority of the interviewees have a superficial understanding of AI and have not yet approached it in any depth. Furthermore, most of the interviewees see a problem in the interaction between ethical values and AI. To address these difficulties, awareness should first take place to build on this and address the conscious concerns and fears that arise with the advancement of AI. Finally, this research demonstrated that the majority of those interviewed see dangers in the development of AI and believe that it is necessary to think more deeply about the ethical implications of AI.

The purpose of the research is to explore attitudes towards AI and the role of ethics from the perspective of the accounting profession in order and thus present a synthesis in a field that we argue is still in its early developmental stages. Although it was possible to identify new perspectives on the subject under investigation, it should be noted that the significance of the results is limited due to the random sample of just 12 interviewees, yet still we managed to respect the approach of the authors Braun and Clarke. Here we are primarily referring to the use of AI in accounting processes. Therefore, representativeness and validity are limited, which is why the results should be seen as a trend and not as generally valid and applicable information.

Based on our work, future research areas emerged for further investigation and study. For instance, it is important to determine how accountants' attitudes develop or how the results vary when the target group is adjusted. The preselection of the target group in the present interview is highly specific and limited to people employed in the accounting field, which is why it would be necessary to include a target group with a different background.

Finally, we believe that it is desirable to integrate ethics into AI-based processes in both accounting and other fields, as failure to do so could have long-term effects on economic values. Innovative and technological developments are currently at their peak, which is why it is now imperative that we actively shape them to profit both ethically and economically.

## Funding

## Author contributions

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

## Disclosure statement

Authors declare that they do not have any competing financial, professional, or personal interests from other parties.

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