

THE RELEVANCE OF THE FUNDAMENTAL ETHICS PRINCIPLES FOR PROFESSIONAL ACCOUNTANTS IN THE DIGITAL AGE

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***Abstract:** Ethical behavior is a key factor for accountants to win the trust of their stakeholders in the digital age. Many ethical dilemmas are now under consideration and profession is more than concerned about the enhanced risks of ethical compromises. This paper is aiming to discuss the relevance of the fundamental ethics principles for professional accountants in a technology-led digital age. These five principles are: integrity, objectivity, professional competence and due care, confidentiality and professional behavior. Artificial intelligence and big data analytics that are currently changing work environment of the accounting profession are analyzed in this context. Cybersecurity, platform based business models and distributed ledger technology are also considered as ethical challenges in the light of exponentially growing digitalization of economy.*

***Key words:** fundamental ethics principles, professional accountants, relevance, digital age.*

Introduction

Technology is changing our lives for the better. It creates new opportunities for companies especially in the light of exponentially growing digitalization of economy. However, there are many concerns about how business are using new technology breakthroughs. The lack of confidence incorporates many challenging issues related to functionality, safety, reliability, etc. For instance, big data analytics and artificial intelligence (AI) improve the efficiency of decision-making as they overcome the need for making assumptions or guesswork. Automated decision-making, based on algorithms, is more accurate, consistent and objective. Moreover, the timing is considerably reduced. However, the process is a ‘black box’ for non-technical experts, who could hardly understand how decisions have been made. The lack of explainability raises a specific issue with some AI, based on machine learning (ML) algorithms, by questioning the identification and elimination of biases in data collection and pre-processing as computers learn from patterns in data. It seems that machines are taking away from humans the control over their decisions.

Building confidence is a specific impact of new technologies and their augmented application, which implies many challenges for business. To avoid creating or amplifying potential harms as well as any unintended consequences requires management’s awareness of the problem and more focused response on it. Taking an ethical approach could provide a possibility for addressing this issue and revealing the good side of technology innovations. Ethics is usually associated with the way humans behave. It might be turned into practical principles and operate at different levels as business ethics, professional ethics or personal ethics. Not surprisingly, accounting professional have strong ethical code, which is deeply grounded in moral values and is usually enforced by the membership in



professional bodies. Their important role in organization and society sets high expectations for their professional behavior. In the digital age many ethical dilemmas are under consideration and the profession is more than concerned about the enhanced risks of ethical compromises. Ethical behavior becomes a key factor for accountants to win the trust of their stakeholders.

Aim of the paper and research methodology

This paper is aiming to contain discussions and focus attention on the fundamental ethics principles for professional accountants in a technology-led digital age as they affect professional behavior and decisions. These five principles are: integrity, objectivity, professional competence and due care, confidentiality and professional behavior. We argue that those principles remain relevant in the ever evolving digital age. However, the context of their application is likely to change due to new information categories and data sources associated with recent technology advances. Artificial intelligence and big data analytics that are currently changing work environment of the accounting profession are analyzed in this context. Cybersecurity, platform based business models and distributed ledger technology are also considered as ethical challenges in the light of expanding digitalization of economy.

The research uses an interpretive and critical methods approach. The relevant literature is reviewed for the purpose of evaluating the relevance of the fundamental ethics principles for professional accountants. A special attention is paid to the accompanying conceptual framework as part of the Ethics Code with emphasis on future threats to ethical behavior.

Hypothesis

The fundamental ethics principles for professional accountants in a digital age are still relevant despite the challenges of new technologies and their augmented business application. Technologies are changing only the context within which an ethical decision must be made. As new threats and associated ethical breaches could emerge, ethics will become even more important in the upcoming years.

Fundamental ethics principles for professional accountants and conceptual framework

The International Code of Ethics for Professional Accountants (the Code) sets out the fundamental ethics principles for professional accountants, which are internationally recognized and used as basis for the ethical codes of prevailing majority of professional accounting organizations. The Code is developed by the International Ethics Standards Board for Accountants (IESBA) - an independent standard-setting body, supported by the International Federation of Accountants, established with the objective to serve the public interest by setting high-quality ethics standards for professional accountants. By its requirements and the provided application material it aims to support and enable professional accountants to meet their responsibility to act in the public interest.

According to the last 2018 revision of the Code, effective as of June, 2019, there are five fundamental principles of ethics for professional accountants – integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour. *Integrity* implies being straightforward and honest in all professional and business relationships. *Objectivity* requires not to allow bias, conflict of interest or undue influence of others to compromise professional or business judgments. There are two aspects of the duties of professional accountants related to *professional competence and due care* ethics principle: (i) attaining and maintaining professional knowledge and skill at the level required to

provide service with professional competence, based on current technical and professional standards and relevant legislation; and (ii) acting diligently and in accordance with applicable technical and professional standards. *Confidentiality* refers to respecting the confidentiality of information acquired as a result of professional and business relationships. *Professional behaviour* implies compliance with relevant laws and regulations and avoidance of any action that might discredit the profession [1]. As these are principles and not prescriptive rules, they need a proper interpretation and application to a given context. Originally, they are not intended to cover every real life conceivable scenario. Fundamental ethics principles are not supported by a fixed list of procedures to be followed and ensuring compliance is a difficult and challenging task as it requires application of judgement [2]. Instead, a conceptual framework, an integral part of the Code, explains how all professional accountants are required to apply it. More specifically, the framework sets out the approach for identifying threats to compliance with the fundamental principles, their evaluation, and how they should be addressed by eliminating or reducing them to an acceptable level.

A broad range of facts and circumstances might create a variety of threats to compliance with the fundamental principles. Self-interest threats refer to an inappropriate influence on professional accountant's judgment or behavior due to financial or other interest. Self-review threat is associated with the threat that a professional accountant will not evaluate appropriately the results of a previous judgment made or an activity performed when providing a current service. Advocacy threat refers to compromising professional accountant's objectivity as a result of his/her promotion of a client's or employing organization's position to a certain point. Familiarity threat is the threat of a professional accountant being too sympathetic to the interests of a client, or employing organization or too accepting of their work due to a long or close relationship. Intimidation threats emerge from actual or perceived pressures, including attempts to exercise undue influence over the accountant, which discourage him/her from acting objectively [3]. It is worth mentioning that more than one threat might be created by a circumstance. Moreover, one identified threat might affect compliance with more than one fundamental ethics principle.

Ethical context of new technologies

Recent technology advances have many ethical and societal implications. There is long-lasting discussion on how business should implement ML algorithms, big data, AI, blockchain¹ and other innovations. Their application brings a whole host of ethical issues and many attempts have been made for guiding companies on how to develop and use technologies. For example, one of the key ethical concerns about big data is related to data sharing and usage [4]. The fairness when using ML to support decision-making about individuals is another ethical challenge. Furthermore, making AI systems, which support the process of decision-making, more transparent and explainable by opening the 'black box' is also of a great importance. With the expanding automation of decision-making, personal data privacy and other issues as maintaining accountability and responsibility become a centerpiece of discussions. According to a recent joint study conducted by the Nuffield Foundation and the Ada Lovelace Institute [5], the key issues arising from recent technology innovations are described by most frequently occurring terms as fairness, transparency, accountability, governance, responsibility, privacy, safety, good, etc. Moreover, few governments, international bodies, companies and professional organizations developed sets of ethics principles or ethical frameworks for their employees

¹ Blockchain is an example of distributed ledger technology.



or members. There is a variety of approaches to ethics applied in practice. Some are focused on personal responsibility; others are oriented towards the specific nature of technology. There are approaches grounded in universal human rights. Despite the many existing approaches to ethics, there is a consensus around the key ethics principles. However, despite the global nature of technology, it might create specific ethical questions and challenges in different culture-driven environment.

High-level ethics principles are identified for AI. According to Microsoft's ethics framework, those are: fairness, reliability and safety, privacy and security, inclusiveness, transparency and accountability. Google's set of ethics principles, developed for AI, comprise of: socially beneficial, avoid creating or reinforcing bias, built and tested for safety, accountable to people, and follow privacy design principles. Principles, underpinning 'Good AI Society, an EU initiative, are: beneficence, non-maleficence, autonomy, justice, and explicability. Despite considerable overlap between these sets of principles, they are a valuable part of any applied ethics. As a shared set of values they help solving even complex ethical issues [6]. However, in real life, business application of technologies may cause ethical dilemmas or tensions might occur when putting these principles into practice due to conflicts between them, limitation of resources or conflicts between the interested parties involved. As a result, specific circumstances could challenge ethical behavior and decisions of professional accountants in business because of new ethics threats or breaches. Factors, external for organization, like hackers' attacks, unethical behavior of consultant, theft of intellectual property, etc. might also have a negative impact and compromise the fundamental ethics principles.

In conclusion, the specific ethics principles applied to technologies are aimed to guide their design and business applications. Despite ethical dilemmas, tensions between different principles and conflicts of interest between different groups of stakeholders, real life situations show that they have a significant impact by limiting negative ethics implications from technologies and their influence is expected to grow in the evolving digital age. From the professional accountant's perspective, the specific ethics principles applied to technologies minimize ethical threats and breaches, thus indirectly supporting accounting experts' ethical behavior and decisions.

Ethics challenges for professional accountants in the technology-led digital age

According to the study 'Ethics and trust in a digital age' conducted by the Association of Chartered Certified Accountants (ACCA) in 2017, self-interest and familiarity are figured out as the biggest threats for professional accountants' ethics in the digital age. Almost a quarter of all respondents highlight them as most likely to become more common future threats. Advocacy threat is at the bottom of the survey list as about one in seven respondents pointed it as future threat. The same research outlines several breaches of ethical principles as manifestation of those threats, which according to the respondents are likely to prevail in the next decade. Bias towards the clients takes the lead. It might be caused by a fear of losing a client, or of not being awarded additional work by that client. The second place in the hierarchy of ethical breaches is taken by the tendency for professional accountant to accept information provided by the client without questioning it, due to a long association with that client. It is followed by the conflict of interests, being the third in the list, which could be either not disclosed or give rise to bias affecting accounting expert's advice or opinion. There are eight more breaches of ethical principles, which according to the ACCA profound survey, are likely to become more prevalent in the next decade for accounting practitioners. [7]

One of the most important conclusions based on the opinion of majority of respondents is that ethical principles and ethical behavior are still relevant and will become even more important in the technology-led digital age. This view is firmly supported by the variety of identified potential threats and associated breaches as well as by the need to engross new information associated with the digital schemes and the vast pace of change. Some use cases and the accompanied compromises of ethical principles for professional accountants are briefly presented in table 1.

Table 1 Use cases for compromises of ethical principles for professional accountants in the digital age

Use cases for technology business application	Compromises of ethical principles
<i>Automation, artificial intelligence and machine learning</i>	
Reorganizing a call center by using automated responses rather than staff members.	objectivity, professional behavior
A bank uses ML algorithms to automatically identify fraud.	objectivity; professional competence and due care
ML model for improving the prediction of loan default was biased against female applicants due to certain inherited patterns of the historic data	objectivity, professional behavior
<i>Big data and analytics</i>	
Misused customers' data and noncompliance with GDPR regulations.	professional competence and due care; integrity
Tracking mobile phones of customers in shopping center by using anonymous detection of Wi-Fi signals.	integrity; confidentiality
<i>Cryptocurrencies and distributed ledgers</i>	
Accepting bitcoin payments for transactions – concerns for money laundering.	professional competence and due care; objectivity
A government department using a distributed ledger to improve the process of recording property transactions in the country – ledger reliability and security concerns.	professional competence and due care; integrity
<i>Platform-based business models</i>	
Defining the relationship between worker and platform business – ‘profits versus people’ dilemma.	integrity; objectivity
Protecting platform businesses' intellectual property from ‘web scraping’.	professional competence and due care; confidentiality
<i>Cybersecurity</i>	
Data theft of clients' data. Ransom is required by hackers to return the data as there is no data backup.	objectivity; confidentiality
A company hires an ethical hacker for penetration testing. A possible theft of valuable information.	objectivity; professional competence and due care
<i>Procurement of technology</i>	
Shadow IT resulting in duplication and inefficient procurement that does not meet the needs and opportunities for the organization as a whole.	integrity; objectivity
Relationship bias towards a small group of suppliers. The company may not be getting the best value for money.	integrity; objectivity

Source: ACCA, 2017, pp. 20-49; ACCA, 2019, pp. 25-34.



We will select and discuss few of these use cases by focusing on the fundamental ethics principles for professional accountants that have been compromised [8], [9].

Automation, artificial intelligence and machine learning

The use case: A fast-growing mobile telecommunications company attempts to introduce an automated response system thus reorganizing its call center. The implemented new capability will analyze customer data to predict the reason for each customer's call and provide a proper response to queries. A potential impact would be improved competitiveness and efficiency that should be balanced against the reduced number of employees.

Ethics implications: Professional accountants might experience some pressure from company's management team due to its diverse focus on gaining competitive advantages and profit maximization. Accounting experts have to be objective and to perform profound and unbiased analyses taking into consideration all important aspects and circumstances including company's responsibilities for its staff, the cost of firing staff members, etc. He or she has to identify all business risks associated with this investment and to be sure they are within acceptable limits.

Their professional behavior might also be compromised if they lack knowledge and competence on applicable legislations and company's obligations to staff. It is a common practice to offer re-training or re-assigning options to employees affected by the automation and accounting experts should be aware of such alternatives and their practical implications. Moreover, their function in such cases is to prevent any internal miscommunications that might further complicate the situation.

Big data and analytics

The use case: A shopping center acquires over certain period of time a huge volume of clients' data on their shopping patterns within the building's area by using anonymous detection of Wi-Fi signals to track their mobile phones. Shoppers usually neglect the check-out option of the free internet access, especially when they are in a hurry. By using data analytics, the shopping center starts producing valuable information about clients' habits and preferences and sells it as a paid-for-service to retailers, who themselves use it for sending advertisement messages to shoppers' mobiles. A privacy group publically announce the abuse of customers' privacy, boycotting the shopping center and appealing for more transparent use of data.

Ethics implications: Even in case of organization being protected from legal pursuits, professional accountant should consider that the organization is getting the access to clients' data in honest way and has their permission for using it.

Beside integrity, confidentiality is also compromised as organization might gather, process and sell sensitive clients' data thus abusing customer privacy. For instance, it could generate valuable insights on clients' finances by identifying the time they spent in the shops and estimating their purchases.

Cryptocurrencies and distributed ledgers

The use case: A large technology retailer is willing to achieve competitive advantage by accepting payments with bitcoins. General expectations are that many customers will support and even welcome the change and it will have a positive effect on company's image as innovative organization. However, there is a serious concern that bitcoins could be used for money laundering. The impact of bitcoin acceptance on company's brand and operational risk profile is unclear.

Ethics implications: Accountants should be well equipped with the needed professional skills and competences to properly assess different aspects and implications of introducing bitcoin payment system. For example, a serious issue is the use of pseudonyms instead of

users' own names despite the publicly visible addresses and accounting experts should be aware that this could trigger a problem with anonymous payments.

Furthermore, objectivity principle might be compromised as well because technology companies are usually experiencing high pressure, even internally, to be in line with recent technology advances and take a pioneer's step in implementing technology breakthroughs. In such circumstances, accounting professionals should take a balanced view when considering all aspects of the proposed innovation as there is a risk to under- or overestimate certain factors and arguments as competitors' intentions and market positioning, company's branding, risk management, etc.

Platform-based business models

The use case: A company developed and implemented a mobile phone application providing users with restaurants' ratings based on reviews performed by their visitors. Rating information complements with details of restaurants location as well as reservation service. Over time, due to many reviewers, the site turned into a go-to-place platform and become a successful and profitable business. The company increased revenue from restaurants being its primary source of income as the application itself is free for users.

This profitable situation has changed with a new hotel-booking site offering restaurants' ratings as well. The identical rating scores threw suspicion upon it with a concern that the site might be using 'web scraping' to copy the restaurants' ratings in real time. The enabling technology is based on a 'bot' or automated programme.

Ethics implications: Professional accountants must have deep comprehension of the business model integrated within the website and how income generation depends on the number of visitors' reviews. Knowledge on technology applications and impacts is a prerequisite for understanding the competitor's illegal and harmful actions.

Confidentiality principle might also become an issue if the copied data includes email addresses of registered users. Unauthorized 'web scraping', performed by the competitor website, could be considered as a breach of accountant's professional ethical duty despite the fact that it has not being an allowed action.

Cybersecurity

The use case: An ethical hacker was hired by an international engineering company and has duly performed the assigned work mainly concerning the systems' security. The expert issued a report for the issues identified, including some weaknesses in security control of company's intellectual property and recommendations for fixing them.

Half a year later, on a trade show, a competitor firm was noticed to promote a product, identical to a prominent one, which was still under development by the engineering company. By coincidence or not, the product was a focus of company's research and development activity during the time the ethical hacker was employed and highlighted the control weaknesses.

Ethics implications: Professional accountants do not have to compromise their objectivity and must be free of bias when assessing the situation and the possibility of ethical hacker's involvement in it. The identical product might be developed independently by the competitor or the information leakage could happen before the expert was hired by the company.

In order not to breach the principle of professional competence and due care, accountants are expected to have sufficient understanding of the new product development process, protocols for securing the electronic documentation of intellectual property as well as the organization's procedures for hiring, monitoring and assessing the performance of external experts.



Conclusion

The fundamental ethics principles for professional accountants are still relevant in the evolving digital age. Technology is changing only the context of their application not the principles themselves as it is human behavior and human decisions that give an expression of ethics. Ethics will become even more important for the profession in the years ahead as new threats and associated ethical breaches could emerge.

The impact of new technologies and their augmented application on accounting ethics is twofold. The prevailing research strand focuses on ethics as a way to limit harm from new technologies. However, technologies could improve accounting ethics and reduce ethical breaches. Technology has a potential to support ethical decisions of professional accountants in the digital age and such opportunities should be purposely explored for supporting accountants' ethical behavior. Innovations might be used to improve accounting ethics and reduce ethical breaches and more focused studies should be performed to further investigate and exploit such possibilities.

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