

# **The Accounting Education: Is a Paradigm Shift Needed?**

**Bistra Nikolova**  
**University of Economics – Varna**

*The purpose of the article is to present the current trends in the accounting profession, related to the need to acquire complex knowledge, skills, and competencies to achieve a successful career in the conditions of digital transformation. In this regard, the following are considered: traditional and modern accounting concepts; possible guidelines for professional realization; necessary skills and competencies for a successful accounting career; contemporary challenges and perspectives for the accounting profession; emerging job roles related to the increasing use of digital data, artificial intelligence (AI) and automation. Research insights related to the need to implement a multidisciplinary approach in accounting education are presented. Based on the International Educational Standards (IES) published by the International Federation of Accountants (IFAC) and the Canadian CPA Profession Competency Map, the necessary skills and competencies for a successful career in the accounting profession are outlined. In this context, the role of the educational system has been investigated.*

*Keywords: accounting education, accounting profession, knowledge, skills, competencies, digital transformation*

## **INTRODUCTION**

The emergence of accounting is closely related to the formation of society and the need to balance human needs with available material and non-material resources, in connection with which accounting reflects the movement of goods and their ownership. At a certain stage of the development of accounting, the system of ledger accounts is formed, and accounting registers and reports appear. In the course of this evolution, a theoretical justification of the methodology, technique, and organization of accounting is reached (Zhelyazkov, 2014).

From ancient times to the present day, accounting has been constantly developing, and in modern conditions, it is in the process of transformation due to several challenges related to the development of information technology, artificial intelligence (AI), and automation. Nowadays, it is clear that accounting originated in ancient times as a practical activity, and evolved into scientific knowledge and a profession, which is subject to several regulatory requirements for qualification and professional experience. Accounting, as a science and a profession, continues to evolve along with the needs of society, the economy, and business.

In today's conditions, demands are being made more and more consciously, by the UN's sustainable development goals, for the quality of educational services (United Nations, 2022). The knowledge, skills, and competencies that should be provided by the modern accounting education system (including secondary schools, colleges, and universities, as well as organizations of accountants and auditors that provide post-

graduate qualifications) should be determined both by the established ideas about accounting, at a certain stage of its development, as well as the needs of employers, students, and society for quality accounting education, which should be reflected in the applicable regulatory framework and the adopted criteria, principles and standards in the field of education.

The main goal of accounting education should be to prepare professionals who can satisfy the modern needs of business, the public sector, and the whole society with quality accounting reporting, which can be the basis for 1) forming reliable management decisions, 2) economic analyzes and forecasts, as well as for 3) implementation of efficient control over the economic and financial activity. In addition to this, modern accounting education should create opportunities for satisfying professional realization, as well as an attitude for upgrading and continuous development of knowledge, skills, and competencies. In modern conditions characterized by the rapid development of information technologies, artificial intelligence, and automation, the application of a multidisciplinary approach can be considered a priority of professional transformation in the field of accounting. Achieving this goal is directly related to accounting education, which provides the basic set of knowledge, skills, and competencies of accounting personnel, based on the adopted curricula, the content of the training courses and the applied teaching approaches.

The question of modern teaching approaches requires independent research, which is not the subject of the present work, but one addition can still be made in this direction. In the accounting education of some non-OECD countries (for example, Bulgaria), the emphasis is placed on explaining the accounting entries by types of business operations, i.e., on the accounting technique, which can be seen as a still unsurpassed influence of the Russian accounting doctrine in the countries of the former Eastern Bloc (the former Socialist Camp). In contrast, in the USA and Great Britain, accounting topics are clarified more complexly, in close unity with questions and examples from the field of internal control and auditing, taxation, business legislation, business ethics, sustainable development, corporate social responsibility, etc. However, in recent years, in the specialized and educational literature on accounting in countries such as Bulgaria (a newer member state of the European Union), there is also a trend for a more complex clarification of accounting topics, as well as for the application of a multidisciplinary approach in accounting education. In this regard, the book by Dimitar Dinev "Accounting Frauds: Disclosure and Prevention" can be given as a good example, which presents a complex and critical look at traditional financial accounting, as well as related accounting tricks, errors, and frauds (Dinev, 2021).

## **TRADITIONAL AND MODERN IDEAS ABOUT ACCOUNTING**

Economic historian Raymond de Roover (1970), cited in Svrakov (2014, p. 69), states that accounting "can be: an art or a science; simply a method, a technique; branch of mathematics, law or economics". This definition shows the complex nature of accounting, which gives reason to consider a good accountant as an experienced specialist who can cope with any work assigned to him. Also, Svrakov (2014) points out that a good accountant needs not only economic knowledge, but also skills. He considers accounting simultaneously as 1) an independent scientific field that belongs to economics and finance, 2) an independent branch of commercial law, and 3) a technique using mathematical methods.

Dinev gives the following definition: "Accounting is a regulated intellectual process carried out by professionally trained specialists and includes recognition, analysis, evaluation, recording, classification, summarization and true and fair presentation of information about business events, transactions and operations of the interested parties." (Dinev, 2021, p. 10). According to him, detecting and preventing accounting errors and fraud is an immanent part of this intellectual process. The author distinguishes four phases in the development of accounting: 1) Bookkeeping, which creates information about completed business transactions and operations based on the traditional technology of the accounting process, requiring the keeping of accounting accounts and their debit and credit entries. 2) Financial accounting, which prepares and discloses financial statements for external users of accounting information, by the applicable regulatory requirements. 3) Management accounting, which creates information to satisfy internal users for making management decisions related to cost, efficiency, forecasting, budgeting, and

internal control. 4) Tax accounting, which collects, processes, and declares accounting information for reliable reporting and declaration, as well as lawful taxation (Dinev, 2021).

According to some scholars, “accounting should be considered as a functional subsystem in the built systems of social and economic management at the micro- and macro-level” (Zhelyazkov, 2014, p. 3). In addition, “The main purpose of the accounting system is to account in a certain periodicity for the dynamics and statics in the financial and property status of the management system in which it is organized at the appropriate level of management.” (Zhelyazkov, 2014, p. 4). Zhelyazkov points out that “accounting has developed and is developing as a separate system (subsystem) in management systems.” (2014, p. 10).

According to the level of management at which it is organized, accounting can be distinguished as follows: enterprise micro-accounting, meso-accounting at the regional level, and macro-accounting at the national level (Zhelyazkov, 2014). Expert opinions indicate that 1) national accounting to a significant extent applies mathematical and statistical tools, apart from the traditional accounting methodology and technique, which are typical for the other two levels; 2) at the meso- and macro-level, the specific goal of accounting is to achieve reasonable planning and reporting of income and expenses in the regional and state budget; 3) accountants must be prepared for in-depth knowledge of economic reality at the micro- and macro-level (Zhelyazkov, 2014). Modern accounting is faced with solving two important issues: first, the reproduction of the natural environment and the need to create accounting information in enterprises that pollute the environment; second, the need to apply an adequate accounting policy for the individual phases of the economic cycle – crisis, depression, boom and stagnation (Zhelyazkov, 2014).

Based on the literature review, the main characteristics of modern accounting education could be deduced and systematized. In general, along with traditional technical accounting knowledge (about accounting techniques and technology), complex financial and economic knowledge is also required. The first group includes *technical accounting knowledge* regarding 1) the accounting system, 2) accounting documentation and document flow, 3) the process of accounting, including identification, registration, and documentation of economic facts, phenomena, and processes, 4) evaluation and calculation, 5) system of accounting accounts and double-sided accounting recording, 6) summarization and systematization of accounting information. The second group includes *complex financial and economic knowledge* that modern accounting education should provide regarding 1) the functioning of business and the economy, 2) the concepts of sustainable development and economic cycles, 3) accounting, tax, financial and commercial legislation, 4) financial-accounting analysis and the regulation of financial and property status, 5) financial control and audit. In addition to this, modern conditions characterized by the rapid development of information technologies, artificial intelligence (AI), and automation require the formation of solid information literacy and skills for working in a digital environment.

Issues related to modern accounting education can be considered in another context – as the subsequent professional realization of future accountants and their competitiveness. The modern professional career opportunities open to accounting graduates could be systematized as follows: 1) Financial area, which includes external audit, financial control, and fraud investigation, preparation of financial statements and financial analysis, financial planning, regulation, and consultancy; 2) Management area, including cost (calculation) accounting, budgeting, internal control and audit, strategic planning and financing of the activity; 3) Tax field, including preparation and submission of returns, tax planning, and regulation, investigation, consulting, tax audits and audits; 4) Other areas, such as crediting, consulting, planning, business evaluation, analysis, insurance, entrepreneurial and management activity, market analysis, system design, forensic expertise, commercial mediation (Dinev, 2021).

## **SKILLS AND COMPETENCIES OF MODERN ACCOUNTANTS**

Based on the results of a published joint survey of Chartered Professional Accountants in Canada (CPA Canada), the Institute of Chartered Accountants of Scotland (ICAS) and the International Federation of Accountants (IFAC), could be clarified the current skills and competencies needed to achieve a successful career in the accounting profession. The relevant research paper states that the environment in which professional accountants (PAs) work is constantly evolving, necessitating that these accountants be

encouraged and supported to continue learning so that they acquire a wider range of modern technical skills. It is indicated that due to the rapid development of technology, there is a need for PAs to develop their human skills and values such as curiosity, creativity, and resilience so that they can be more flexible and adaptable, engage in lifelong learning, and continue to be advocates for ethical decision-making (CPA Canada, ICAS & IFAC, 2022).

The joint research paper advocates the need for the accountancy profession to change its priorities to develop and remain relevant in a dynamically changing external environment. Rather than continuing to emphasize only the traditional accounting technical areas in which most PAs are trained, the evolution of the profession should include broad technological and information literacy, as well as hone the professional and human skills that distinguish accountants from the machines, with whom they will work together in the near future. It is noted that such professional transformation is currently underway in some countries and organizations, but in the profession as a whole, these processes are still lagging behind (CPA Canada, ICAS & IFAC, 2022).

The International Education Standards (IES) of the International Accounting Education Standards Board (IAESB), published by the International Federation of Accountants (IFAC), define professional competence as “the ability to perform a role to a specified standard” (IAESB, 2019a, p. 204). The IES reflects the broad role of PAs as follows: “The accounting profession serves the financial and, in some circumstances, non-financial information needs of a wide range of decision-makers, including but not limited to the public, current, and potential investors, management and employees in organizations, suppliers and creditors, customers and government bodies. The ability of the accounting profession to meet the information needs of users contributes to an efficient economy that creates value for society.” (IAESB, 2019a, p. 7). The IES further clarifies that professional competence “goes beyond knowledge of principles, standards, concepts, facts, and procedures; it is the integration and application of technical competence, professional skills, professional values, ethics, and attitudes.” (IAESB, 2019a, p. 10).

According to international educational standards: 1) Technical competence is defined as the ability to apply professional knowledge to perform a role according to a certain standard; 2) Professional skills include intellectual, interpersonal and communication, personal and organizational skills that the professional accountant integrates with technical competence and professional values, ethics and attitudes to demonstrate professional competence; 3) Professional values, ethics, and attitudes are the characteristics that identify professional accountants as members of a given profession. These include the principles of conduct (ethical principles) that are generally considered essential in determining the distinctive characteristics of professional conduct (IAESB, 2019a, p. 205).

In today’s business environment, information plays an increasingly important role, as the growing volume of data creates new opportunities to gain understanding through data analysis and interpretation, including vast and complex streams of diverse data collected from diverse sources such as the Internet, social networks, sensors, text messages, video and audio files, etc., called Big Data. In this regard, organizations are increasingly turning to the introduction of automation and artificial intelligence (AI). At the same time, the pursuit of environmental, social, and governance initiatives is expanding the scope of information that stakeholders require from organizations. Thus, these two trends significantly change the competence needed by PAs to provide added value through the reporting information – along the data chain, to making efficient management decisions (CPA Canada, ICAS & IFAC, 2022).

Based on the results of an OECD study on “Does Higher Education Teach Students that Think Critically?”, it can be concluded that creativity, critical thinking, problem-solving, and communication skills should be developed in students, as they are key to achieving professional success in the 21st century. The acquisition of these skills is seen as a prerequisite for dealing with more abstract and non-routine tasks, as well as for achieving significant scientific and professional contributions (OECD, 2022). Creativity and critical thinking, problem-solving, and communication skills cannot be sufficiently developed if students are taught primarily through tests, especially those with closed-ended questions. As learning approaches that develop the valued modern skills and creativity could be used – ethical reflection, case study, forming a critical assessment, group work, implementation of projects, carrying out independent studies, and presenting their results. Weenk (2021) recommends that in economics education, in addition to case studies,

business simulations should be used, which allow for a deeper understanding of the results of actions and cause-and-effect relationships, as well as allow for a certain degree of trial and error, which is impossible in case studies.

## CONTEMPORARY CHALLENGES FACING THE ACCOUNTING PROFESSION

World Economic Forum (WEF) Future of Jobs Report 2020, on the financial services sector (including accountants and auditors), the government and public services sector, and the professional services sector identify emerging job roles, which focus on analysis, use/protection of data and information, strategy formation, risk management and business development (World Economic Forum, 2020, p. 134). According to the WEF report (2020), the top ten emerging jobs in financial services are: 1) data analysts and scientists; 2) Big Data specialists; 3) specialists in digital marketing and strategy; 4) specialists in artificial intelligence (AI) and machine learning; 5) specialists in digital transformation; 6) information security analysts; 7) database and network specialists; 8) business development specialists; 9) fintech engineers; 10) cyber security specialists.

Emerging job roles reflect the growing trend toward data reliance and human-machine collaboration. Singerman (2022) draws attention to the hyper-connected nature of today's world, where people are connected to each other and are connected to machines, which are connected to other machines. In today's environment, characterized by rapid technological development and an ever-increasing amount of data, in addition to basic leadership and analytical skills, as well as problem-solving skills, it is important to develop the ability to translate concepts from one field to another, as well as to interpret the results, whether on a dashboard or in a report (CPA Canada, ICAS & IFAC, 2022).

Today, the accounting profession is undergoing a transformation. Several studies point to the significant impact of automation and artificial intelligence (AI) on the profession. For example, a 2017 Bloomberg report predicted that accounting and auditor jobs in the US have a 94 % chance of being affected by automation (Whitehouse & Rojanasakul, 2017). In the Future of Jobs Report 2020 by the World Economic Forum, accountants and auditors are ranked near the top of the list of roles expected to become increasingly redundant by 2025 (World Economic Forum, 2020, p. 146). This provides reasons for accounting professionals and educational institutions to seek ways to promptly adapt to the rapidly changing environment. In addition to this, a joint study of authoritative international accounting organizations points out that accountants are not only competing with artificial intelligence (AI) but also with other professionals with a similar skill set, for example, data scientists, so having knowledge for the processing, extracting and analyzing data will help them remain competitive (CPA Canada, ICAS & IFAC, 2022).

At the same time, there is also a more positive prediction about the profession, that accountants' jobs will not be replaced, but instead will be reoriented to provide higher value-added activities such as data interpretation and strategic planning (Higgins, 2021). The expectation is that the automation of more routine, repetitive tasks will create an opportunity for accounting and finance professionals to focus on performing more complex activities and assume the role of strategic business partners within the organization (IAESB, 2019b). The Practice Transformation Action Plan notes that the accountant's role is to work as a business partner and trusted business advisor, seeking to expand the range of services offered to remain competitive (IFAC, 2020, p. 14).

The World Economic Forum's Future of Jobs Report 2020 lists the 15 most valued skills for 2025: 1) analytical thinking and innovation; 2) active learning and learning strategies; 3) complex problem solving; 4) critical thinking and analysis; 5) creativity, originality, and initiative; 6) leadership and social influence; 7) use of technologies, monitoring, and control; 8) design and programming of technologies; 9) durability, resistance to stress and flexibility; 10) reasoned reasoning, problem-solving and idea generation; 11) emotional intelligence; 12) troubleshooting and user experience; 13) service orientation; 14) system analysis and assessment; 15) persuasion and negotiation (World Economic Forum, 2020, p. 36).

Therefore, the trends related to the skills in demand in the 21st century indicate a need to develop non-technical skills in the accounting profession. So far, accounting education programs have focused on classical accounting skills because they are the traditional basis of accounting competence and are easier to

assess than non-technical skills. But if the accounting profession is to meet the demands of the future, change is needed – modern accountants must be oriented more toward professional and ethical decision-making, rather than solely toward providing technical services (CPA Canada, ICAS & IFAC, 2022).

In the CPA Competency Map, traditional technical and professional competencies are tied to human skills and values, ethical thinking, as well as decision-making abilities (CPA Canada, 2022). According to the CPA Competency Map, professional accountants create and sustain economic and societal value for stakeholders by bringing logic, structure, and credibility to reporting information (CPA Canada, 2022, p. 13).

The opportunities and challenges associated with data management and artificial intelligence (AI) require collaboration between experts in many fields. Taking a multidisciplinary approach also provides opportunities for PAs to use skills that can offer unique and innovative perspectives. Those PAs who have a diverse set of interests and experiences can benefit from their internal diversity, and where skill sets are lacking, there is a need for professional development and complementing work teams (CPA Canada, ICAS & IFAC, 2022).

Accounting provides excellent opportunities for a successful business or public sector career. Professional accountants in the business perform a variety of financial and commercial roles. They provide the foundation for the creation and development of profitable organizations. Digital transformation and the shift towards sustainability in organizations worldwide are providing new opportunities for professional accountants to be strategically oriented and more valuable to the organizations they work for. To be able to increase their contribution, professional accountants should focus on activities and actions that enable the creation of added value for the organization, clients, society, and other stakeholders (IFAC, 2022). According to the latest concepts, professional accountants could help understand the business environment in various roles, for example, financial and business leaders, risk managers and analysts, and supply management specialists (IFAC, 2022). All these new opportunities, which are revealed to the accounting profession, in connection with the digital transformation of modern society, are related to the acquisition of quality education, modern knowledge, competencies, and skills.

## CONCLUSION

Quality education of modern accountants requires the application of a multidisciplinary approach in training, including not only 1) traditional accounting knowledge related to documentation, accounting records, and reports, but also 2) mathematical knowledge, incl. statistics and mathematical modeling, 3) legal knowledge, incl. accounting, labor and insurance legislation, tax laws, commercial and financial law, some aspects of civil and criminal law, 4) financial control knowledge, incl. preliminary, current and subsequent control, internal and external audit, 5) financial- analytical and economic knowledge, incl. macro and microeconomics, business and management, logistics and placement, 6) knowledge of business ethics and business communication, 7) knowledge of corporate social responsibility and sustainable development, 8) solid knowledge of information systems, data security and working in a digital environment.

By its very nature, accounting has a complex nature, as it requires continuous and complete coverage and reflection of all economic facts, phenomena, and processes related to the activity of the reporting units, of all their property, and the changes that occur in it as a result of economic operations (Genov, Todorov & Filipova, 2005). In connection with this immanent characteristic of accounting, one can assess the fundamental importance of the knowledge related to the accounting information system for the acquisition of quality economic education – at all educational levels. Solid accounting knowledge can also be seen as a basis for upgrading education in areas such as finance, management, marketing, and financial and tax law.

In the modern conditions of rapidly developing information technologies, artificial intelligence (AI), and automation, for success in the accounting profession, only traditional knowledge and competencies are no longer sufficient, and it is also necessary to develop personal and professional skills, such as 1) analytical mind and adequate interpretation of facts, phenomena, and processes; 2) abstract thinking and modeling ability; 3) organization and orderliness; 4) teamwork skills and effective communication; 5) responsibility

and rationality; 6) precision, stability, and persistence; 7) striving for continuous improvement, willingness to develop skills and lifelong learning.

In the formation of complex professional training, the educational system as a whole (all levels of training and all educational institutions) has a leading role. It should be oriented towards the provision of quality modern knowledge and the development of the competencies and skills necessary to achieve a satisfying professional realization throughout professional life.

## REFERENCES

- CPA Canada, ICAS & IFAC. (2022). *Mindset and Enabling Skills of Professional Accountants: A Competence Paradigm Shift. Paper 4 The Fourth in a Four Part Series Discussing Ethical Leadership in an Era of Complexity and Digital Change*. Retrieved from <https://www.cpacanada.ca/-/media/site/operational/rg-research-guidance-and-support/docs/02997-rg-mindsets-of-professional-accountants-paper-4.pdf>
- CPA Canada. (2022). *Leading the Way: Competency Map 2.0*. Retrieved from <https://cdn-ca.aglty.io/comp-map-2/Attachments/NewItems/CPA%20Competency%20Map%202.0%20FINAL.pdf>
- Dinev, D.P. (2021). *Schetovodnite Izmani: Razkrivane i Preventsia*. Sofia: ИЕРІ [Динев, Д.П. (2021). *Счетоводните Измами: Разкриване и Превенция*. София: ИЕПИ].
- Genov, G., Todorov, G., & Filipova, F. (2005). *Teoria na Schetovodstvoto*. Sofia: Steno [Генов, Г., Тодоров, Г. & Филипова, Ф. (2005). *Теория на Счетоводството*. София: Стено].
- Higgins, M. (2021). *The Future of Accounting: How Will Digital Transformation Impact Accountants?* Retrieved from <https://www.forbes.com/sites/forbestechcouncil/2021/05/19/the-future-of-accounting-how-will-digital-transformation-impact-accountants/>
- IAESB. (2019a). *Handbook of International Education Pronouncements*. Retrieved from <https://www.ifac.org/system/files/publications/files/Handbook-of-International-Education-Standards-2019.pdf>
- IAESB. (2019b). *Implementation Guidance: Developing Professional Accountants in Business (PAIBs) for the Strategic Business Partner's Role*. Retrieved from <https://www.ifac.org/system/files/publications/files/IAESB-Implementation-Guidance-Accountants-in-Business.pdf>
- IFAC. (2020). *Practice Transformation Action Plan: A Roadmap to the Future*. Retrieved from <https://www.ifac.org/publications/practice-transformation-action-plan-6>
- IFAC. (2022). *Professional Accountants as Business Leaders and Value Partners*. Retrieved from <https://www.ifac.org/knowledge-gateway/preparing-future-ready-professionals/discussion/professional-accountants-business-leaders-and-value-partners>
- OECD. (2022). *Does Higher Education Teach Students to Think Critically?* In D.V. Damme & D. Zahner (Eds.). Paris: OECD Publishing. Retrieved from <https://doi.org/10.1787/cc9fa6aa-en>
- Singerman, M. (2022). *How Tech Savvy Do You Need to Be as A CPA?* Retrieved from <https://www.cpacanada.ca/en/news/accounting/the-profession/2022-01-13-cpa-technology-skills>
- Svrakov, A. (2014). *Razmisli za Schetovodstvoto v Minalo i v Nastoyashte vreme*. Sofia: ИК „Труд и право“ [Свраков, А. (2014). *Размисли за Счетоводството в Минало и в Настояще Време*. София: ИК „Труд и право“].
- United Nations. (2022). *Goal 4 Ensure Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities for All*. Retrieved from <https://sdgs.un.org/goals/goal4>
- Weenk, E. (2021). *White Paper on the Integrated Learning Approach. Experiential Learning and the Use of Business Simulations and Teaching Cases: An Integrated Learning Approach*. Retrieved from <https://inchange.com/integrated-learning/integrated-learning-approach-whitepaper/>
- Whitehouse, M., & Rojanasakul, M. (2017). *Find Out If Your Job Will Be Automated*. Retrieved from <https://www.bloomberg.com/graphics/2017-job-risk/>

World Economic Forum. (2020). *The Future of Jobs Report 2020*. Retrieved from  
WEF\_Future\_of\_Jobs\_2020.pdf (weforum.org)

Zhelyazkov, D.Z. (2014). Shto e To Schetovodstvoto? *Schetovodstvo*, 7(XVIII), 1–11 [Желязков, Д.Ж.  
(2014). Що е То Счетоводство? *Счетоводство*, 7, XVIII, 1–11]. Retrieved from  
<https://www.ides.bg/media/1307/07-2014-dimitar-jeliazkov.pdf>