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Development of Accounting Education in the Knowledge Society

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Abstract

Education occupies a key position in the "knowledge society" and the level of education of the country's population generates its future innovative potential. Modern universities are making extensive use of existing technological advances and distance learning technologies, providing education without borders. An open educational space enables mutual exchange of qualitative arrays of knowledge between social and geographical groups. Education is also significantly influenced by current global trends that are changing the nature of communications around the world. The article describes the main transformations, that should be taken into account in the modern model of specialist training, allowing for the accounting education. This model is based on the tripartite interaction of higher education institutions, business and professional organizations. In such interaction, the paradigm of the "knowledge society" is implemented and a high level of transfer the experience gained within the accounting profession is ensured. Proper communication between the above entities enables universities to receive specific employers' requirements and take them into account when formulating curricula, training and methodological support, to engage practitioners in the educational process, to introduce dual education with combined theoretical and practical training, to use traineeship of students. The most important vectors of change for the qualitative transformation of higher education institutions into full participants in the process of creating human capital of companies and countries are shown.

Key words knowledge society, education, accounting education, modeling of accounting education, accounting profession.

JEL Codes: M41, I25

Introduction

The paradigm of the arrangement of the world in the form of a “knowledge society” was formed on the basis of the information revolution due to the processes of knowledge globalization and the development of the information society. Since the advent of the first computer in the mid-twentieth century and to this day, the pace of humanity's development is accelerated by the increasing use of Internet technologies, satellite communications, telecommunications and global information networks.

The transfer of knowledge and information as a result of the advancement of the information revolution is modified and transformed. It substantiates a departure from the use of traditional systems of data generation and dissemination, and the transition to powerful knowledge bases with giant repositories, global computer networks with high-speed access from around the world.

Education plays a key role in the “knowledge society” and the level of education of the country's population generates its future innovative potential. Modern educational processes actively use existing technological advances and involve virtual laboratories, virtual universities, distance learning technologies, providing education without borders. The most powerful universities in the world, using state-of-the-art communication tools, are located in geographic areas of other countries and actively compete with local educational institutions. An open educational space enables the exchange of qualitative masses of knowledge between social and geographical groups. The global information environment expands the faculty of the teacher, overcoming geographical boundaries, and the speed of knowledge updating on the basis of world information resources allows to create high-quality intellectual and human capital.

1. Literature review

The issues of the development of the "knowledge society" have their own history and are the central scientific category in studies in philosophy, economic history, education and many others. Many scholars have paid attention to the content of the paradigm of the "knowledge society", formed its principles and factors of development. In particular, Bell (1973), revealing the features of post-industrial society in 1973, argued that theoretical knowledge became the main strategic resource of society, and those engaged in its creation and distribution became a leading social group, replacing industrialists and entrepreneurs.

Machlup (1977) showed the link between production, market and knowledge, revealed the real and potential state of science and education in the context of accelerating economic development, and outlined the vectors for successful development for the next 20-30 years. Drucker (1994) focused on the formation of a newly formed dominant group of knowledge workers represented by professions in need of formal education and theoretical knowledge, while arguing that high-level skills and knowledge are essential to assess earnings.

According to UNESCO, introduced by Cowell (2005), the principles of building a knowledge society should include the following: 1) the knowledge society is increasing its potential through diversity and empowerment; 2) the knowledge society should promote knowledge sharing; 3) company knowledge is not limited to information only. In its study, UNESCO demonstrates that the knowledge society is an attempt to restore the value of knowledge, but their free exchange is not possible because it is unprofitable for business.

Particular attention was paid to the study of relationships between time-bound, but essentially different, directions of human development. Thus, Castells (1996) proposed to apply the concept of "information society" or "network society" to reflect the widespread development of information and communication technologies, as well as to transform the processes of generation, processing and transmission of information into major sources of productivity and power (Castells, 1996), but this approach was rather narrowly focused on the technological aspect. Criticism of this approach was based on the fact that it does not carry life without the participation of a human factor who invests knowledge, work and creativity, which makes sense in technology.

Clear differences between the concepts of "information society" and "knowledge society" were revealed in detail in the works of such scientists as Toffler (1980) and Bell (1980), who argued that the concept of "knowledge society" reflects a more general purpose than describes a real social -economic situation.

Through the works of Stehr since the late 1990's, the overarching concept of the knowledge society has become widespread in the scientific world (Stehr, 1994). The author noted that knowledge is based on all professions in all sectors of the economy, emphasized the important role of experts and consultants as carriers of knowledge and information (David and Foray, 2002).

In contemporary works, the authors continue to debate the content of the existing paradigms of human development, consider the differences between the concepts of "knowledge society" and "information society" and propose current trends in the development of scientific knowledge (Terepiszczy, 2016].

Permanent monitoring of the formation and modification of social systems is carried out by world organizations, and the published specialized reports provide statistics and estimates of experts. Thus, according to the World Bank and United Nations studies, countries that have tended to become knowledge-based societies have been identified, including the United States, Canada, Australia, Japan, as well as the Scandinavian and Western European countries (UN, 2005; World Bank, 1998). However, experts estimate that many countries still remain in a state of industrial or agricultural development.

2. Research methodology, data and hypotheses

Systematic approach is the basis of the presented research, which allows to reveal the necessary transformations in accounting education, which can be a striking example of the implementation of the principles of the paradigm of the "knowledge society".

In the process of building a model for training a specialist in accounting based on tripartite interaction and disclosure of its content, the structural-logical method, methods of analysis and synthesis, induction and deduction, abstraction, idealization and generalization were used. The statistics obtained with the help of statistical methods and methods of expert assessments are presented in the article.

The main hypothesis of the presented study is that the modification of the modern model of accounting education, which is based on the trilateral interaction of higher education institutions, business and professional

organizations, acquires the features of the paradigm of the "knowledge society" and reflects the high level of organization of transfer of acquired experience in the accounting profession.

3. Transformation of the accounting education model and its development in the "knowledge society" under the influence of global processes.

The modern dynamics of the outside world require constant transformation in all spheres of human life. Education is one of the most important drivers of social development and an important factor in shaping the intellectual potential of each country. The paradigm of the "knowledge society" and the use of the latest advances in information technology create additional opportunities for changing the content of educational processes, methods of knowledge transfer, improving the effectiveness of learning. The Knowledge Society and the Information Society bring new challenges, but also create enormous opportunities for the further development of humanity.

The solution to the problem of the inconsistency of the current model of accounting education with the needs of society, business needs and the level of technology development should be in accordance with the principles of paradigms of "knowledge society" and "information society" on the basis of transformational shifts in the system of communication between higher education institutions and major stakeholders. It should be taken into account that business has the greatest interest in high quality education, including accounting, which seeks to improve its efficiency at the expense of the professional competencies of its employees, as well as professional accounting organizations that care for the level of professional development.

The revision of the accounting education model should take into account key trends in the global world in order to best meet current requirements. Studies of global trends are carried out by various world organizations, and offer their reports and research on common problems of humanity, economic development, business, trends in local markets, trends in personnel management and more.

One such forecast was made by the Global Business Policy Council (GBPC, Laudicina et al) which outlines 5 key trends that will dramatically change and shape the global outlook for 2018-2023, including (See Laudicina et al.) : „1) the world struggle for technological superiority; 2) restoration of the Pacific region; 3) the revolution of "clean products"; 4) falsification of news and their volatility; 5) transformation in higher education". These trends are interesting because they identify changes in the higher education system, which is becoming more accessible in different countries due to the constant and rapid emergence of technological innovations and the disappearance of geographical borders.

These trends draw the attention of the global community to the need for change in higher education, due to the inevitability of external influences on the world educational environment. Each trend has its economic and social implications, and it also shifts the approach to educational services.

The first trend determines the global struggle for technological superiority. The active passage of the 4th Industrial Revolution, led by the United States and China, brings out the dominant technological solutions that determine the new quality of communication processes around the world and for many years to come to shape the global operating environment.

The rapid innovation development of the Industrial Revolutionary countries is underpinned by investment in research and development, the introduction of powerful university research programs, and the formation of a national innovation culture observed in the United States, the European Union, Japan and China (see Laudicina et al.). According to GBPC research, for the period 2000-2016, China came in 2nd place among the countries in terms of R&D expenditures, adopts effective national strategies, laws and standards with the potential of transforming the whole country into cyberspace.

In countries with developed economies, investment into scientific research, patenting and licensing of innovative inventions, knowledge base and training, software and its updating, marketing technologies are the same in volume or higher than capital investment to the material base. The established scientific base and personnel, in turn, form the basis for further innovative research and implementation.

The high technological development in all countries causes a constant increase in the number of companies operating on the basis of online platforms in the fields of trade, service, consulting, education and more. 50-52% of respondents say that the latest digital technologies are more likely to have a positive impact on the economy, society and quality of life according to World Bank and Special Eurobarometer surveys, while another 17-23% say that this impact is highly positive (World Bank, 2019, p. 2). Accordingly, three-quarters of EU citizens are convinced that new technologies are a boon to their jobs, have a positive impact on society and improve the quality of life (European Commission, 2017).

The main implications of this global trend for higher education are the constant and rapid emergence of technological innovations that are changing communication processes, making them more accessible globally. Active technological development creates for higher education institutions additional opportunities in implementation of qualitatively new teaching methods, among which virtual classes, webinars, distance learning and online consultations are becoming more and more widespread. Global networks significantly expand the teacher's audience, leveling geographical areas, shaping education without borders. Accordingly, maintaining the high level of work of universities and other educational institutions requires constant monitoring of technology dynamics to form strategies for the development of educational methods and learning technologies.

A striking example for the introduction of mass-based online learning is the educational platform “Coursera”, founded in 2012 by two Stanford computer science professors, which now has 40 million students enrolled, more than 190 partner universities involved, and more than 3,600 training courses offered in more than 390 different specializations (Coursera website). The positive impact of the latest technologies on education is demonstrated by the Chinese company VIPKID, established in 2013, which provides one-to-one online English training to 200,000 participants from 300,000 US teachers via the Internet (World Bank, 2019, p. 39). Also, according to the World Bank, there are more than 3,000 dialog-based vocational training institutions in the United States, and virtual universities are offered in 33 states of the United States offering online distance learning courses. In Latin America, virtual universities enroll 50,000 students based on 15 Masters Programs through a teleconference system and the Internet of the Virtual University of Monterrey (Mexico). 15 virtual universities that offer 66 bachelor programs and cover 14,550 students in their region are in South Korea. Several hundred distance learning programs are offered by different universities in Europe. Euro monitor International research results show that by 2030, more than half of the population in the emerging markets will have higher education and almost 12% will have second higher education (Laudicina et al.).

The role of universities and specialized secondary education institutions as innovation centers is appreciated worldwide. In particular, such universities operate in the form of innovation clusters: Stanford University, University of California, Berkeley (Silicon Valley), Harvard, Massachusetts Institute of Technology (Boston’s Route 128) in the United States, and the “golden triangle” the University of Cambridge – University of Oxford – University College London in the United Kingdom (World Bank, 2019, p. 80). Clusters are also emerging in many developing countries, including Malaysia, China, India, Mexico, in the areas of sustainability and biotechnology, nanotechnology, robotics, precision medicine, “smart medicine” and more.

Expanding educational opportunities around the world and a high speed of updating knowledge based on global information resources contribute to the overall awareness of the global society, thus increasing its intellectual level, forming high-quality human capital. As a consequence, the accumulation of intellectual, quality and knowledge quality and innovation will gradually create a powerful competitive advantage for every national economy. In turn, the accumulated innovative developments shape the capital of companies and ensure their growth, conducting the links of the quality of education, business performance and the growth of national economies.

For the purposes of the study of human capital by country, the World Bank has developed a new Human Capital Index (HCI) for the first time, which demonstrates the relationship between investment in health and education and the productivity of future workers (World Bank, 2019, p. 56-60). It is also shown how a change in the human capital index affects projected changes in per capita income and economic growth, in particular, the transition from the 25th to the 75th percentile of the Index provides additional economic growth of 1.4% annually for 50 years. By countries, Singapore (0.88), Korea (0.84), Japan (0.84) has the highest level of the Human Capital Index (HCI) 2018. Hong Kong SAR, Finland, Ireland, Australia, Sweden, Netherlands, Canada has 0.80-0.81 of HCI-2018. Ukraine has HCI-2018 indicator at the level of 0.65, Romania – 0.60 (World Bank, 2019, p. 62).

On this basis, the World Bank is launching a human capital development project aimed at supporting countries' strategies for accelerated investment in human capital. According to its research, countries in which a market economy is formed are at the peak of technological shifts that are changing the nature of labour. Accordingly, investing in human capital is an effective policy tool for solving the problems of the future.

The second global trend for the recovery of the Pacific Ocean region that includes the Indian Ocean and West Pacific show its rapid economic growth. According to Global Business Policy Council (GBPC) studies, the Indo-Pacific Ocean region has grown from 37% of the world economy in purchasing power parity in 2000 to 52% today [7].

The main trend forecast is increasing the importance of the Indo-Pacific region for the commercial success of multinational corporations, increasing the number of free trade agreements and strategic alliances, and economic growth in the region. The consequences in the field of higher education are manifested in the necessity of establishing

cooperation with educational institutions of the Indo-Pacific region, readiness to accept the ever-increasing number of students from the countries of this region, to adapt educational technologies to the worldview of such students.

The third global trend in the "clean products" revolution has led to the widespread transition of humanity to consuming healthier and more environmentally sustainable products (Laudicina et al). Given changes take place against the backdrop of the constant introduction of product innovations, the experiments of product companies, the focus on clean, sustainable and healthy products, the orientation of production to meet new consumer demands to maintain the value of company capital. In the field of higher education, this trend is reflected in the increasing demand for training of specialists in production technologies and production, biotechnology and bioengineering, etc.

In addition to the growing demand for technological and engineering specialties, the "clean products" revolution is raising the level of responsibility of companies to society and requiring information about the impact of business on the environment. This contributes to the development of a company reporting system in response to the demands of global society, which are increasingly inclined to prepare new reporting formats for different stakeholder groups, widens the range of entities that publish environmental reporting, sustainable development reporting in the economic, social and environmental dimensions. activities.

The shift in the reporting vector of companies increases the role of professionals involved in the preparation of new types of reporting, among which accounting services are central. Today given the high technological level for conducting accounting, accountants perform not so much technical accounting functions as they do to prepare integrated reports that combine financial and non-financial data to provide users with CSR information. Thus, the role of the professional accounting community is growing in business, and accounting is increasingly viewed as a separate economic institution accountable to global society.

These processes indicate the need to review the role of accountants and financial professionals and their degree of involvement in the processes of managing business sustainability. Accordingly, accounting and reporting professionals should be involved in the preparation of reporting data on: changes made in industrial production, innovations, developed infrastructure, following the principles of responsible consumption of resources in the process of production of public goods, the transition to renewable energy sources. A separate requirement for accountants in the purpose of information processing of sustainability indicators is the need for specialized knowledge and skills to accurately assess the impact of economic agents on the environment. The above requirements should be taken into account in the educational processes in the preparation of accountants.

The fourth global trend, related to falsification of news and their volatility, covers not only the negative phenomena in the media world, but also in the whole system of information that humanity uses daily in its life. In accordance with global dynamics, the next 5 years of technology used to create fake news will become cheaper, faster and more convincing, and the level of trust of users, in particular in the media world, will continue to decline. According to the GBPC data, public confidence in media news ranges from 30-40% in many countries today, such as Turkey (30%), Australia (31%), Japan (32%), United Kingdom (32%), France (33%), South Africa (35%), Argentina (39%), South Korea (40 %) (Laudicina et al). Germany (42%), USA (42%), Brazil (43%), Italy (45%), Mexico (48%), Canada (49%) have slightly higher levels of trust in media resources. Only India, Indonesia and China trust the media in more than 60% of cases. False news weakens public confidence, impairs social cohesion. Distorted and false information destroys the reputation of companies and successful businesses.

These challenges, driven by the spread of misinformation in the world, require constant attention from users to the credibility and reliability of data sources and companies are forced to step up their efforts to protect their reputational positions and prepare additional data blocks and reports to create the trust of their customers and the community at large. The importance role of professionals capable of developing and applying strategic prediction tools and emergency planning for disseminating false or distorted data is emerging in such circumstances and the demand for data protection professionals is increasing.

The latest global trend by GBPC version is shaping the transformation in higher education. The impact of the 4th Industrial Revolution is creating a new model of education, based on high attention to practical skills, support for the knowledge economy based on high technology. This trend poses important challenges for educational institutions and requires the modernization of education on a regular basis.

Technological advancements are transforming global labour markets and increasing job requirements for job seekers. The high level of automation of operational processes changes. One industrial machine on average replaces three workers according to the analytical centre of the European Brueghel. Despite the negative estimates of the possible loss of jobs due to technological progress, the experts give wide limits on the actual manifestation of this phenomenon in the countries of the world. In particular, the degree of job automation in 2018 is likely to be more than

0.7 in the US from 7% to 47%, Japan from 6% to 55%, Lithuania from 5% to 56%, Cyprus from 5% to 61%, Ukraine from 5% to 40% according to the World Bank (World Bank, 2019, p. 22).

At the same time, the high level of automation of operational processes stimulates the demand for highly skilled skills and exacerbates the problem of shortage of specialists in science, technology, engineering, mathematics, computer science, Internet technologies and cyber security. For example, in Japan, Turkey, India, Argentina, Germany, more than 51% of vacancies do not receive candidates. The same situation is observed in most G20 countries (Laudicina et al).

Countries with a shortage of specialists offer international student visas, which results in active student migration between countries. For example, the number of international school students in 2018 increased in Canada and Australia by 20% and 13%, respectively, which is the highest among the world (Laudicina et al). There is also an overall increase in the proportion of international students, which in 2017 compared to 2001 has changed from 2.1 million to 4.6 million.

Today business not only creates new jobs, but also changes the requirements for professional qualification in existing specialties. New technologies are changing the nature of work and required skills, the demand for less skilled workers whose functions can replace machines is diminishing, as well as the narrow skills inherent in a particular workplace, but at the same time, in many specialties, the demand for advanced cognitive skills is increasing (critical thinking, problem solving), social and behavioural (creativity, the pursuit of learning something new) and adaptive skills. This tendency is actively manifested not only in developed countries but also in developing ones. In particular, the proportion of highly skilled workers (including managers, specialists, technicians, junior specialists) in Bolivia increased by 8% from 2000 to 2014, in Ethiopia this indicator increased by 13% (World Bank, 2019, p. 70-71).

Companies that are constantly facing a shortage of skilled personnel are resorting to introducing their own staff training measures, in particular, investing in the training and education of their employees, work to create an appropriate staff reserve. Business should strengthen cooperation with higher education institutions and establish strong partnerships in order to improve the quality of training of such professionals under which educational systems should become part of business investment decisions to ensure the effectiveness of such cooperation.

An important consequence of this trend for businesses is the need to review the compensation and retention policies. Because training new applicants is a more costly process than introducing retention programs for already employed professionals.

Significant technological changes in all spheres of human life are causing constant shifts in the skills of workers and creating new demands for the appropriate quality of skills of graduates of educational institutions. Given processes determine the modification of the range of knowledge that a specialist must possess in order to have a deep specialization in a particular field of activity to ensure the high quality of practical tasks, and at the same time a broad general education that creates the ability to identify patterns and cross-curricular relationships that can affect highly specialized industries. As a result, the qualities of specialists such as the ability to work with large arrays of data, their rapid processing with the use of different technologies, the ability to find the necessary information among the excessive information, identify non-standard problems and build alternative models of their solution, perform analytical reasoning of data and the first place ability to make predictive values, taking into account actual and potential dynamics of the phenomenon, as well as the possible influence of risks and probabilistic factors. This approach qualitatively transforms the work of human consciousness, which straddles the level of precise formalized processing of input data and the parallel implementation of symbolic imaginative perceptions, which allows the construction of complex models of multiple connections.

Shifting the education system towards higher technological training, forming a specialized global workforce is determined accordingly to the 21st century. The education system becomes an important factor determining national competitiveness. Such methods as problem and oriented, reciprocal, empirical, real-life, critical-approach, critical self-analysis, self-organization, reflection and various models of combination of such methods should be used more widely in order to improve the quality of education.

According to the World Bank, universities focused on the future are finding ways to develop social and behavioral skills in adult students (World Bank, 2019, p. 80). In the Netherlands, vocational education colleges provide entrepreneurship courses to enhance their cognitive skills, such as teamwork and self-confidence. In Tunisia, universities offer entrepreneurship training programs that include business training and individual counseling. In China, teaching methods combine collaboration and role-playing for senior pharmacology faculty, developing communication and self-study skills.

Educational systems will continue to transform in the short and long term, becoming an important factor in national competitiveness, and attracting the world's best teaching methods and leading foreign specialists will increase its level.

Accounting education today is one of the key professions as it provides training for professionals involved in informing different categories of users about business activity and its external influences. The training of professionals in accounting and finance is sufficiently sensitive to global trends and needs to address today's challenges, transforming with a shift in thinking towards a high level of responsibility and accountability of business to society; openness and accessibility of information on indicators of business impact on the world; implementation of up-to-date reporting formats that meet stakeholder requirements; strategic orientation in business management, orientation of accounting and reporting of companies on strategic management; continuous monitoring of the environment and its impact on business dynamics, assessment of the impact of business on the surrounding world; strengthening the role of accountants and financial professionals in managing the business and its sustainability as the main providers of new format reporting information; widespread adoption of information and communication technologies in the field of accounting and reporting of companies, increasing access to them.

Accordingly, the model of modern accounting specialist training should be transformed, taking into account global trends, based on the combination of basic training of such specialists in higher education institutions, followed by continuing professional education throughout life with the support of professional accounting organizations (Fig. 1). The new model of accounting education should be based on the close interaction and cooperation of educational institutions with business, as the main user of intellectual product – a university graduate.

The given model underlined the importance of continuous interaction between the three parties – universities, business and professional accounting organizations, – establishing cooperation between them which addresses a number of problems related to improving the quality of education and ensuring a high level of workforce skills. In particular, proper communication between the above entities enables universities to receive specific employers' requirements and take them into account when formulating curricula, training and methodological support, to engage practitioners in the educational process, to introduce dual education with combined theoretical and practical training, to use traineeship of students.

Business in cooperation with universities receives specialists, prepared according to the specialized requests of companies. Business involvement in dual education projects provides purposeful training for graduates with high practical potential, focused on the specificities of specific companies.

Professional organizations accumulate best practices and experiences in their respective professions and disseminate those experiences to enhance the prestige of the profession and enhance the intellectual level of the professional community. Accounting professional organizations, through collaboration with educational institutions, can provide them with strong information support and incorporate the results of professional enrollment training into their certification programs. The cooperation of business with professional organizations provides the opportunity for continuous training and advanced training of employees.

Conclusion

Given the mentioned above transformations, driven by the paradigms of the “information society” and the “knowledge society”, the education system must respond to processes of shift in information technology and broadly introduce into the learning process tools that can demonstrate the ability of the educational space to meet the needs of the real world. Wide open access to knowledge bases is a necessary prerequisite for scientific shifts and breakthroughs in cognitive processes, and the accumulation of a critical mass of knowledge to discover qualitatively new ideas about the outside world. This view reflects a shift away from the principle of competitiveness of knowledge to the principle of synergistic communication and knowledge sharing, and is capable of delivering global scientific projects and solving global problems through shared knowledge bases.

The most important vectors of change for the qualitative transformation of higher education institutions into full participants in the process of creating human capital of companies and countries should be the following:

– broad transition to information and communication training technologies;

– use of specialized software products in the educational process in accordance with the direction of vocational training;

– application of the newest methods of training, oriented to the real needs of business, formation of cognitive, social-behavioral and adaptive skills during training;

– contracting with business to understand the real demand for specialties and specializations, access to practice bases, choice of priority areas for research projects;

– introduction of dual education with a combination of theoretical and practical training with the involvement of practitioners;

– expansion of cooperation with professional organizations for accreditation of specialties and training programs, formation of a continuous cycle of education throughout life;

– creation of open knowledge bases that may contain online courses, methodological information, results of scientific research, consultative and reference materials, etc.

Restructuring the accounting education system in response to global challenges must be based on modern demands of society, employers and various stakeholder groups, new communication technologies, practically oriented teaching methods, expanding the accounting methodology and its complement analytical methods of processing and combining financial and non-financial data, allowing to disclose internal processes and external factors and effects of business on the world.

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