DOI: https://doi.org/10.31410/ERAZ.2021.229

Occupational Profiles Required for the Future – Need or Fiction?

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Keywords:
Labour market;
Changes;
Occupational profiles;
Covid-19

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Abstract: *Problems caused by Covid–19 led to the slowdowns of economic growth in many countries, which affected the labour market as well. The global recession, structural changes in economies and rapid development of robotics have also resulted in disappearance of many jobs. Hence, there is an actual need for new labour-market orientation, as well as occupational profiles that will respond to the challenges of modern business flows. Besides the changes provoked by the pandemic crisis on the world labour market, this paper also analyses the main indicators of the labour market in the Republic of Serbia. The paper also explores the need in defining new occupational profiles based on trends such as automation, robotics and sustainability.*

1. INTRODUCTION

Social progress is unthinkable without the development of technology. We can thank scientific achievements for all the benefits of modern life. The development of modern technology is a matter of social, political and economic power. However, the technological revolution brings along certain dilemmas (moral and ethical) and environmental problems, but also the very uncertain perspective of humanity. There is no doubt that modern technologies have imposed new values and introduced new modes of communication. On the other side, the negative consequences of that technologically "better life" are the alienation of people and the loss of collective consciousness.

The current turmoil in the labour market caused by the Fourth Industrial Revolution (or Industry 4.0) has been additionally accelerated by the recession due to pandemic crisis. Robotics and artificial intelligence involved certain changes and affected the creation of new jobs (Schulte, 2020; Balliester & Elsheikhi, 2018). In general, digital transformation contributed to the reduction of traditional jobs, while the pandemic crisis has dramatically influenced the increase in the number of people working from home. Regarding these reasons, there is a need for a new labour-market orientation, as well as occupational profiles that will respond to the challenges of modern business flows.

The Bureau of Labor Statistics (2020) predicts that employment in the U.S. will increase from 162.8 million to 168.8 million jobs by 2029. This institution also recognises new occupations that will develop over the next 10 years. Some of them are related to public health and health care, as well as new IT occupations. In contrast, there will be a decline in employment for some administrative and sales occupations due to technological changes facilitated by automation and e-commerce (U.S. Bureau of Labor Statistics, 2020).

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In addition to the changes that the pandemic crisis caused in the world labour market, the paper analyses the key indicators of the labour market in the Republic of Serbia. The study also explores the need for defining new occupational profiles based on trends such as automation, robotics and sustainability.

2. TRENDS IN LABOUR – MARKET ORIENTATION

The modern way of life and technological development are changing the way we live and work. The advancement of technology affects the economy, by changing the business processes, the structure of jobs and the demand for certain occupational profiles, knowledge and skills. The benefits of technological innovations that mark our era can determine the directions of future development. At the World Economic Forum (2020) a platform for economic recovery was presented, as well as a report regarding the future of jobs in the next five years. According to the results of a survey conducted among employers, the report states that by 2025, investment in the existing workforce will decrease from 15.4% to 9%, while investment in new jobs and new positions will increase from 7.8% to 13, 5% (World Economic Forum, 2020). Trends in demand for new occupations will be mostly oriented towards the fields of artificial intelligence and IT profession (Table 1), but also the areas such as green economy, food production technology and human resources.

Table 1. Top 10 job roles in increasing and decreasing demand across industries

Increasing demand	Decreasing demand
1. Data Analyst and Specialists	1. Data Entry Clerks
2. AI and Machine Learning Specialists	2. Administrative and Executive Secretaries
3. Big Data Specialists	3. Accounting, Bookkeeping and Payroll Clerks
4. Digital Marketing and Strategy Specialists	4. Accountants and Auditors
5. Process Automation Specialists	5. Assembly and Factory Workers
6. Business Development Professionals	6. Business Services and Administration Managers
7. Digital Transformation Specialists	7. Client Information and Customer Service Workers
8. Information Security Analysts	8. General and Operation Managers
9. Software and Applications Developers	9. Mechanics and Machinery Repairers
10. Internet of Things Specialists	10. Material- Recording and Stock- Keeping Clerks

Source: Adapted from "Future of Jobs Survey 2020", World economic forum, 2020

The survey on future jobs, which is presented in the report at the World Economic Forum indicates that companies need to restructure their workforce in response to new challenges. The surveyed companies stated that they want to modify the composition of their value chain (55.1%), introduce further automation, reduce the current workforce (43.2%), expand the use of contractors doing task – specialised work (41.8%) and expand their workforce due to deeper technological integration (34.5%) (Figure 1).

The most important characteristic of the workforce is its qualification, i.e. educational structure. European Union countries carefully analyse and predict the qualification structure of labour supply, as well as changes in qualification needs. Over the next decade, labour market orientation will be geared towards entirely new occupations or existing occupations that are undergoing significant changes in terms of their content, knowledge and skills (Ehlers, 2020).

Planning occupational profiles requires systematic monitoring and analysis. The results of such analyses should be subject of interest for both employers and those involved in creating and implementing relevant policies.

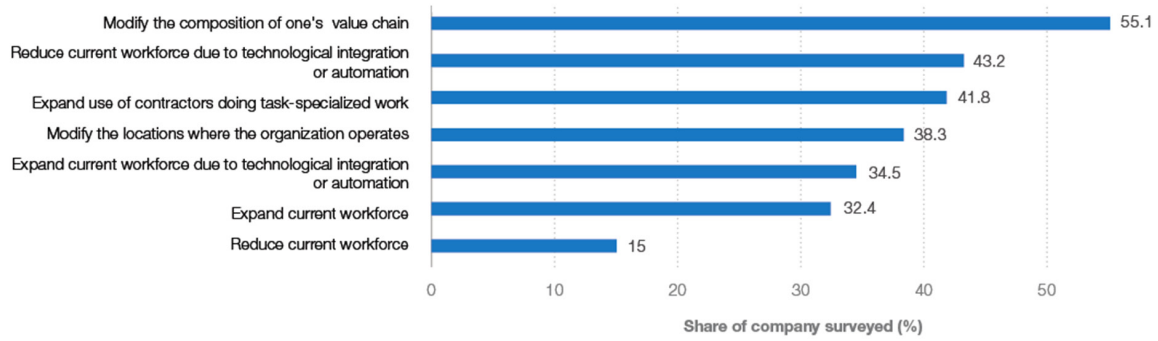

Figure 1. Companies expected changes to the workforce by 2025.
Source: Future of Jobs Survey 2020, World Economic Forum, 2020.

3. THE KEY INDICATORS OF THE LABOUR MARKET IN THE REPUBLIC OF SERBIA

Employment is an important factor of economic growth in any country. Indicators of the national labour market in Serbia have recorded positive results in recent years, which are consistent with the positive trend of macroeconomic indicators. The situation on the labour market, measured by the basic indicators from the survey on labour force, faces a significant recovery compared to the previous period. The number of employees in 2020 decreased slightly, by 0.2% compared to 2019, while the number of unemployed declined by 14.7%. Furthermore, the number of inactive people, which amounted 2,712,800 in 2020, increased by 1.0% compared to 2019 (Republic Statistical Office, 2021). According to the Labour Force Survey for 2020, the largest decline in total employment was recorded in the sector of agriculture, forestry and fisheries, while the highest increase was registered in the sectors of construction, information and communication.

However, in spite of significant improvements in the labour market, the Republic of Serbia still lags behind the average values of basic indicators in EU countries. Therefore, overcoming the difference in key labour market indicators of the working age population (15-64) between the Republic of Serbia and the EU-28 is one of the biggest challenges in the accession process. Some of the problems that were identified in the Employment Strategy for the period 2021-2026 include the mismatch of knowledge, skills and competencies, insufficient cross-sectorial cooperation, employment and education, as well as insufficient employment in digital technologies.

Regarding the harmonization of occupational classifications with international standards, in 2018 the Government of the Republic of Serbia adopted the Decision on the Unified Code of Codes for Entering and Encrypting Data in Records in the Field of Work (Neobilten, 2018), with the following codebooks: levels of qualifications, the Code of States, the Code of Municipalities in the Republic of Serbia and the Code of Settlements in the Republic of Serbia. The Ministry of Labour, Employment, Veteran and Social Policy has prepared the Occupational Classification (SOC) Code, which consists of a new list of occupations and the codes that belong to them. The new list of occupations came as a result of many years of work that included experts in employment issues, who started from the reviews of occupations given in the international standard ISCO-08 (International Standard Classification of Occupations - ISCO-08) and harmonize it with the needs of the labour market in the Republic of Serbia while consulting with employers and relevant institutions. The Ministry has prepared the Code of Qualification Levels, instead of the previous Codebook of Degrees, due to the Law on National Qualification Framework of

the Republic of Serbia, which established a new system for regulating the levels and types of qualifications. (National Employment Service, 2019).

The reasons for adopting the new Unified Code of Codes are primarily the harmonization of domestic regulations with EU law and international standards, the obsolescence of previous codes due to changes in the labour market and education system, development and establishment of the National Qualification Framework in Serbia and the National Standard Classification of Occupations.

The aim of adopting the Decision on the Unified Code of Codes for Entering and Encrypting Data in Records in the Field of Work is to record, monitor and analyse the situation and trends in the labour market, as well as to establish an unambiguous communication among all users, which enables better management of data regarding occupations and qualifications.

4. ANALYSING THE NEED FOR DEFINING NEW OCCUPATIONAL PROFILES

Deprofessionalization in some occupations, rapid obsolescence of knowledge, technological achievements, as well as the demands on labour market, are the main reasons to define new occupational profiles. The question that arises in this regard is: Whether the creation of future professions is an issue for analysts, politicians, creators of educational policy or futurologists?

Many authors, such as Tucker P, Frey T, Ware J, Gordon A, Ferriss T, Goodin S, Grantham C, Hayes A, Levit A, (Wagner C, 2011), have tried to identify which occupations will be relevant in the future. The study called "70 Jobs for 2030" lists the following occupations: astrogeologist, designer and currency controller, privacy consultant, private brand manager, social worker on social networks, bio information scientist, expert in experimental therapies, expert in life expectancy, digital archaeologist, virtual lawyer, food chemist, future expert, climate change advisor, genetic designer, global working time coordinator, individual learning programmer, nonverbal communication expert, actuary, etc.

There is no doubt that under the influence of robotics and automation there is an increased need for technical knowledge and computer literacy. With the growing number of "touch" devices the possibility of defining a new occupational profile "touch engineer" opens up. In general, in the field of technology and informatization, there is a great demand for occupations. According to futurologist Thomas Frey, one of the occupations of the future is "front-end developer" since companies will pay more attention to communication with customers via the Internet, resulting in demand for developers who will make their web site more effective. In addition to the occupations related to artificial intelligence, the focus of future occupations is also on the field of human resources, medicine, energy and agriculture.

In the area of Nano medicine and genetics, research will be more intensive, so there will be a need for narrow specializations. "Bioengineers" will produce human organs from stem cells, where numerous studies already suggest the expansion of this branch of medicine. In addition, more new technologies will affect the creation of bionic parts of the body. The production of bionic hardware and software announces a new bionic era. Although the union of man and machine is inevitable, the innovations in this field also arise some important ethical questions. A specialist in nanomedicine should have knowledge on biological, chemical and magnetic qualities of nanomaterial that will be used in the human body and that will have the power to kill viruses, bacteria, tumour cells or remove blood clots.

Genetics is already expanding in terms of research and application, and genetic engineering will be present in both medicine and food production. It is believed that GMO organisms will be generally accepted in the future.

In the last few decades, as a consequence of human activity, our global environment has been threatened. With global warming, many animal and plant species will decrease. Water and air pollution, depletion of natural resources are the problems we face today, and they will not change significantly in the future unless adequate measures are taken.

Due to the excessive consumption of natural resources, an increasing number of plants use alternative energy sources. Consequently, as a challenge for science, it will be necessary to educate a larger number of "alternative energy engineers", due to the importance of energy for overall development. Generally, occupations related to the conservation of natural resources and energy help in protecting ecosystems and biodiversity and contribute to the preservation and restoration of environmental quality. It is considered that occupations within this sector will achieve a high rate of interest not only for solving environmental problems but also for economic sustainability. Growing competition, environmental influences (political and economic), as well as a changing and demanding market, create the need for continuous sustainable development of organizations, regardless of size, ownership or activity. Consequently, "sustainable development manager", as an occupation, will be more demanded in the market.

The harmonization of legal regulations in the field of energy and ecology with European regulations and standards, as well as the preservation of the natural environment will be an important issue, so the demand for ecologists will not decrease in future.

Bearing in mind that the quality of agricultural products depends on agro-ecological conditions, where the quality of the land is an important factor, the development of the profession "agro geologist" is also a proposal. This profile should have knowledge about the chemical and physical properties of the soil, ecological engineering of agricultural land, the impact of agro-technical measures on the improvement of properties and fertility. In line with these considerations, it is necessary to raise awareness within the population about the sustainable development of agriculture as the most important economic branch. For that purpose, there is a need to develop the profession of "consultant for agriculture" (Janovac, 2014).

The year 2020 was marked by the crisis caused by the Covid-19 virus. However, this crisis has drawn attention to a number of problems that may arise in the work of employees. Working from home introduced changes that were not easy to accept. Furthermore, people had additional stress when it comes to preserving their own health and the health of their loved ones. As a consequence of such situation, there was a need to define a new occupation, called "employee health manager". This new occupation is focused on caring for the general health of employees, which includes overcoming the fears and psychological problems we face today.

Study programs related to new occupational profiles should be based on the achievements of science and defined according to the needs of labour market, in order to provide the necessary knowledge and skills. In accordance with modern tendencies in education, interdisciplinary, multidisciplinary and trans disciplinary studies in higher education should be defined.

5. CONCLUSION

The changed economic and systemic conditions require new solutions and responds to social, environmental and economic challenges. The adoption of new technologies brings higher demand for occupations in the fields of green economy, medicine and engineering.

Indicators from the labour market in the Republic of Serbia demonstrate a growing trend for occupations related to informatics and communications, which corresponds to our proposal when it comes to defining new occupations in this sector. At the same time, further development of the National Standard Classification of Occupations will enable monitoring of changes in the labour market and obtaining information on current occupations. This information is particularly important for managing the harmonisation of formal and non-formal education systems with labour market needs.

In order to overcome the challenges in labour market, policymakers must follow a holistic approach, create active links and coordination between the business and education sectors and ensure effective cooperation with local government and line ministries. Such efforts can be strengthened by multi-stakeholder cooperation, which include companies that want to support their workforce, government agencies willing to fund retraining, institutions that can provide retraining services and new education programs, and organizations that can provide feedback on the implementation of the appropriate measure.

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