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UNIVERSITY 4.0 – THE PART OF THE EDUCATION 4.0

Abstract. *Based on reports provided by international organizations, university leaders and scientists, the paper discusses expected changes in the labor market during the post COVID-19 pandemic period. The same sources are applied to describe the role of University 4.0 in Education 4.0. It is argued that entrepreneurial universities can make their own contribution to the wellbeing of the society.*

Key words: Industry 4.0, Education 4.0, University 4.0, entrepreneurial university.

The COVID-19 pandemic has disrupted the global university sector in ways very few people would have predicted. The turbulence of the economy arises new demands on education systems across the world and especially for the universities. Contemporary universities face the need to respond to a wide range of internal and external pressures. Diverse models will ensure universities not only remain relevant, but will be positioned to take a leading role in helping society understand, navigate and shape the future (1).

In many different parts of the world, policy-makers and industry have grasped the power of universities to accelerate prosperity, prepare a well-trained labour force with advanced-level skills, address wicked social and environmental challenges and to support soft power agendas. The relationship between new technologies, employment and inequality has gained a lot of attention in recent years. As such, the relevant facts within this approach are as follows:

- "Employers expect that by 2025, increasingly redundant roles will decline from being 15.4% of the workforce to 9% (6.4% decline), and that emerging professions will grow from 7.8% to 13.5% (5.7% growth) of the total employee base of company respondents. Based on these figures, we estimate that by 2025, 85 million jobs may be displaced by a shift in the division of labour between humans and machines, while 97 million new roles may emerge that are more adapted to the new division of labour between humans, machines and algorithms" [2, 5];
- "States showed how the long-term effects of the labour market's transformation may be being systematically underestimated: 63 % of workers expect machines to replace much of the work currently carried out by humans in future, and yet 80 % expect their own job to remain largely unchanged over the next 50 years" [3, 6];
- "Looking ahead, 14% of existing jobs could disappear as a result of automation in the next 15-20 years, and another 32% are likely to change radically as individual tasks are automated" [4, 3];
- Covid19 has forced the majority of the world's population to alter their typical way of life: "In fact, nearly 80% of white-collar employees have worked remotely at some point since the beginning of the pandemic" [5, 1];
- "More than 100 million workers in the eight countries (China, France, Germany, India, Japan, Spain, the United Kingdom, and the United States) may need to switch occupations by 2030, a 12% increase from before the virus overall and as much as 25% more in advanced economies" [6, vi];
- "A survey of 278 executives by McKinsey in August 2020 found that on average, they planned to reduce office space by 30 percent. Demand for restaurants and retail in downtown areas and for public transportation may decline as a result" [6, vi].

Industry 4.0 is fundamentally changing the way in which organisations are creating and capturing value for their customers and stakeholders, economy and society. Due to the above-mentioned, it is essential to find the key tools, which will contribute to mitigate the expected problems of digital era. In our opinion, education represents one of these tools. Any effective response to any challenge should be discerned by properly defining the role of universities in the education system as a whole.

Grant and Kokkoris (2021) argue, that “universities play a major role in economic, cultural and societal development in various ways (the opinions of these authors are accompanied by a list of scientific works found by us):

- Universities are engines of economic growth (the same issue is discussed by: 7);
- Universities can become accelerators where the multiple challenges posed by the COVID-19 crisis can be addressed (this statement agreeg by: 8);
- Universities can contribute to the well-being of communities (the same issue is argued by: 9-11);
- Universities can assess the multifaceted impact of the pandemic on society, contribute to society’s adaptation to this pandemic, and the preparation of society for the next event of a similar magnitude (this opinion is shared by: 12);
- Universities attract global talent and foster mobility;
- Universities help address societal challenges; and
- Universities foster creativity and open debate (the same issues are discussed by: 13-14).

As a response to the Industry 4.0 the World Economic Forum identifies “top 15 skills for 2025: Analytical thinking and innovation, Active learning and learning strategies, Complex problem-solving, Critical thinking and analysis, Creativity, originality and initiative, Leadership and social influence, Technology use, monitoring and control, Technology design and programming, Resilience, stress tolerance and flexibility, Reasoning, problem-solving and ideation” [2, 36]. Universities are now increasingly measured for their capacity to achieve not just scientific impact but also impact on wider society, cultural life and the economy. As a response to this challenge Subic (2021) argue, that “there appears to be a shared understanding among researchers and university leaders that the required innovations in education models and research need to address the following priorities to cope with technological and social changes of the Industry 4.0:

- Embed lifelong learning approaches across the entire continuum of education and training;
- Adopt personalised, flexible, and adaptive technology-enabled learning approaches;
- Focus on high value-adding human skills that cross conventional disciplinary boundaries and are not easily automated;

• Develop new directions in interdisciplinary research at the interface between technology, business, and humanity to address the emerging issues in the digital economy and society; and

• Embrace emerging cyber-physical technologies and ways of working through new forms of public and private sector partnerships that support both education and research" [16, 4-5].

In many different parts of the world, policy-makers and industry have grasped the power of universities to accelerate prosperity, prepare a well-trained labour force with advanced-level skills, address wicked social and environmental challenges and to support soft power agendas. Such a role can be effectively played by entrepreneurial universities, which also have the right to issue patents and licenses. Based on discussing the cases of the 40 countries Vesperi & Gagnidze (2021) conclude that the processof transformation of the university system has actively started around the world. Eightbasic challenges have been identified as a result of the research conducted. In the paperauthors outline severalreasons, why entrepreneurial university matters. Many universities have shifted to entrepreneurial models recently. This is substantiated by a large number of publications on this issue in the scientific field. Some of them provide analysis of the experience of the universities in several countries and management of innovation processes in these universities (19-24).

Georgian scholar economists also actively discuss the policy directions for responding the challenges of the Fourth Industrial Revolution at HEIs (25-28) and Industry 4.0 general challenges (29-37).

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COVID-19 AND LIVING STANDARD OF THE POPULATION OF GEORGIA

Annotation

For the second year the humanity has been living in a pandemic, which, by its scale, has no analogues in the history. The most obvious negative consequence of the pandemic is the sharp decline in the living standards of the population. The paper deals with the dynamics of the volume of Georgia's gross domestic product (GDP) in 2019-2020 and, identifies both "visible" and "real"