MODERN TECHNOLOGIES IN IT SPHERE AND THEIR IMPACT ON AUTOMATION OF LABOUR

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This scientific paper demonstrates the role of new technologies for the world labour market and their impact on the growth of modern economy, lists the main threats for the labour market stability.

This scientific paper deals with artificial intelligence and neural networks, the main pillars of artificial intelligence, its high-speed development and the evaluation of the rapid pace of unemployment after the 4th industrial revolution.

The new technologies open new opportunities for innovation. Information technology sphere has provided a start to a rapid pace of artificial intelligence development. Along with that AI keeps the leader role almost in all circles of our life. Nowadays it's hard to imagine life without such things as optical character recognition, Siri, or Google. Information searching engines, cloud technologies may no longer be regarded as AI because it is so common in daily life and we are much used to it.

But what if modern technologies are going to substitute people, reduce workplaces and make a great amount of people, especially in developing countries, unemployed?

Technological advance is an inherent aspect of a free market in which innovators seeks to produce more value at a lower cost. Entrepreneurs want a market edge. Computerisation, industrial control systems, and robotics have become an integral part of that quest. Many manual jobs, such as factory-line assembly, have been phased out and replaced by others, such jobs related to technology, the Internet, and games. For a number of reasons, however, robots are poised to become villains of unemployment.

Analysing the problem of automation, it should be mentioned that some spheres of human lives cannot be automated at all [1]. Such spheres as education, healthcare, art, etc. are connected with interrelated communication between people and as a result require from employees to be humans. Let us take psychologists as an example. When you come to see your doctor, you expect him to have empathy and real feelings. The same thing is with teachers. Of course, the best experts in their spheres can record a lecture, but recordings cannot replace personal communication between students and their lecturer. Another group of jobs that are secured from being automated is connected with inventions, design and other activities that machines are not good at. Some of them require from workers deep knowledge, some are all about uniqueness and creativity. As a result, the main features that are going to be needed and will be highly appraised in the nearest future are: special education, creativity and unique human qualities.

It is also worth thinking over the dependency between the amount of a salary and the probability of automation [3]. Indeed, the more money can be earned, the lower risks of being fired, because qualified personnel is of a high value. That means that qualities that could prevent a workplace from being computerised affect salary as well.

Referring to the risks of unemployment rise, a closer look at the research of Frey and Osborne "The future of employment: how susceptible are jobs to computerisation?" should be taken. In this work the authors make the analysis of unemployment risks in different segments of the US economy. According to their inferences, 47% of workplaces can be computerised soon. Spheres of service, sales, office management and administration are at the highest risks. It should be also notified that most of them are low-paid. Unemployment in these spheres is the hardest to solve, because low-paid workers are not flexible and cannot find new jobs as fast as people with special skills. Measures that a government may take are welfare (type of government support intended to ensure that members of a society can meet basic human

needs such as food and shelter) [5] and big state infrastructure projects. Each of these measures would require additional expenses. Considering that 47% of workers can lose their jobs, it won't be possible for a state budget to afford such expenses [3].

The need of reducing unemployment can also lead to a decrease in the retirement age, which, together with an increase in life expectancy, will create an additional burden for the social sphere [4]. Taking into consideration that the demand for highly qualified personnel will not stop it can be stated that a personnel crisis in the technological spheres may arise. That will obviously lead to the negative consequences, such as greater stratification, increase of the governmental spendings in social sphere, the decline of the retirement age.

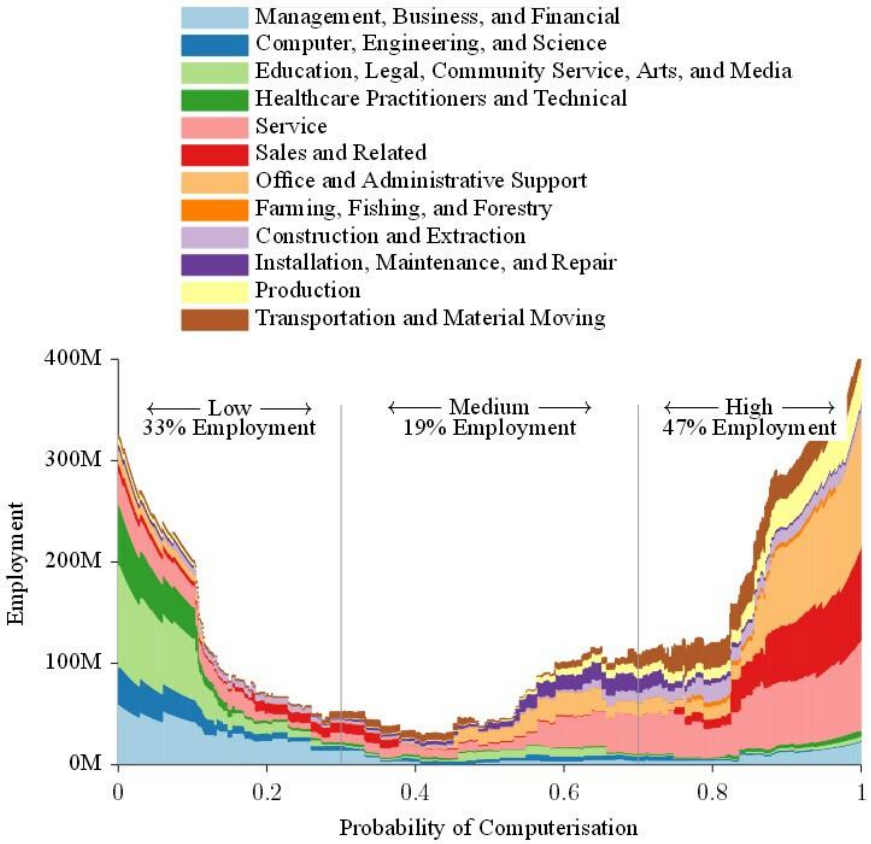

Figure 1 – The distribution of BLS 2010 occupational employment over the probability of computerisation, along with the share in low, medium and high probability categories. Note that the total area under all curves is equal to total US employment. (Frey & Osborne, 2013) [3]

Rising disparity is able to affect not only economic growth, but also can lead to "Luddism" (a radical faction which destroyed machines during the industrial revolution) [6], as once it happened in England during the industrial revolution. The army had to be used against the rebels, but even this measure could not fully suppress the movement against advanced technology [7].

Mass automation, leading to unemployment in badly paid economical areas, may cause widespread discontent among the population. Due to low flexibility in the labour market, employees will not be able to find jobs in the nearest future. It will place an additional burden on the budget, which together with the growing inequality will lead to an economic recession. However, to some extent it can be compensated by profits from machine-replaced jobs. Nevertheless, the development of technology can create completely new types of the jobs requiring special education and generate significant costs for training staff.

Thus, it can be concluded that the process of computerisation creates significant uncertainty in the labour market, bringing incredible options for economic growth. Automation also may cause an unprecedented spike of unemployment, creating additional social tensions. As a result, it can be admitted that new technologies can provide growth of modern economy being either its driver or the main threat for the labour market stability.

References:

1. The Race Between Machine and Man: Implications of Technology for Growth, Factor Shares and Employment – [Electronic Resource]. – Access mode: http://www.nber.org/papers/w22252 – Date of access: 19.03.2022.

2. Kapeliushnikov R.I. Is Technological Change a Devourer of Jobs? Voprosy Ekonomiki №11, 2017. – 77 - 101 p.

3. C.B. Frey, M.A. Osborne. The Future of Employment: How Susceptible are Jobs to Computerisation? 2013. – 72 p.

4. Robotics as One Aspect of the Formation of a Non-Monetary Economy [Electronic Resource]. – Access mode: https://habr.com/ru/post/362057/ – Date of access: 24.03.2022.

5. What Is a Welfare Program? [Electronic Resource]. – Access mode: https://www.thebalance.com/welfare-programs-definition-and-list-3305759/ – Date of access: 20.03.2022.

6. Will 2018 Be the Year of the Neo-Luddite? [Electronic Resource]. – Access mode: https://www.theguardian.com/technology/2018/mar/04/will-2018-be-the-year-of-the-neo-luddite/ – Date of access: 27.03.2022

7. Who Were the Luddites? [Electronic Resource]. – Access mode: https://www.history.com/news/who-were-the-luddites/ Date of access: 27.03.2022.