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LABOR MARKET AND THE PACE OF TRANSFORMATION. HOW TECHNOLOGY IMPACTS EMPLOYMENT

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Abstract: *The labor market has changed fundamentally in recent years. And its future depends on many factors: long-term competitiveness and demographic developments, smart employment regulations, preventive policies in the field, social dialogue, etc. The multidimensional impact of new technologies on society is already being felt. On the one hand, viewed from a favorable angle, transformations generate new opportunities. On the other hand, beyond opportunities, it is generator of many ontological fears. On the other hand, beyond opportunities, many ontological fears are potentiated. 2023 Edelman Trust Barometer, pointed out that about 89% of the working population worldwide is currently worried about the loss of jobs precisely because of the transformations in the labor market. Specialists estimate that intelligent automation will not cause job losses, but they do not rule out changes in their structure. Demands of new tasks will put serious pressure on workers to develop new skills and abilities. Inside an economy increasingly connected to new technologies, 6G internet, cloud services, a simple yet pressing question arises: how prepared is the world's population for the jobs of the future?*

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JEL Classification: *E24, J24, J31, J62, O33*

1. Introduction

In the public space, are being discussed more and more about digitalization, cloud, robots, artificial intelligence, online applications, integrated software platforms, etc. The new technologies have brought fundamental changes not only in the economy, but also in education, culture, communications.

We can currently make payments, but also can take online loans, media is already in online, online stores have appeared and are enjoying great success, we order vegetables and fruits helping us of online images, in real time, directly from the manufacturer. In many ways our lives have changed, especially in the last two decades.

According to experts, in the next ten years robotization and integrated software platforms will smooth the way to the disappearance of most repetitive activities, especially in agriculture, industrial assembly, clothing industry and many other related industries.

The future of jobs 2023 report, published by the World Economic Forum, underline that in the next five years the world market will create approximately 69 million new jobs, but, no less than 83 million will disappear (14 million jobs are estimated to be loss).

Economy of the future will have data instrumentation in the center of developments and will represent the most important paradigm generating of new jobs, companies of the future will be based on jobs capable of interpreting and analyzing information.

Within these transformations, digitalization will be, according to experts, one of the main factors of technological change, stimulating through digital technologies both the process of informatization of production and services, as well as the private sphere.

Experts appreciate that Industry 4.0 (the fourth industrial revolution) has already begun, and the coming changes will be commensurate. It will be especially felt in the production process, but also in how business will be run. The human place in services and production will be gradually taken over by the digital world, and future employees will be forced to use the computer, software applications and perform operations using artificial intelligence.

Being essentially technological change, each of the four industrial revolutions (invention of the steam engine, discovery of electricity, discovery of nuclear energy, digitization) generated, as always, at least two categories of questions:

- a) How technology leads to job loss?
- b) What will be the impact of technological changes on the composition of employment regarding certain industries or occupations? (Ulrich, pp.1).

The big problem that governments, employers and the public will face is that many of the jobs of the future have not yet been precisely defined or invented. The only certainty for the worker of tomorrow is that he will have to have completely different skills, and technical skills, a greater flexibility of thinking in solving problems.

2. Digitalization and the future of work

Without a doubt, economic competitiveness fundamentally depends on technological change, which is one of the main factors of productivity and economic growth. But the discussion of competitiveness cannot abstract from the institutional framework that ensures property rights, supports structural changes and provides an effective system of education, training and social security (North, 1990; Acemoglu and Robinson, 2012).

Moreover, there are certain trends or social processes and phenomena, observable at the global level, that must be taken into account, because they can influence the labor market and must be treated very carefully. For example, if demographic changes determine the level and composition of the workforce, globalization forces countries to specialize in certain products and services, which has implications for the formation of special skills (Ulrich, p. 2).

Started with the invention of the processor, the digital revolution led to the continuous increase in performance. Derived technologies (the computer, the digital mobile phone and the Internet) are already part of our daily life, and the digitization of communication and information processes has led to a real explosion of information (“Big Data”), but also an informatization of the production of services and the private sphere. And future developments in machine learning, artificial intelligence and mobile robotics will lead to even greater computerization of economic processes (Ulrich, pp.2-3).

It is also noticeable the huge dynamics of innovation in field of digital technology that is no longer confined to routine manufacturing tasks but may spread to numerous non-routine tasks in different parts of the economy. It is estimated that intelligent automation will affect in the very near future some highly qualified jobs (doctors, accountants, teachers, lawyers). (Ulrich, pp.2-4).

Digitization will definitely affect the labor market. Specialists have debated at least three scenarios:

- One, more optimistic, sees the economic future of humanity ensured by technologies that will not only replace the human work, but will also ensure general well-being in the long term;
- Another, less optimistic, sees in the future a polarized society, structured according to the 20/80 principle, in which only a minority will generate high incomes, also owning most of the capital (Freeman, 2015);
- A third scenario is fundamentally different from the other two, it sees an economic future that changes will be felt not in terms of labor demand, but rather in its structure, a natural process of continuous adaptation to the new developments specific to digital technologies.

There are too many uncertainties to argue in favor of one of the three scenarios. Technological changes and digitization will certainly produce structural changes in the field of work and it remains of seeing how the labor market will react and if it will be able of adapting to these transformations. Because beyond the fears and pessimism, generated especially in times of crisis, the current transformations can equally create outlets for a multitude of opportunities:

- a) Humanizing workplaces (the dangerous or physically exhausting work replaced by new technologies);
- b) Increasing the pool of jobs for people with physical restrictions by compensating apparent productivity deficiencies with new technologies;
- c) Workplace flexibility for employers and employees;
- d) Changes in the nature of work (Ulrich, p.5).

3. How technology impacts employment in the worldwide

How susceptible to computerization are jobs today? What will be the impact of computerization on the labor market in the near future? How many jobs will disappear due to technology? Is there a relationship between salary and human capital and the probability of computerization / digitization of an occupation?

According the *The future of jobs 2023* report, published by the World Economic Forum, there are some certainties on which we should reflect very carefully for not-too-distant future:

- For the business environment, adopting the latest technologies will be the main engine of economic growth in the next five years;
- The biggest impact in the dynamics of jobs will be largely due to technological transformations and the current trend of the world economy;
 - “Technology is changing the way we work, but concerns about which jobs are lost and which are gained—and who those changes affect—are important in considering whether people will have the opportunity to shift from working in the jobs of yesterday to the jobs of tomorrow”. (Brown, Loprest, 2018)
- Big Data, cloud computing and artificial intelligence will be the ones of leaving their mark on the technological transformation process;
- On the next five years, the impact of the development of new technologies on jobs is expected to be positive;
- Employers anticipate a structural labor market churn of 23% of jobs in the next five years;

- Changes have already appeared in the process of advancing the human-machine frontier, companies reducing the pace of automation in recent years;
- At the intersection of global trends and the processes of adopting new technologies, the heterogeneity of the consequences on the labor market will certainly be visible: while there will be regions with increasing the number of jobs, others will be characterized by their decline;
- In the labor market the fastest-growing roles to their size today are expected to be those driven by technology, digitalization and sustainability;
 - On the top of the list are specialists in artificial intelligence and machine learning, sustainability, business intelligence and information security, as well as renewable energy engineers.
- It is also expected that the roles with the greatest decline in relation to their size today will be those determined by technology and digitization;
 - At the top are positions of secretariat area, bank tellers and related clerks, postal clerks, cashiers and workers who sell tickets, clerks who enter data.
- According to analysts, a significant increase in jobs is expected in education (3 million jobs for teachers in professional and higher education), agriculture (30% increase in the number of agricultural machinery operators) and digital trade (4 million jobs for E-Commerce, digital strategies and digital marketing specialists);
- The biggest decline will be felt in the specific area of administrative and traditional roles (it is expected that by 2027 approximately 26 million jobs will disappear);
- Currently, analytical thinking and creative thinking remain the most important skills of today's workers;
- According to employers, 44% of current workers' skills will be affected in the next five years by technological changes;
 - If by 2027 60% of current workers will need training to survive in the labor market, only 50% of them will have specific training opportunities.
- Even if the big companies are always launching debates on the skills growing the fastest in importance on the labor market, for now they have not been concerned with developing strategies for the improvement and adequate training of their own employees;
- Even there is confidence concerning development capacity of the current workforce, optimism diminishes regarding the prospect of talent availability in the next five years;

- This makes investments in learning and on-the-job training of their employees in the processes of automation and technological change become part of the strategies that large companies will adopt in the future to meet their own objectives;
- Many companies will in the future give greater priority to women, young people under 25 and people with disabilities as part of their own DEI (Diversity, Equity and Inclusion) programs;
- Funding for skills training is seen by 45% of companies as an effective intervention by governments that could get be involved in the near future.

The future of jobs 2023 report also outlines a top of the importance of skills for the jobs of the future:

1. Analytical thinking (68%)
2. Creative thinking (56%),
3. Resilience, flexibility and agility (50%),
4. Motivation and self-awareness (49%),
5. Curiosity and lifelong learning (46%),
6. Technological literacy (44%),
7. Dependability and attention to detail (43%),
8. Empathy and active listening (42%),
9. Leadership and social influence (39%),
10. Quality control (38%).

The top of the evolution of skills for the jobs of the future, according to The future of jobs 2023 report, looks like this:

1. Creative thinking (+73%),
2. Analytical thinking (+72%)
3. Technological literacy (+68%),
4. Curiosity and lifelong learning (+67%),
5. Resilience, flexibility and agility (+66%),
6. AI and Big Data (+60%),
7. Systems thinking (+60%),
8. Motivation and self-awareness (+59%)
9. Talent management (+56%),
10. Leadership and social influence (+53%).

4. Conclusions

- It is very complicated to find a firm answer on how current socio-economic and technological trends will shape jobs in the future;

- The future of jobs 2023 report sheds light on the dynamic nature of the global job market
 - by exploring the jobs and skills of the future, tracking the pace of change. According to him:
 - On the hand, macro trends, the green transition, the adoption of ESG standards and the localization of supply chains, are the main factors influencing job growth;
 - On the other hand, any type of economic challenge (high inflation, slow economic growth or supply shortages), represent the biggest threats;
 - The data shows the roles with the greatest increase are in the field of technology and digitization, while those with the greatest decrease are those in the administrative area;
 - At the beginning of 2023, only 34% of tasks were automated;
 - New paradigms specific to sustainability, the ecological transition and the problems generated by climate change will put pressure on the transformation of the industry, thus generating new opportunities on the labor market;
 - Investments will positively affect increasing of general roles in sustainability (increase by 33% in the number of sustainability specialists, respectively by 34% in environmental protection specialists);
 - Significant increases in jobs will also be felt in education field (10% / approx. three million) and agriculture (15-30% / approx. four million).
- *The future of jobs (2023)* report also emphasizes that:
 - Because skills shortages and a lack of talent availability will be the main barriers to transformation, training and reskilling programs will become essential for some industries;
 - The gap between workers' skills and the future needs of the business environment is currently forcing companies and governments to provide opportunities for learning and reskilling;
 - Complexity of problem solving in the workplace make that cognitive skills being now essential skills for solving problems (analytical thinking and creative thinking are now indispensable skills).
- It should also be said that in 2023 Denmark (1), Ireland (2) and Switzerland (3) were in the top of the most competitive European economies, according to a report produced by IMD - World Competitiveness Center;

- In 2023 Romania Ranks 48th, the best ranking in the last 4 years;
- Ranking takes into account four factors:
 - **Economic performance** – Romania ranks 51th (at the EU level, Greece occupies the last place - 58, followed by Estonia - 54);
 - **Government efficiency** – Romania ranks 46th (at EU level: Italy – 56th, Bulgaria – 55th, Poland – 54th, Greece – 53rd, Spain – 51st, Croatia – 49th, Slovakia – 48th, France – 47th);
 - **The efficiency of the business environment** - Romania ranks 49th (Bulgaria – 62 th, Hungary – 58 th, Latvia – 57 th, Croatia – 56 th, Slovakia – 52 th, Spain – 51 th);
 - **Infrastructure** – Romania ranks 50th (within EU Romania are exceeded only by Bulgaria, ranks 54th).

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