

Robots Impact on the Labor Market – Robots versus Humans and COVID-19

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ABSTRACT: Health, education, transport, government, real estate and other sectors are in the early stages of digital transformation and, as they transform, productivity continues to grow in Romania, but at a low rate compared to other EU member states. However, while these advantages and related benefits are important to the digitalization process, perhaps the most important benefit of Industry 4.0 is its impact on the economy, especially on productivity and overall economic output. The paper is an exploratory desk research based on surveys and specialized studies to build an image of the present and the future, against the background of disruptive technologies, digital transformation, robotics, automation in the conditions of the COVID-19 pandemics. Nowadays, there is a completely issue of paradigm shift, robots will replace the human workforce, eliminating low-skilled jobs, workers being obliged to reorient their careers and retrain for the maintenance and monitoring of the robots, leaving them time to be creative for the growth productivity of the company, thus eliminating clerical work. Those who are highly qualified will benefit of high incomes and thus it will be created some inequalities, big revenues discrepancies between individuals, which will lead to an increase of tensions. The adapted statistics reveal a possible image of the labor market in the next years, in the pandemic context but also the negative and at the same time progressive impact on the economy and the society.

KEYWORDS: labor market, robots, automation, work platforms, exploratory research

Worldwide Internet usage

The main goal pursued globally for the second decade of the 21st century is the economic and social growth through digital transformation. Implementing much more advanced broadband services than the current ones, using various applications that can be accessed by those who adopt new technologies, 5G and surgical robots or dedicated devices to ease our daily tasks. We are required to update the reality we know and a paradigm shift by embracing progress and disruptive technologies.

The models that are expected to be implemented vary from one country to another depending entirely on the level of development and maturity of the market, as well as the mentality of consumers and users both individuals and organizations.

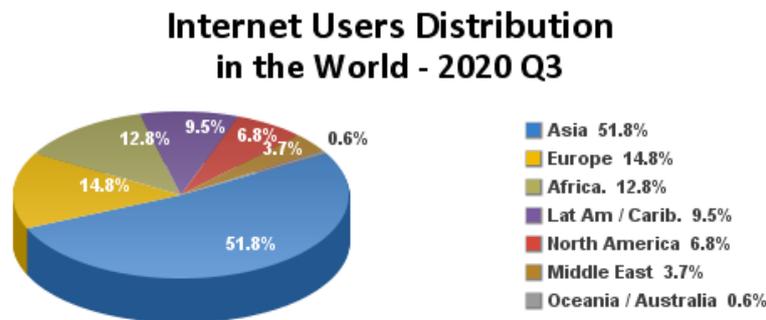
Thus, for the necessary training we need a convincing content such as the initiation of courses on digital literacy, e-government programs, e-health, e-learning. Also, network and service providers in the case of offering high quality services using new technologies following the reconstruction of the infrastructure, must be taken into account the budgets of users and needs.

The aim is to implement a broadband system that corresponds to the new trends in the IT&C sector, security concerns, greater care for the environment in areas such as education, medicine, finance so that, globally, to benefit from these services.

Digital technologies have transformed every aspect of business process, such as using e-commerce platforms to reach offshore customers, analyzing big business data to diversify products, using social media for a broader approach, and using cloud-based programs like Enterprise Resource Planning (ERP) and Human Resource Management (HRM) for productivity and efficiency. A major challenge in using these technologies is to make popular technical terminology among the employees in order to work effectively in digital environments.

Similarly, the challenge is that technical teams are aware of the business process for which digital technologies operate. This type of high-level connectivity will lead to an increase in demand for services and applications offered, such as IP television (IPTV), VoIP, cloud computing, online video streaming.

Figure 1. Internet use by region in 2020



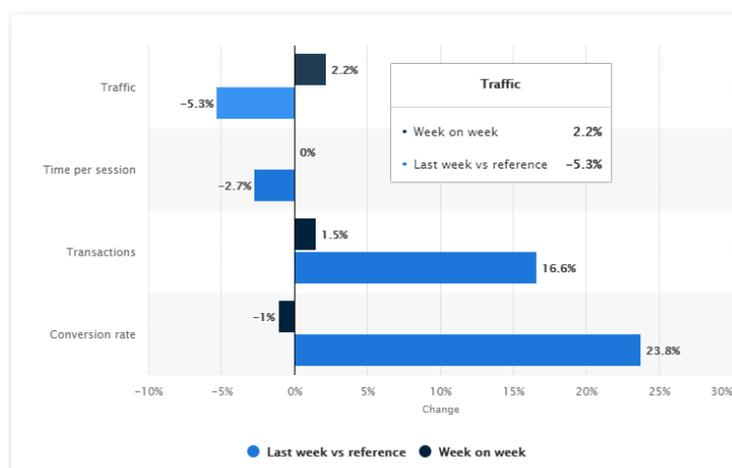
Source: Internet World Stats - www.internetworldstats.com/stats.htm
 Basis: 4,929,926,187 Internet users in Sept 30, 2020
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Source: Internet World Stats, 30 Septembrie, 2020, <https://www.internetworldstats.com/stats.htm>

In September 2020, **4,929,926,187** Internet users were registered Worldwide. (www.internetworldstats.com), of which **834,995,197 users** were registered in Europe. Under the conditions of COVID-19, the use of the Internet has increased exponentially, although the statistics stop on September 30, 2020, if we make a comparison with March 2020, Thus, more and more alert, mobile networks and 5G technology will reach a strong demand growth that providers will have to meet if they want supremacy and long-term upward evolution, as broadband users will want more flexibility in using m-banking or m-health applications.

Information and Communication Technology (IT&C) will penetrate more and more into everyday life, offering a greater diversity of applications and services. Internet users have used technology at high rates during the Coronavirus pandemic, now present in remote conditions, making a strong impression on social life and inter-human and inter-personal communication.

Figure 2. Worldwide impact of Coronavirus on the online traffic until 06.09.2020



Source: Posted by Clement, J., 25 September, 2020, available at <https://www.statista.com/aboutus/our-research-commitment/408/j-clement>

“The global coronavirus pandemic is affecting global consumer behavior. In the week ending 6 September, online traffic in 20 different industries decreased by 5.3% compared to the reference period in January and February 2020. Online transactions increased by 16.6% compared to the index period and increased by 1.5% compared to the previous week.” (www.statista.com)

The labor market during the pandemics

The entire population of the globe suffered during the pandemics, and the economic situation of the countries is constantly deteriorating. In addition to the danger we are all in, there are other threats to the quality of psychological, social and family life.

At the psychological level, the crisis caused by the pandemic generated fears among individuals, psychoses regarding the excessive use of disinfectant products, isolation from the groups in which they integrated, care for family safety led to the obligation of the person to be alone. There is a need on the part of employers to force their employees to develop new skills and abilities in order to keep their job.

According to the Eurofund 2020 report (Ahrendt et al., 2020), “600 restrictions have been adopted since the beginning of the pandemics and are part of the strategic plan to mitigate the economic and social impact of Coronavirus.” It is also stated here from the results of an Eurofund survey (Ahrendt et al. 2020), “40% of the initiatives taken from February to mid-September 2020 focused on supporting businesses so that they can survive. From the survey data, in terms of automation, jobs that will go through an extensive automation process by 2030 are those in the fields of logistics - 52% (transport, warehousing, inventory management, construction) and manufacturing in proportion of 45%. We are in the reality of the autonomous cars without a driver, of the first flying car that was put up for sale. PAL-V manufactured the commercial Liberty - Pioneer flying machine, which they put on sale at the end of October 2020, cost \$ 599,000 and was legally introduced in the Netherlands. (<https://www.pal-v.com>) The altitude is 3500 maximum, below 11500 feet, but this was not expected for the medical and education field where the automation process will be much lower and the jobs are long-term.

Social, economic and technological change in Europe has given rise to new forms of employment and platforms. Different to the traditional “work”, transforming the traditional relationship between employer and employee. New forms of employment are also characterized by unconventional patterns of work and jobs.

In order to close the existing knowledge gaps, in 2013 Eurofound began exploring the characteristics of emerging forms of employment in EU Member States. The research analyzes, among other things, the implications for working conditions and the labor market.

Figure 3. Platform work classification



Source: Adaptation after the Eurofound 2018 Report, <https://www.eurofound.europa.eu/topic/new-forms-of-employment>

Eurofound has made a mapping practice at the European level in order to identify the emerging trends. This practice has led to the classification of two new large types of employment that are new or have become increasingly important in the European Union member states since 2000. A series of study cases conducted within the research has revealed the way in which these new employment forms operate in the member states and their effects on the working conditions and the labor market.

Eurofound continues to examine more detailed some of the new identified trends. The research conducted in 2016 has especially targeted the aspects regarding the winning potential for both the employers as well as the employees. A common study held by Eurofound and International Labor Organization (ILO) analyzes the effects of remote working and the IT&C-mobile (T / ICTM) activity on the working world.

Work platforms

Previously, Eurofound “used the term “crowd occupation” to capture the work initially associated with the concept, but the phenomenon has changed and now encompasses several types of tasks. Consequently, in its 2018 publication, Eurofound adopted the term “platform work”, employment and working conditions for certain types of platform work.” (eurofund.com)

The main features of the platform's activity are: paid work is organized through online platforms in which three parties are involved: the online platform, the worker and the client.

The work is contracted and the jobs are divided into tasks the services are provided on request. In the EU, there are many dedicated concepts, like “shared economy” or “collaborative economy”. However, these terms cover a wider range of online activities, which go beyond paid activity to include trade in tangible or capital goods, as well as non-commercial activities.

The works on the platform can be delivered online or on site (in person). The most common tasks performed include:

- professional tasks (e.g. software development or graphic design)
- transport (e.g. transport of people or delivery of food)
- household activities (e.g. cleaning)

Eurofound has identified **10 types of works on the platform** (Eurofund.com) that have reached a certain critical mass in Europe in what regards the number of platforms and the affiliated workers. The main differences between these types are in the scale of tasks, the format of service delivery (whether tasks are delivered locally or online), the level of skills required, the process by which the client is adapted to the worker (job versus competition) and the part that determines the allocation of works. The 10 types of works (Eurofund.com) are:

- on-location client-determined routine work;
- on-location platform-determined routine work;
- on-location client-determined moderately skilled work;
- on-location worker-initiated moderately skilled work;
- on-location client-determined higher-skilled work;
- on-location platform-determined higher-skilled work;
- online moderately skilled click-work;
- online platform-determined higher-skilled work;
- online client-determined specialist work;
- online contestant specialist work.

At the European level, the BusinessEurope employer group has expressed confidence in the potential of online platforms to contribute to business formation and job growth. Instead, the European Trade Union Confederation (ETUC) has expressed concern about social protection, tax law and compliance with labor law. In addition, the European Association of European Crafts and SMEs (UAPME) has expressed concern that traditional businesses will face unfair competition from online platforms.

In most EU Member States, public and political debates are led by trade unions on the uncertain employment status, working conditions and competition for traditional sectors. In several Member States, trade unions have supported strikes and initiatives by employees of the platform. For the first time in April 2018, in Denmark, a collective agreement was signed between a trade union (3F) and a platform operator (Hilfr).

National employers' groups are less active in the debate and mainly consider the potential of the platform's work to make a beneficial contribution to the economy. National governments are largely absent from public and political debates, but some have commissioned studies to monitor the evolution of the platform's work and several government initiatives (e.g. related to taxation) have already been initiated.

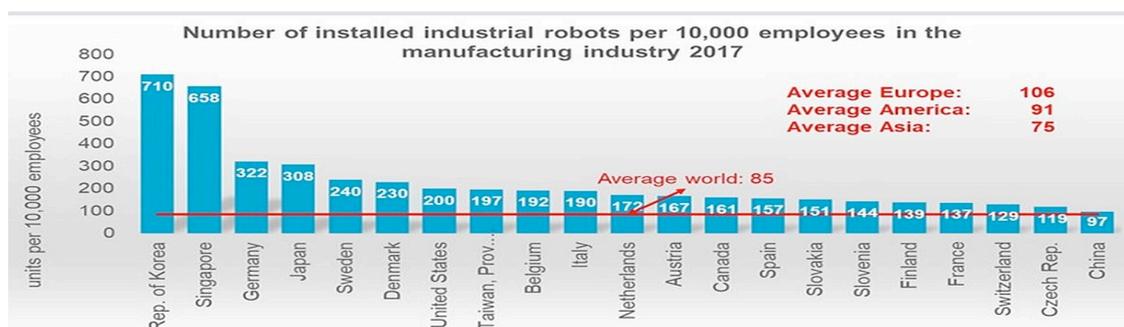
The labor market in the conditions of robotization

Asian countries achieve high educational outcomes, especially for STEM (science, technology, engineering, and mathematics) subjects, so the basic negative relationship between higher education and low automatability is valid here as well, even if different metrics must be used to show this relationship in Asia. In addition to the share of jobs and job automation, another factor that may affect Asian countries more is the current level of technology and the extent to which job automation has already taken place, which is also an important factor in future automation rates. This suggests that workforces in more technologically advanced countries, such as Japan, South Korea and Singapore, which are increasingly working with robots, have already adjusted to some degree of automation and may have a lower future risk. Instead, they can be well placed to take advantage of automation in terms of higher productivity and real wages. The impact of the automation process, according to the documentation, is expected to vary over time, as automation is based on human capabilities. On average, in the 29 countries covered, the share of jobs with a high risk of automation is estimated at around 3% by the beginning of 2020, but it is around 20% by the end of 2020, and about 30% in the middle of the 2030s.

The process of automation through robotics (PAR), which is a component of the digital transformation, will have a significant impact on the workforce, bringing fundamental changes to the jobs of the future. Software products dedicated to robotics are used to automate tasks and processes in digital business, this technology being considered especially in Romania as being at a much too high level compared to the infrastructure and technological investments made so far. But things are quite clear, robotics is not within the remit of the IT department of companies.

Managers seek to simplify as much of the routine tasks of employees by developing new technologies and dedicated software applications. "The robot automation process (PAR) involves the use of software robots that can interpret existing work processes and automate them. The software digitizes tasks based on repetitive rules and by eliminating the need for human intervention accelerates time-consuming activities and reduces errors." (Ismail, 2018)

Figure 4. Top 22 countries with density larger than 85 units



Source: IFR World Robotics 2018,

https://ifr.org/downloads/press2018/WR_Presentation_Industry_and_Service_Robots_rev_5_12_18.pdf

Technology can “move staff away from the focus on the core of the workplace and add value elsewhere in the workplace (www.mckinsey.com) by allowing employees to focus their skills on more interesting parts of the workplace, such as design, customer analysis, customer service.” In this way, the company’s activity will be able to be more creative and differentiate itself more on the market segment it occupies.

Conclusions

The impact of the automation process shows notable differences between occupations over time. In particular, it is estimated that clerical workers will have the greatest effects in the short to medium term. This includes: general and keyboard officials, customer service clerks, digital and material registration clerks and other support workers. The proportion of these clerical jobs with a high risk of automation is estimated at 10% in the Algorithm wave, rising sharply to 49% in the 2020 surge (but with a slight additional increase to 54% in the 2030 Autonomy wave, which would affect other occupations, such as more car operators and fitters).

Digitalization, innovation, connectivity and research contribute to job creation, increasing the competitiveness of businesses in global markets, improving the quality of life, ensuring social inclusion and sustainable economic growth, the efficient functioning of the European Union and its economy, social and security objectives depend on the ability to ensure an adequate level of interconnection within the single market in all its dimensions, including in the energy, transport, telecommunications and capital markets.

In an increasingly digital economy, those organizations that bridge the talent gap will enjoy a competitive advantage over those that do not, a defined digital talent strategy that meets both business objectives and needs, and Digital talent preferences is essential for sustainable development and successful digital transformation. Information and telecommunications technology (ICT) and artificial intelligence (AI) are the main driving force of the new digital economy, economic growth and social welfare, both now and in the foreseeable future. ICT must be appreciated for its true power to revolutionize the mode of production, distribution and consumption.

Although initially the effects of new technologies were overstated, it later proved that the long-term benefits they generated exceeded expectations, leading to the phenomenon and widespread process called the “digital revolution” due to the fact that the rate of ICT spread far exceeded the initial forecasts of the 1980s & 1990s. This revolution involves the integration of ICT in virtually all areas of socio-economic activities and essentially supports economic growth and prosperity.

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