



Committee: Economic and Social Council (ECOSOC)

Issue: Socioeconomic impact of automation trends and issues on employment

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INTRODUCTION

Many would think that the term of automation refers to a contemporary technological advancement, when, in reality, automation is nothing new as it has been a part of the manufacturing industry for decades. More specifically, the first industrial robot, Unimate #001, was created in 1959 by George Devol and Joseph Engelberger who, two years later in 1961, became the founders of the world's first robotics company, Unimation, Inc. The factor that has changed in recent years as far as automation is concerned, is the speed of its development. Today, we live in a post-industrial society in which technology is integrated in almost every aspect of people's lives and continues to spread and develop every second. Along with technology, automation is evolving rapidly and so are the concerns about its societal implications and impacts on economy.

Automation's socioeconomic impact on employment primarily affects developed economies, as the majority of least developed and developing nations lack the resources and the expertise to create the proper infrastructures for automation to be developed and then integrated in their manufacturing industries. However, on no condition would this mean that those countries will not be affected in any way. The rapid evolution of technology, automation and artificial intelligence has created controversial debates since it is believed that these advancements are going to result in radical global changes in employment, and thus in both the economy and society of every nation.

In order to fully comprehend the impacts of the arising trends and issues of automation, it is essential to focus on the benefits and the problems it brings about to different domains. Hence, member states will be able to decide, always

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in accordance with their policy, what measures they should propose to the international community to protect the wider economy and society.

DEFINITION OF KEY TERMS

Automation

Automation is the creation of technology and its application in order to control and monitor the production and delivery of various goods and services. It performs tasks that were previously performed by humans and is currently being used in a number of areas such as manufacturing, transport, utilities, defense, facilities, operations and lately, information technology.¹

Artificial Intelligence (AI)

Artificial intelligence (AI) refers to the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.²

BACKGROUND INFORMATION

Microeconomic aspect

From a microeconomic aspect the integration of automation in the industries is going to be beneficial for both the producers and the consumers. The industries will replace a great number of workers with robots and machines which will increase productivity and will make the production more efficient and the distribution quicker. That is to say that the factor of automation will augment the supply and,

¹ <https://www.techopedia.com/definition/32099/automation>

² <https://www.britannica.com/technology/artificial-intelligence>

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consequently, the price will fall. The reduced prices will make the products more affordable so the demand will raise.

Macroeconomic aspect

Although the impact of automation seems to be positive from a microeconomic point of view, the macroeconomic aspect proves otherwise. Even though automation will create new opportunities, the workforce will, in general, decrease and, subsequently, so will the gross domestic product (GDP) of each country. The reduced GDP will lead to a diminution of the demand and so the price will augment again. This will be detrimental for both the industries (lower demand) and the consumers (greater prices).

Benefits

Apart from the lower prices that automation will create, according to the microeconomic aspect, it will also give the opportunity to the industries to create and offer a greater variety of goods. The consumers will have a greater choice of goods and services that would be very difficult to exist without automation. For instance, the widely known ATM, which stands for automated teller machine, allows people to be served even when the banks are closed. Hence, automation can make the products and services more convenient for consumers.

Problems

It is believed that automation, along with the overall rapid evolution of technology, will create a new social division. Apart from the classification to wealthier and poorer, people will be separated to those who have easy access to education and those who don't. Education and specialization become more and more necessary to survive in the automotive industry and, therefore, less educated as well as uneducated people will be unable to cope to the new standards in employment that automation sets.

Automation has already lead to the creation of new opportunities in employment, however, as it develops it may lead to mass unemployment of unskilled workers. On one hand, unskilled workers who are gradually being replaced by robots and thus are losing their jobs, enter an extremely difficult labor market. On the other hand, people who know how to control and design robots and AI will be able to easily

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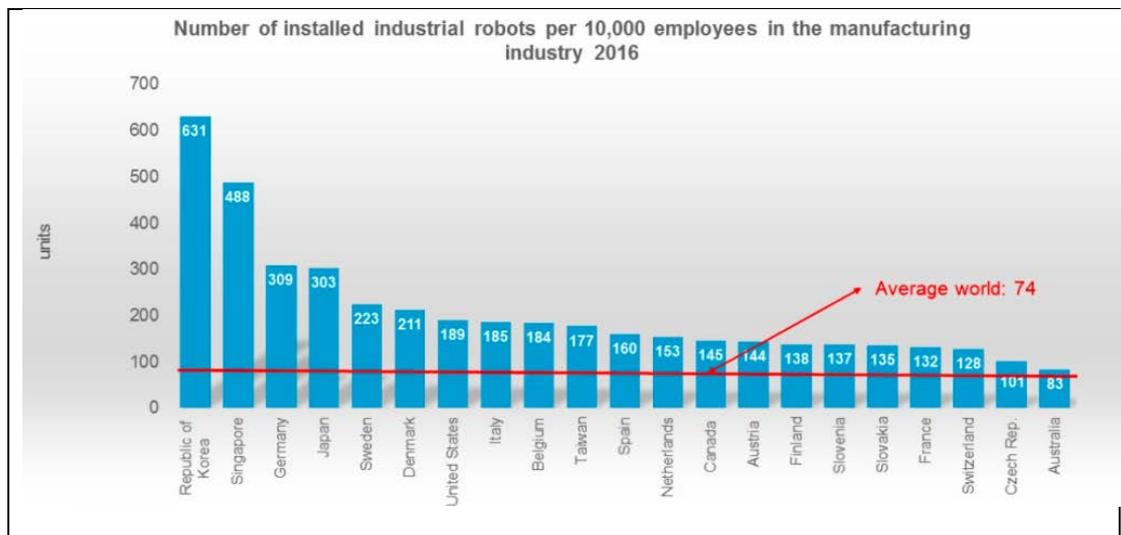
adapt to this emerging phenomenon of automation. As the benefits of automation for the firms and companies are many, it is easily understood that automation will bring more profit to the manufacturing industry. This situation can lead to a world in which the rich will become richer and the poor will become poorer.

The disappearance of unskilled workers may not only concern the manufacturing industry but also other departments and domains. For instance, automation in health care is a very crucial aspect of the issue at hand, as automation is going to change the doctors' office and the healthcare industry. Computers and robots are replacing office staff and machines are performing tests, killing thousands of jobs. However, the changes caused by automation will be highly beneficial for the insurance companies. Hence, the industry (insurance companies' stockholders) will gain more profit while employees will lose their job, in this domain as well. Controversy also prevails over the impact of automation in medicine, as some support that its development will pose dangers to the particular science, while others claim that automation will always need human supervision, especially in such domains.

Least developed countries (LDCs)

As mentioned in the introduction, least developed countries and developing nations are struggling to cope with the automotive society. Unfortunately, only a small minority of the population completes their studies, as they give up school early to work in order to aid their families supporting them financially. Having abandoned their education prematurely, people lack the dexterities to find employment in the industry ruled by automation. Therefore, since automation will reduce the positions for unskilled workers, mass unemployment will be noted in developing nations. All in all, automation will create incoherence and chaos in the international community since the difference between the economy and the society of the developed and the developing countries will become even more radical.

MAJOR COUNTRIES AND ORGANISATIONS INVOLVED



Countries with the most automation in manufacturing industries in 2016.

Source: International Federation of Robotics

Republic of Korea

South Korea, officially Republic of Korea, remains the country with the highest robot density in the manufacturing industry since 2010. In 2016, Republic of Korea's robot density was 631, while the same year its trade ministry announced that its expenditures to develop its robotic footprint, in a period of five years, would reach 450 USD million. The country's growth in the specific sector is due to its augmented adoption in the electronics and automotive industries and its generous investments in corporate Research and Development (R&D) centres. Today, South Korea's robot density is 531 per 10,000 workers.

Germany

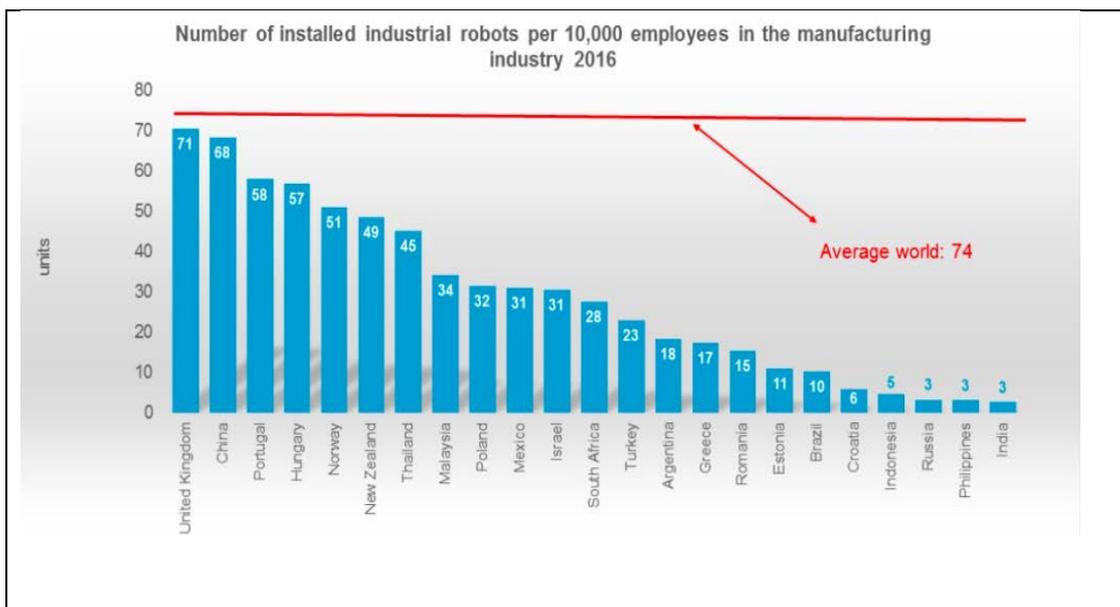
Germany stands as the most automated country in Europe with 301 industrial robots per 10,000 workers according to the IFR, today. As far as the impact of Germany's highly automotive manufacturing industry on the country's labour market is concerned, researchers from the Universities of Würzburg, Mannheim, and the Düsseldorf Heinrich-Heine University proved that regardless of the evolution in the use of robots, automation hasn't affected the aggregate German employment. People in Germany didn't lose their jobs because of robots, instead, more automotive industries created fewer jobs for entrants. Although employees that have been

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exposed to automation, are likely to keep their jobs maybe by taking different roles from before, most medium-skilled workers who occupied themselves with manual and routine work faced pay cuts.

United States of America (USA)

USA is the leader in automation in the Americas with a robot density of 189 robots per 10,000 employees according to the IFR statistics in 2016. Its robot density increased from 176 units in 2015 to 189 the following year. It is expected that USA's automation development will increase until 2020. According to a report by McKinsey Global Institute, automation could kill almost 73 million jobs in the United States by 2030. However, the economic growth of the country, along with the increased productivity and other factors, could counterbalance the jobs that will be lost.



Countries with the most automation in manufacturing industries in 2016.

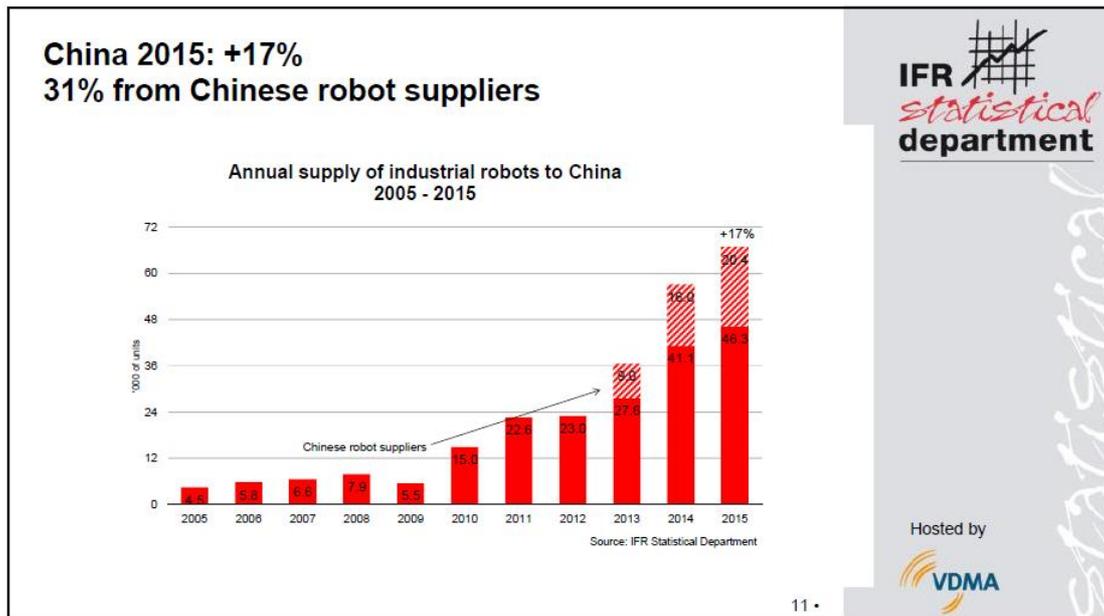
Source: International Federation of Robotics

China

Although in 2016 China's robot density appears to be slighter than the world's average, China is an emerging global leader in automation. In May 2015, China's government publicized a national plan known as "Made in China 2025", desiring to transform the country to a global manufacturing power. The plan supports the strengthening of Chinese robot suppliers and the additional increase of their market

shares. China aims to raise its robot density to 150 industrial robots per 10,000 employees by 2020, making to the top 10 most automated countries in the world.

Video: <https://www.youtube.com/watch?v=wUAM-7jbhIw>



The increase in the annual supply of industrial robots to China, for 2005 to 2015.
 Source: International Federation of Robotics

International Federation of Robotics (IFR)

The IFR was created in 1987 as a non-profit organization and it since then serves as a link between the world of robotics and the real world. Its members are part of the robotics industry, national and international industry associations and R&D institutes. Crucial is the role of the federation's statistical department since it is the primary global resource for data on robotics that can be used for surveys, studies etc. The IFR collaborates with national and global robotics organizations and takes multiple actions like motivating research in the domain of robotics and encouraging links between science and industry. It, also, subsidises the International Symposium on Robotics (ISR) which is a conference held since 1970 with the topic of industrial and service robotics. The federation puts effort into aiding manufacturers and integrators of robotics to enter new markets. In April 2017, the IFR published a position paper, updated in April 2018, which provides the federation's opinion on the

impact of automation, specifically of robots, on productivity, competitiveness and employment.

TIMELINE OF EVENTS

Date	Description of Event
1959	The first industrial robot, Unimate #001, was created in 1959 by George Devol and Joseph Engelberger and.
1987	The International Federation of Robotics is established

UN INVOLVEMENT: RELEVANT RESOLUTIONS, TREATIES AND EVENTS

On September 14, 2017 the United Nations Conference on Trade and Development (UNCTAD) was held at Geneva, Switzerland. The UNCTAD then published a report that recognizes the threat of automation to employment in both developed and developing countries. The report estimates that robots currently used serve are only an advantage for countries with established industrial capacity; however, the situation could further harm development prospects in developing nations where manufacturing has delayed or that are going through a “premature deindustrialization”. The UNCTAD report worries that these circumstances will turn out to be obstacles to the Sustainable Development Goals (SDGs), also known as Global Goals, set by the United Nations in their effort to eradicate poverty, promote prosperity while being protective to our planet.

Moreover, the United Nations Department of Economic and Social Affairs (UN DESA) has also examined the issue of the technological advancements of automation and artificial intelligence (AI), referring to their societal implications, but also in relation to sustainable development. Brief for the General Sustainable Development Report (GSDR) was the report conducted by Friedrich Soltau, with title “Automation and artificial intelligence – what could it mean for sustainable development?”.



UN DESA has also conducted research in response to a request by the Secretary-General's Executive Committee to provide an evidence-based study of the connection between recent technological evolution, employment and inequality. The study was published in the Frontier Issues report, on 31 July 2017, discussing "The impact of the technological revolution on labor markets and income distribution". Other UN bodies contributed to the specific study, including the United Nations Development Programme (UNDP), the International Labor Organization (ILO) and the UN Women.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Despite the fact that automation has been part of the manufacturing industry for decades, the issue of its rapid evolution is still contemporary and, therefore, there has been much action neither on a national nor international level. However, there have been some actions like conducting research and publishing reports, by several organizations that investigate the impact of automation on employment and both its advantages and disadvantages to the economy and the society. Apart from reports published by different UN bodies, like those mentioned in the previous section, other organizations have engaged in this topic. For example, on January 2016, a new report titled "Technology at Work v2.0: The Future Is Not What It Used to Be" was introduced as part of the series of Citi GPS reports. It was coproduced by Citi, one of the world's largest financial institutes, and the Oxford Martin School at the University of Oxford, in order to examine some of the contemporary global challenges, including the effects of automation on employment and the wider society. Reports like these aid the industries comprehend the emerging risks and, at the same time, propose ways to protect the society from such risks.

POSSIBLE SOLUTIONS

Having studied all the risks that accompany the evolution of automation, it is crucial to find solutions to protect both the economy and the society. Automation is not only instigating problems; therefore, it is desirable to find viable solutions to deploy all the benefits and evade the disadvantages of automation.

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One of the main concerns raised refers to the displacement of workers and the risk of mass unemployment of unskilled employees. In order to avoid this, workers should be retrained to be able to seek another job. Education can become a solution to assist displaced workers learn to coexist and work with new technologies like automation, instead of being replaced by it.

Worker displacement can lead to not only financial problems for those who lose their jobs but also emotional stress. The replacement by machinery along with the possible need to relocate in order to find new employment may cause additional stress. This anxiety may become a barrier to the rehabilitation of the displaced workers. Therefore, companies that decide to replace workers with automation need to take care of both their current financial state, bearing in mind that they enter an extremely difficult labor market, and their emotional status. Counselors may become necessary to explain to the workers that are losing their jobs, that robots are not better than them but they just increase productivity since they can perform specific tasks quicker. It is crucial for them to understand that it is plausible to retrain and then look for jobs that will, most probably, offer them better wages, since those jobs will require more specialization.

As far as workers that don't have the financial ability to pay for their education in both developed and developing countries are concerned, the government should play a central role to aid them. In developed countries, it might be easier to consecrate money to offer scholarships or loans, as well as develop their infrastructures for free education to be easily accessible. In developing nations, where the situation is more difficult and the illiteracy rates are higher, international organizations should cooperate with developed countries to try to offer both the necessary resources and their expertise to those nations to enable them to develop their educational system.

Furthermore, the government should regulate how the companies will dismiss their worker, in order to avoid mass unemployment. The international community could propose a global legal framework that would set specific conditions under which the companies will the workers. However, respecting the sovereignty of each country, our committee should not impose any legislation;

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instead, only propose legislation for every country to form its own legal framework concerning the matter.

Last but not least, raising awareness is vital to solve almost every problem. In our case, people need to be properly informed for both the benefits and the risks of automation to the society and the economy, in order to avoid the formation of radical and false ideas. People should neither believe that the risks are imaginary and unreal, nor that robots are about to rule our world. Every country should make sure their population is appropriately educated as far as automation is concerned. This could be achieved with efforts from the governments by transforming the educational curriculum, but also from international organisations by hosting online campaigns and more.

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Figures

Figure 1: <https://www.therobotreport.com/10-automated-countries-in-the-world/>

Figure 2: <https://www.therobotreport.com/10-automated-countries-in-the-world/>

Figure 3: <https://ifr.org/news/china-seeking-to-join-the-top-10-robotics-nations-by-2020/>