

Forum: United Nations Commission on Science and Technology for Development (UNCSTD)

Issue: Addressing the impact of the dependency on automation for the growth of the international economy

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Introduction

Recently, the world has slowly started to adopt the use of computers and machines in order to automate business processes. This has allowed countries to gain robust economic growth due to the efficiency and consistency of machines as opposed to people. However, the benefits have only been affecting the development of already developed nations due to the high capital costs of employing automation. This causes a larger disparity within the international community - the more economically developed countries becoming richer, and the less economically developed countries remaining static. Hence, global development is limited under such unmediated use of technology whereby it essentially starts to form the monopoly of international economies.

Although beneficial for a small number of countries, the exponential growth on a global scale necessitates the support of the less developed countries in adapting ways to boost their economies. Once the progress initiates, it is only a matter of time until valuable improvements are made to the well-being of individual nations, as well as the international community. In essence, it is clear

that automation is beneficial, but how do we distribute it, and where (if there is a limit) must we stop?

Definition of Key Terms

Automation

A process or technique where technology can operate automatically and require as little human labor as possible.

Human labor

Human activity carried out that provides goods and services for the economy.

Workforce

Part of the population that provides goods and services in exchange for salaries or wages.

Mechanization

The introduction of machines into society to carry out activities that humans do: a replacement for human labor.

Robot

A machine that can carry out human tasks semi-automatically.

General Overview

Many countries such as the U.S, India, and China have led the automation industry in the past decade and it has brought many positive changes in the economy. However, automation is having a massive impact on nations because

the economic benefit can be mostly seen in the rich people while the poor are losing their jobs and being replaced by machines.

Economies of scale

The usage of automation eliminates human error, injuries, salaries, breaks, etc, and produces faster and higher quality products than humans while reducing costs drastically. This creates an inevitable change from human labor to automation in competitive markets that way companies can keep up with competition and enjoy more profits.

Covid-19 pandemic

The pandemic was a wake-up call for all companies around the world to start adopting automation because thousands of companies suffered economically due to a lack of workforce availability due to quarantines, sickness, and lack of transportation, among other factors. Companies that had previously adopted automation, did not suffer as much because they didn't require as much human labor, thus giving them the opportunity to operate while competition was locked down or working at slower paces.

Major Parties Involved and Their Views

Republic of Korea

As of 2022, the Republic of Korea has the highest 'robot density' in the world, with around 932 robots per 10,000 employees. Recognizing the significant benefit of automation, the use of robots in factories has exponentially increased over the decade. Although this has raised a lot of concerns regarding the employment of human laborers, automation has contributed significantly to the efficiency and growth of their economy. Extensive research in the further development of robots is an ongoing process in Korea. Hence, they have a high

potential to support other countries

Japan

Also in the top 5 countries with the highest ratio of robot to human employees, Japan heavily relies on its automation industry. With the demographics of the country (such as aging population, loss of workforce, etc), automation has become a necessity in sustaining their economy. They are by far the largest manufacturer and distributor of industrial robots in the world, making up 45% of the global robot supply through companies such as Mitsubishi and Yaskawa. However, the overarching trend is that most of the exports are directed toward nations of relatively high economic power, such as China and the US being major importers of Japan's technology.

United States of America

Although the US has a large potential in adopting heavily automated industries, strict adherence to labor laws prevents this. In contrast to the labor situation of highly automated nations where automation far outweighs the issue of labor, the loss of jobs is of high concern in the US. Along with the growth in the adoption of automation in the country, economists raise questions regarding the future of the country's laborers' wages and job opportunities. Robots are highly efficient, but considering the large availability of a workforce, it is difficult to depend highly on machines.

International Federation of Robotics (IFR)

A non-profit organization based in Frankfurt, Germany, aims to promote the use of industrial and service robots globally. By stimulating research and actively

working to normalize automation, IFR acts as a central hub of global collaboration in robotics. It has members from all over the world, ranging from individual companies to nationwide associations. The federation is also a sponsor of the International Symposium on Robotics, where annual discussions are held on the development of automation and its impacts on the world.

Timeline of Events

Date	Description of Event
Before 17th Century	Automation has been deemed beneficial for humanity throughout the entirety of history. Using non-human forces to automate activity has increased productivity without the need for labor. Some examples of historic automation are windmills, water wheels, and aqueducts. However, these weren't globally normalized as today's machines.
1760-1840	The <u>1st industrial revolution (industry 1.0)</u> in Europe and the United States. The development of machinery that depended on steam engines allowed for the creation of industrial processes that could replace existing ways of production that relied on human action. Being less dependent on the inefficiencies of a human laborer, productivity significantly went up in these nations, boosting their economies.
19th Century	The <u>2nd industrial revolution (industry 2.0)</u> with the discovery of electricity. The generalization of mass production through different production processes. Instead of having one unit

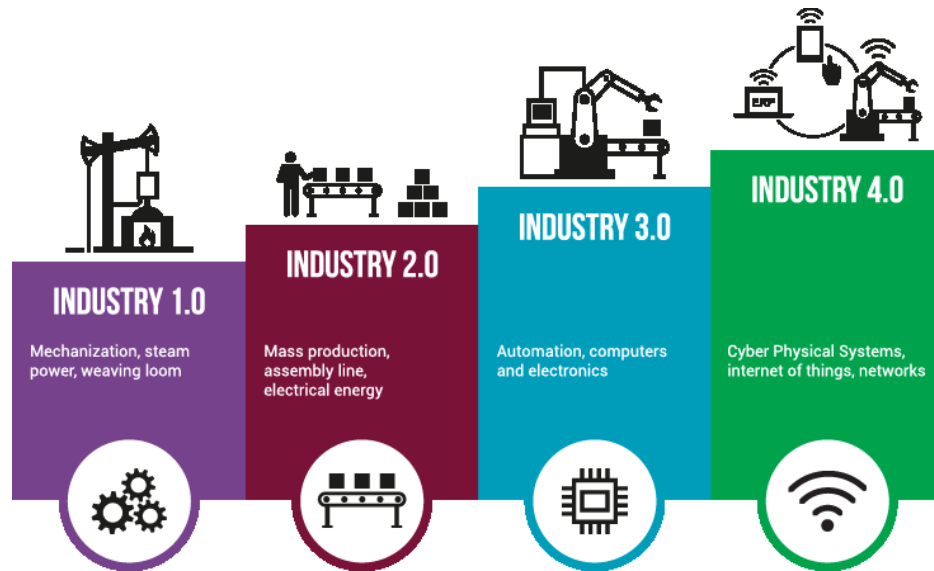
produced at once, the division of labor under a continuous production process (such as conveyor belts) has allowed for a significant increase in efficiency.

20th Century

The 3rd industrial revolution (industry 3.0) through the development of electrical appliances, and the creation of computers/processors. Following this, industrial processes could be largely digitalized without any dependence on humans. Unlike previous methods of automation, the ability to have a degree of control in the automating process has allowed for a larger variety of uses of robots in industrial processes. Additionally, much more complex actions were able to be made with much greater precision and efficiency - allowing for deeper penetration of machines in human jobs. Although costly, robots that follow strict sequences of coded information proved to be highly efficient compared to a human.

21st Century

The 4th industrial revolution (industry 4.0). The exponential growth of technology in the past decade has greatly increased the proficiency of the internet and technology in industrial settings. Although this process is still ongoing, the interconnectivity between machinery with exponentially larger processing power will allow for complete automation of production processes, serving as another boost in efficiency and economic growth - but with the price of job conflicts.



UN involvement, Relevant Resolutions, Treaties and Events

Not many countries have such a strong presence of automation therefore many countries have not established treaties and resolutions. However, it is evident that automation dependency will be a major issue in the long run once all the world adopts these machines. The only country that has established treaties and solutions to help the affected is Finland. Finland established a UBI (universal basic income) in 2017 that allows unemployed people to receive government grants similar to stimulus payments with no strings attached. After 2 years of this being established, a noticeably increase in motivation, happiness, productivity and GDP took place.

Past Actions

Although there are no major international attempts against automation, it is clear that nations recognize the impact of technology in boosting their economies. In a [report](#) published in 2016, the UN reiterated the importance of

finding a balance between automation and making sure that the labor market is not significantly disrupted. It is worth noting that the issue of unemployment due to automation is a controversial topic that can be argued both ways: it is indisputable that certain jobs will be taken over by robots, but this could also result in a shift in demographics towards a high-skilled workforce. However, shifting from a low-skilled to a high-skilled laborer is by no means simple. Considering that the manifestation of technology is growing exponentially, it is important for the international community to be ready to use it for global benefit.

Possible Solutions

Creating solutions to help control international economies due to dependency on automation is significantly troublesome because somebody's pocket will be hurt no matter what. Banning automation and AI is not a possible solution because it would destroy all the economies worldwide due to a drastic drop in productivity and national output. Allowing automation to take over is also not a solution as it would make the rich even richer and leave the poor unemployed.

A balance has to be found where humans can remain in the workforce while having automation and robots. This can take place if countries develop a strong educational system so that their population can have jobs that require decision-making and critical thinking which would not be mostly affected by automation. Short-term solutions could be implementing a UBI (universal basic income) that allows the unemployed to have a salary while they find another job that isn't replaced by machines.

Additionally, implementing "robot taxes" is an extremely realistic solution because it consists of taxing machines and robots as if they were a human

working on them. That way the money collected can be used by the government and allocated to healthcare, education, etc.

Sustainable Development Goal (SDG)

This issue relates to sustainable development goal number 8: Decent work and economic growth. The issue of automation closely ties both parts of the goal. Depending on the country, the impact of the development of this technology will have a large impact on the labor force - worsening or improving its conditions. Economic growth is highly relevant due to the impact of robots on industrial processes, boosting efficiency and productivity significantly. The ideal balance between economic growth and decent work for its citizens is dependent on the situations of the country, and thus it is important that the international community recognizes that and supports each other.

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Appendix

- I. https://www.google.com/search?q=graph+of+countries+adopting+automation&rlz=1C5CHFA_enPA705PA705&source=lnms&tbm=isch&sa=X&ved=2ahUKEwi34YbhrYD5AhUoSzABHYxOBfEQ_AUoAXoECAEQAw&biw=1440&bih=821&dpr=2#imgrc=teHZhJ9LKB7aMM

A. Graph of the robot density in the manufacturing industry in 2019

pero every 10,000 human employees

- II. https://www.google.com/search?q=graph+of+money+allocated+by+countries+into+AI&tbm=isch&ved=2ahUKEwi1zNrhYD5AhVSXDABHfdlBqMQ2-cCegQIABAA&oq=graph+of+money+allocated+by+countries+into+AI&gs_lcp=CgNpbWcQAzoFCAAQgAQ6BAgAEB46BggAEB4QBToGCAAQHhAIQgQIABAYUL0GWJuOAmCqkQJoCHAAeACAAawBiAH8P5IBBDuNzSYAQ CgAQGgAQtnd3Mtd2l6LWltZ8ABAQ&sclient=img&ei=qzrUYvXKC9K4wbkP98uZmAo&bih=821&biw=1440&rlz=1C5CHFA_enPA705PA705#imgrc=-XKjUde8j6EDPM

- A. Graph of funds allocated to AI by different countries

- II. https://sustainabledevelopment.un.org/content/documents/968825_Soltau_Automation%20and%20artificial%20intelligence%20-%20what%20could%20it%20mean%20for%20sustainable%20development.pdf

- A. Report published by the UN regarding the future of automation