



GSISMUN II

Forum: ECOSOC

Question of: Incorporating Automation in the Workforce

Student Officer: Minhong Kim, Assistant President

Introduction:

Technological advancement has skyrocketed in recent years. We are now in the midst of a Fourth Industrial Revolution, “blurring the lines between the physical, digital, and biological spheres.”¹ Self-driving cars, delivery drones, 3d-printers, and many more machines have emerged in the 21st century.

While such technological advancements have immensely benefited humans, it has raised a new, growing problem. Human jobs are predicted to be replaced at unprecedented rates. A McKinsey & Company study found that 60 percent of jobs could be automated within the next 2 decades. Similarly, a Stanford University academic, Jerry Kaplan, says “today, automation is blind to the color of your collar; It doesn’t matter whether you’re a factory worker, a financial advisor, or a professional flute-player: automation is coming for you.”² Unlike the 3rd Industrial Revolution, where simplistic machines executed very specific tasks, machines are now incorporating Artificial Intelligence, which, in the future, may allow them to make human-like decisions. This highly advanced technology threatens to eliminate human jobs in a wide range of industries.

However, this does not necessarily mean that unemployment rates will be at an all-time high. Many experts believe that the automation of certain jobs will be balanced by the creation of new jobs in technology industries. Essentially, jobs will be redefined rather than completely disappear. Renowned economist Joseph Schumpeter called this “creative destruction”, which refers to the “incessant product and process innovation mechanism by which new production units replace outdated ones.”³ Still, the Guardian writes, “from the perspective of the worker there is not much of a difference between work disappearing and being radically redefined. It’s likely they’ll lack the new skill sets required for the role and be out of a job anyway.”

Countries that will be most affected by such changes will be countries that have high percentages of the workforce employed in jobs that are predictable, repetitive, and do not require creativity. For instance, LEDC nations with large manufacturing industries will be facing many challenges.⁴

¹ “What is the Fourth Industrial Revolution?”

² Arwa Mahdawi (The Guardian)

³ Carol Kopp

⁴ Klaus Schwab

Even with such grave repercussions, there have been very few attempts to discuss this issue. Only recently, figures like Elon Musk and Bill Gates have raised concerns about the dangers of automation/AI. Bill Gates has been quoted saying that AI is “both promising and dangerous” for the human race.⁵

However, the rise of AI and automation is not all harmful. In fact, this technological boom may lead to increased living standards for most of the world. This is primarily due to the fact that even if incomes stagnate, the development of cheaper technologies will allow money to go further.⁶ Most importantly, if jobs become automated, the cost of production will drastically decrease for manufacturers. This benefits everyday consumers because manufacturers can then sell goods at cheaper prices. Therefore, delegates must consider the positive and negative implications of automation, and come up with creative and effective policies that promote the implementation of automation in the workforce in a way that lessens potential harm.

Definitions:

Automation

Automation is the use of technology that enables tasks to be performed with little or no human intervention. It is the process in which equipment is used to replace human labor for the production of goods. Equipment may include robots or other machinery that are able to perform regular human tasks automatically. Automation has been an important part of factories and facilities of mass production. In 1946, the term ‘automation’ was used in the automobile industry to name the process in which machinery was used for production.⁷ Today, automation is used in a wide array of fields from production lines to customer service centers.

Artificial intelligence

Artificial intelligence (AI) is a technology that utilizes machine learning to mimic human behavior. Algorithms are the driving force behind AI and are used to designate certain tasks and operations that are to be performed. There are two main types of artificial intelligence: machine learning and deep learning. Machine learning involves constantly learning to adapt to the changing environments while deep learning involves the collection of data to perform complex tasks. AI was first introduced in 1955, when Herber Simon developed the first AI program.⁸

An example of AI can be self driving cars. Self driving cars operate and rely on complex algorithms that instruct the car to be automatically driven. AI is also used in other applications from hiring in the workplace to data analysis.

Fourth Industrial Revolution

⁵ CNBC: Bill Gates

⁶Lindsey Burke

⁷ Groover, Mikell P

⁸ Press, Gil.

The Fourth Industrial Revolution, also referred to as Industrialization 4.0, is a term that is used to describe the increasing connection of humanity through technology. The Fourth Industrialization focuses on using artificial intelligence, quantum computing, bio technology, and automation to further improve human life.⁹ The term was coined in 2016 by Klaus Schwab, a chairman of the World Economic Forum. Schwab sees this revolution as an opportunity to achieve more equality worldwide. However, other experts disagree, citing the fact that as technology and automation disrupt labor markets, economic inequality between MEDCs and LEDCs, as well as the gap between the rich and the poor, will be increased.

Creative Destruction

Creative Destruction, also known as Schumpeter's gale, refers to the concept of destroying old and long-standing technologies/economic structures to make room for innovation. The term was originally coined in 1942 by Joseph Schumpeter, who saw the economy as “changing and flexible.”¹⁰ Creative destruction emphasizes innovation and competition to improve technology. Essentially, old techniques are replaced by new ones.

General Intelligence (AI intelligence level)

Artificial General Intelligence is a term used to describe the intelligence of AI. There are multiple levels of AI. Strong AI, for instance, is a type of AI that has human-like capabilities, such as achieving consciousness. Low level AI, on the other hand, is a more primitive form of intelligence. It executes simple, repetitive, and specific tasks. Even today, can be seen everywhere- from robots to smart speakers, specialized AI is becoming very common in the modern world.¹¹ Finally, High level AI is synonymous with General AI. General AI, unlike specialized/low-level AI, hasn't been invented yet, but refers to a type of AI that can perform virtually any task. It allows machines to perform tasks in a human-like manner, with traits such as problem-solving, logical thinking, etc.

Key Events:

1936- Alan Turing Builds The Universal Turing Machine

In 1936, Alan Turing introduced the Universal Turing Machine. This machine had unprecedented levels of storage capacity and could perform various computations by reading both the description of the machine to be simulated as well as the input to that machine from its own tape.

¹²This machine had tremendous influence, as it led to the development of the idea of the stored-program computer, which was invented by John Von Neumann in 1946.

1984- Self-Driving Vehicle

⁹ Masterson, Victoria

¹⁰ Kopp, Carol M

¹¹ Joshi, Naveen

¹² Michael Dear

While self-driving cars can be traced back to the 1920s, the first truly self-sufficient car that utilized neural networks developed in the mid-80s. They were developed by Navlab, which was a lab that was composed of a team of academics from Carnegie Mellon's school of computer science. The researchers had extensively developed a system of neural networks to control the autonomous vehicles, which "formed the basis of contemporary control strategies."¹³ The series of cars developed by Carnegie Mellon led to the development of many more autonomous cars by companies such as Tesla, Hyundai, etc.

1997- Deep Blue beats Garry Kasparov

In 1996/7, Deep Blue faced off against reigning world champion Garry Kasparov, considered by many to be the greatest chess player ever. Deep Blue was a chess-playing computer developed by IBM and was regarded as the best chess computer at that time. They first faced off in 1996, where Kasparov beat Deep Blue by 4-2 in 6 games. They played again in 1997, where Deep Blue beat Kasparov, which marked the first time that a chess-playing computer beat a world champion under normal playing conditions.¹⁴

1997- NASA Sojourner

In the late 90s, NASA deployed Sojourner, which was the very first time that an unmanned robot operated independently on Mars. This exploration led to many more rover missions into space. The Sojourner landed on July 4th, 1997, on Mars. It was part of the Mars Pathfinder mission and utilized software to conduct several experiments on the Mars environment.¹⁵

2016- United Nations forms committee

In September of 2016, the UN formed the Center on Artificial Intelligence and Robotics in Hague. This agency facilitates communication between nations and NGOs in regards to AI, robotics, and the overarching topic of automation. This agency is also involved in research and development in the areas of artificial intelligence, robotics, etc., and receives funding from the UN.¹⁶

2018- United Nations holds ECOSOC meeting

In 2018, the UN Economic and Social Council (ECOSOC) and the General Assembly (GA) have organized a joint meeting, "The Future of Everything – Sustainable Development in the Age of Rapid Technological Change." In this meeting, UN members discussed practices and initiatives countries could implement in regards to the latest developments in automation.¹⁷

2018- Amazon Launches "Amazon Go"

¹³ Wikipedia- Navlab

¹⁴ Wikipedia: Deep Blue

¹⁵ Wikipedia: Sojourner

¹⁶ UNICRI

¹⁷ United Nations: ECOSOC meeting

In 2018, Amazon launched its first “Amazon Go” store, thus launching the first cashier-less store. In this store, customers do not have to interact with a cashier or clerk to buy products. The underlying idea behind the store is an idea similar to self-checkout services, which have existed since the 1990s. The store uses cameras and facial recognition technologies to prevent people from stealing products.¹⁸

Modern Day/Still in Progress- Experts express fears about Automation and AI

Recently, prominent individuals such as Elon Musk and Bill gates have raised concerns about the potential effects of further integration of AI and Automation into industries, citing how rapid integration of AI could cause catastrophes in many business sectors. However, experts in the field have criticized figures such as Elon Musk for making “sensationalized” statements. “He is sensationalist, he veers wildly between openly worrying about the downside risk of the technology and then hyping the AGI (artificial general intelligence) agenda. Whilst his very real accomplishments are acknowledged, his loose remarks lead to the general public having an unrealistic understanding of the state of AI maturity,” says an AI executive.¹⁹ MIT Sloan professor, Thomas Malone, says that while AI is able to perform specific tasks that they are highly specialized in, AI is far from achieving human-like intelligence. Malone said, “In many cases, it can’t do very many of those other things at all. Businesses already using AI are using it for specific tasks, but not for broad problem-solving.”²⁰

Positions of Member Nations:

United States of America

The US has been one of the leading countries in developing automation technologies. The Trump administration has emphasized investment in the automation industry. The tech culture in the USA has also benefited the automation industry, as venture capitalists have invested billions into startups. The United States has also promoted the American AI initiative, which is an initiative promoting research and development of Artificial Intelligence.²¹

China

China has invested large amounts of money into the research and development of automation. China’s leading universities are at the forefront of developing new technologies. Such universities have published numerous research papers on topics like AI, deep learning, and the overarching automation industry as a whole. This has allowed China to become the “AI superpower of the world.”²² However, one major problem that the country faces is that it will be difficult to

¹⁸ “What is Amazon Go?”

¹⁹ Sam Shead

²⁰ Sara Brown

²¹ Analytics Insight

²² Analytics Insight

implement automation in many of its industries without facing economic consequences, as a large percentage of the population work in jobs that can be automated.²³

Japan

Japan is currently experiencing a rapid population decline. Because of the projected population decline of the working-age population, the Japanese government has directed automation development and research on industries that will be short of workers; by automating such jobs, the Japanese government is lessening the economic impact of population decline.²⁴ Because of such developments, research estimates that about 50 percent of Japanese jobs may be automated. Japan, however, is somewhat of an outlier in that because of its rapid population decline, its government encourages the automation of certain jobs.

Russian Federation

The Russian Federation previously had not invested in automation, but beginning in 2019, adopted a long-term strategy for rapid growth. Russia's plans center on the Sherbank, a government-owned bank that has outlined steps for Russia's AI/Automation development strategy.²⁵ However, the Russian automation sector will likely lag in comparison to countries such as the US or China, primarily due to the lack of venture capital investment into the industry.

United Kingdom

The United Kingdom has always been an important nation in automation, with figures like Alan Turing, pioneering AI companies such as SwiftKey, and programs like DeepMind's AlphaGo all emerging from the UK. Because of this, the UK still remains "globally in the top quartile for research, startup investment, digital absorption, innovation foundation, and ICT connectedness."²⁶ The PwC research center estimates that automation is projected to grow the UK economy by 22 percent by 2030. However, another study has found that 30 percent of jobs could be lost due to automation.²⁷ Nevertheless, the current UK administration has stated that automation will play a crucial role in developing the nation's economy, and will be continuing to invest into the industry.

South Korea

South Korea is the most automated country in the world. According to the International Federation of Robotics, South Korea utilizes "631 robots per 10,000 human workers, which is nearly 8 times the global average".²⁸ South Korea has embraced automation, as well as 5g and IoT, making it one of the most technologically advanced countries.

²³ "The Chinese Approach to Artificial Intelligence"

²⁴ AI policy: Japan

²⁵ Elena Chernenko

²⁶ PwC

²⁷ Sarah Knapton

²⁸ Chris Middleton

Suggested Solutions:

Automation will continue to develop at a rapid pace, and governments around the world must implement creative, effective, and well-thought-out solutions to successfully incorporate automation into the workforce.

The most prominent issue that must be addressed is the potential loss of jobs caused by automation. Now, contrary to popular belief, automation may not lead to higher unemployment, which may be due to the effect of “creative destruction,” where automation could reduce jobs in one sector yet create new jobs in a different sector.²⁹ On the other hand, there is just as great a probability that automation incorporated into the workforce could result in very high unemployment rates. However, one thing is for certain, occupations that require no human creativity (or in other words, jobs with repetitive, simple tasks) will be easily replaced by technology. Such workers will have nowhere to go if they have no other skill sets. Therefore, large investments in education and training will be needed for workforces to adapt.³⁰ Governmental agencies could be formed to fund and oversee such training programs, and could cooperate with the private sector to provide this training. Nations must also strive to address the need of all citizens in training programs, as workforces that are mainly composed of primary earners need extra support. To combat this issue, governments could fund or set up apprentice programs where primary earners could also earn money during their training. Admission to these government-backed apprentice programs could place more importance on admitting primary earners. Governments could either cooperate with already-existing apprenticeship programs of private companies by supporting and funding these programs, or create an entirely new set of apprenticeship programs without private sector involvement.

Legal frameworks concerning employee dismissal could also be a possible solution. Governments could enact laws to prevent prompt employee dismissal. The law could perhaps require companies that are automating jobs to give early notice to the employee in advance, so that the individual could seek out other professions by entering into the previously mentioned apprenticeship programs/training programs. By lengthening standard dismissal notices, employees could have more time to adjust and adapt to the newfound realities.³¹ However, to prevent legal frameworks from overly regulating businesses, compromises must be made between regulatory agencies and companies. To do so, meetings between lawmakers, economic experts, and the leaders of prominent companies within industries (industries that are moving towards automating jobs) could be held regularly. A new government commission on automation could be formed to arrange such conferences/meetings.

To create a better-adjusted workforce in the future, governments may need to alter and better fund their education systems. First, because creativity, critical thinking, collaboration, and innovation skills will be in high demand in an automation-filled world, governments should focus on

²⁹ Carol Kopp

³⁰ Deloitte

³¹ Notice Period

changing aspects of schools to emphasize such skills.³² Such changes could create a generation of workers who are more suited for the automated world. Nations could form new education committees to oversee this process; such committees could help develop courses, train teachers, etc. Similarly, governments could create and fund nation-wide highschool organizations/programs that foster skills such as creativity and innovation (e.g. Technology Student Association: non-profit organization with hundreds of school chapters in the US that was created to develop STEM skills)³³. Such programs could be backed/endorsed by government departments (e.g. HOSA and US Department of Health, Science, Technology).³⁴ However, LEDC nations without the funds to implement such changes would likely need help from MEDC nations, and countries must find specific policies to benefit both MEDCs and LEDCs.

Nations must also strive to better understand the implications of implementing automation in the workforce. By creating a research team composed of experts, governments could better analyze the possible effects of automation in certain industries, and thus create action plans to help manage this transition. A government agency of the nation, such as the United States Office of Artificial Intelligence and Technology in the US, could create and fund the research team.³⁵ Research teams could be composed of automation/AI industry leaders and researchers. By allowing experts from multiple fields to work together, the implications of automation could be better understood.

Incorporating automation in the workforce is further complicated because implementing policies that regulate automation and AI may lead to less development of technologies. Therefore, while regulation is needed, governments should still encourage the growth of AI and automation technologies. Thus, governments must continue or begin to create an environment where technology development is possible. Governments could incentivize growth by creating tax incentives and providing government subsidies. Moreover, nations could lessen business restrictions in the automation industry, which would foster an environment where new startups/companies could be created. States could also cooperate with private companies in the automation/AI industry to more quickly develop technologies (e.g. NASA and SpaceX).³⁶

Citations:

“About HOSA.” *HOSA*, 2021, hosa.org/about.

“AI Policy - Japan.” *Future of Life Institute*, 2 Apr. 2020, futureoflife.org/ai-policy-japan/.

“Bill Gates: A.I. Is like Nuclear Energy - 'Both Promising and Dangerous'.” *CNBC*, CNBC, 26 Mar. 2019,

³² Deloitte

³³ TSA

³⁴ HOSA

³⁵ Wikipedia

³⁶ Sempsrott, Danielle

www.cnbc.com/2019/03/26/bill-gates-artificial-intelligence-both-promising-and-dangerous.html.

Brown, Sara. "What Business Leaders Need to Know about Artificial Intelligence." *MIT Sloan*, 16 Sept. 2019, mitsloan.mit.edu/ideas-made-to-matter/what-business-leaders-need-to-know-about-artificial-intelligence.

Burke, Lindsey; "Automation and Technology Increase Living Standards"; <http://www.heritage.org/jobs-and-labor/report/automation-and-technology-increase-living-standards>

Chernenko, Elena. "Developing Artificial Intelligence in Russia: Objectives and Reality." *Carnegie Moscow Center*, carnegie.ru/commentary/82422.

Dear, Michael. "Alan Turing." *Encyclopædia Britannica*, Encyclopædia Britannica, Inc., July 2020, www.britannica.com/biography/Alan-Turing.

"Deep Blue versus Garry Kasparov." *Wikipedia*, Wikimedia Foundation, 3 Jan. 2021, en.wikipedia.org/wiki/Deep_Blue_versus_Garry_Kasparov.

Frankenfield, Jake. "How Artificial Intelligence Works." Investopedia, Investopedia, 7 Jan. 2021, [www.investopedia.com/terms/a/artificial-intelligence-ai.asp#:~:text=Artificial%20intelligence%20\(AI\)%20refers%20to,as%20learning%20and%20problem%2Dsolving](http://www.investopedia.com/terms/a/artificial-intelligence-ai.asp#:~:text=Artificial%20intelligence%20(AI)%20refers%20to,as%20learning%20and%20problem%2Dsolving).

Gerner, Marina. "Is Britain Still an AI Leader?" *Raconteur*, 9 Dec. 2020, www.raconteur.net/global-business/uk/uk-ai-leader/.

Groover, Mikell P.. "Automation". *Encyclopedia Britannica*, 22 Oct. 2020, <https://www.britannica.com/technology/automation>. Accessed 31 January 2021.

"A History of Automation: the Rise of Robots and AI." *ThinkAutomation*, 1 Dec. 2020, www.thinkautomation.com/bots-and-ai/a-history-of-automation-the-rise-of-robots-and-ai/.

"Joint Meeting of ECOSOC and the Second Committee on 'The Future of Everything – Sustainable Development in the Age of Rapid Technological Change' | UNITED NATIONS ECONOMIC and SOCIAL COUNCIL." *United Nations*, United Nations, 2017, www.un.org/ecosoc/en/events/2017/joint-meeting-ecosoc-and-second-committee-%E2%80%99C-future-everything-%E2%80%93-sustainable-development.

Joshi, Naveen. "How Far Are We From Achieving Artificial General Intelligence?" *Forbes*, Forbes Magazine, 10 June 2019,

www.forbes.com/sites/cognitiveworld/2019/06/10/how-far-are-we-from-achieving-artificial-general-intelligence/?sh=4bd99f986dc4.

Knapton Sarah, "Robots Will Take over Most Jobs within 30 Years, Experts Warn." *The Telegraph*, Telegraph Media Group, 13 February 2016, www.telegraph.co.uk/news/science/science-news/12155808/Robots-will-take-over-most-jobs-within-30-years-experts-warn.html.

Kopp, Carol M. "Understanding Creative Destruction." *Investopedia*, Investopedia, 25 Sept. 2020, www.investopedia.com/terms/c/creativestruction.asp.

"List of Federal Agencies in the United States." *Wikipedia*, Wikimedia Foundation, 18 Jan. 2021, en.wikipedia.org/wiki/List_of_federal_agencies_in_the_United_States.

Mahdawi, Arwa, and Mona Chalabi. "What Jobs Will Still Be around in 20 Years? Read This to Prepare Your Future." *The Guardian*, Guardian News and Media, 26 June 2017, www.theguardian.com/us-news/2017/jun/26/jobs-future-automation-robots-skills-creative-health.

Masterson, Victoria, et al. "Fourth Industrial Revolution." World Economic Forum, www.weforum.org/focus/fourth-industrial-revolution.

Middleton, Chris. "South Korea Most Automated Nation on Earth, Says Report. The UK? Going Nowhere." *Internet of Business*, 18 Feb. 2018, internetofbusiness.com/south-korea-automated-nation-earth-says-report-uk-nowhere-robotics/#:~:text=It%20boasts%20631%20robots%20per,as%20the%20entire%20human%20workforce.

"Mission." *TSA Mission*, 2021, tsaweb.org/about/about-tsa/mission.

"Navlab." *Wikipedia*, Wikimedia Foundation, 23 Dec. 2020, en.wikipedia.org/wiki/Navlab.

Pocket-lint. "What Is Amazon Go, Where Is It, and How Does It Work?" *Pocket*, 25 Feb. 2020, www.pocket-lint.com/phones/news/amazon/139650-what-is-amazon-go-where-is-it-and-how-does-it-work.

"Preparing Tomorrow's Workforce for the Fourth Industrial Revolution ." Deloitte, <https://www2.deloitte.com/global/en/pages/about-deloitte/articles/gx-preparing-tomorrow-workforce-for-the-fourth-industrial-revolution.html/>

PwC. "Automation Will Impact around 30% of UK Jobs by Mid 2030s - but Which Ones?" *PwC*, 2019,

www.pwc.co.uk/who-we-are/regional-sites/northern-ireland/press-releases/automation-impact.html.

Sempsrott, Danielle. "SpaceX – All the News about NASA's Missions Using SpaceX." *NASA*, NASA, 6 Dec. 2020, blogs.nasa.gov/spacex/.

Shead, Sam. "Elon Musk Has a Complex Relationship with the A.I. Community." *CNBC*, CNBC, 13 May 2020, www.cnbc.com/2020/05/13/elon-musk-has-a-complex-relationship-with-the-ai-community.html.

Press, Gil. "A Very Short History Of Artificial Intelligence (AI)." *Forbes*, Forbes Magazine, 30 Dec. 2016, www.forbes.com/sites/gilpress/2016/12/30/a-very-short-history-of-artificial-intelligence-ai/?sh=2980a2a36fba.

"Sojourner (Rover)." *Wikipedia*, Wikimedia Foundation, 4 Jan. 2021, [en.wikipedia.org/wiki/Sojourner_\(rover\)](https://en.wikipedia.org/wiki/Sojourner_(rover)).

"The Chinese Approach to Artificial Intelligence: An Analysis of Policy and Regulation." SSRN, 23 October 2019, papers.ssrn.com/sol3/papers.cfm?abstract_id=3469784

"The Fourth Industrial Revolution, by Klaus Schwab." World Economic Forum, www.weforum.org/about/the-fourth-industrial-revolution-by-klaus-schwab. "The Future of Jobs Report 2018." Future of Jobs 2018, reports.weforum.org/future-of-jobs-2018/.

"Top 10 Countries Leading the Artificial Intelligence Race." *Analytics Insight*, 12 Apr. 2020, www.analyticsinsight.net/top-10-countries-leading-the-artificial-intelligence-race/.

"UNICRI Centre for Artificial Intelligence and Robotics." *UNICRI*, 2018, www.unicri.it/in_focus/on/unicri_centre_artificial_robotics.

"What Is the Fourth Industrial Revolution - Salesforce Blog." *The 360 Blog from Salesforce*, 25 Nov. 2020, www.salesforce.com/blog/what-is-the-fourth-industrial-revolution-4ir/.

"Your Notice Period during Dismissal." *Leaving a Job*, Citizens Advice UK, 2021, www.citizensadvice.org.uk/work/leaving-a-job/dismissal/your-notice-period-during-dismissal/#:~:text=Your%20job%20won't%20always,at%20least%20a%20week%20long.