Committee: UN Educational, Scientific and Cultural Organization (UNESCO)

Issue: Artificial intelligence and robots embedded in the workforce

Student Officer: Angelica Vogiatzoglou

Position: Deputy President

PERSONAL INTRODUCTION

Dear Delegates,

My name is Angelica Vogiatzoglou and I will have the honor to serve as the Deputy President of UNESCO in the 3rd session of the American College of Greece Model United Nations. This will constitute the 13th MUN Conference I will get to attend and my 4th time serving as a Student Officer. Having attended multiple conferences, I am really looking forward to this session of ACG MUN, since I am aware of the fact that every single MUN conference is a unique and unforgettable experience through which you gain valuable insight into how the contemporary world works.

UNESCO is a very intriguing committee, which deals with a variety of issues that the modern world needs to encounter. This year's agenda and conference theme are very promising and will definitely cause fruitful debate and constructive discussion. Digital citizenship is a very recent issue and especially Artificial Intelligence, the topic at hand, promises to hugely alter our everyday life.

Serving as your Deputy Chair, my goal is to ensure that every delegate in the committee has acquired in-depth understanding of the topic and is more than ready to debate and encourage the implementation of solutions to complex issues, always in adherence with your country's policy. This document will assist you in gaining a deep understanding of the topic but should not be your only source of information.

If any query arises, please do not hesitate to contact me at: angelvog26@hotmail.com

Looking forward to meeting you all,

Kindest Regards,
Angelica Vogiatzoglou

TOPIC INTRODUCTION

The 21st century is being bombarded by the rapid technological advancements. Groundbreaking disruptive innovations have taken place which promise to change our everyday life and will have a huge impact on the socioeconomic environment. According to World Economic Forum, by 2022, an estimated 60% of global GDP will be digitized, yet a minority of people believes technology will make their lives better.[1]

Artificial Intelligence (AI) and Robotics are relatively new and promising technologies which aim at simplifying our everyday life tasks but will provoke many changes in the workforce and will thus have a huge impact in the social and financial stability of the world. AI and Robotics have many applications, but they also raise some ethical questions. AI refers to the ability of machines to learn from past experiences, generalize, adjust and perform human-life tasks.

Due to the fact that AI is a new technology, it is an emotive question to ask what effect AI will have on the workforce. It is a highly controversial issue and both positive and negative effects of AI on employment exist. It is widely believed that AI will cause unemployment but, at the same time, it will also create new jobs. The fact of whether AI will provide us with high-skilled training and education or inequality in the job market is also still a heatedly debated issue. In order for the negative impact of this technology to be avoided and eliminated, certain feasible solutions need to be found by the international community.

DEFINITION OF KEY TERMS

Artificial Intelligence (AI)

AI can be defined as "The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages"[2].

Machines and Robots in the past used to conduct dull and routine work. Now, robots can be found everywhere and specifically after the development of AI, they have adopted multiple intellectual qualities and are able to socialize, develop understanding, logic, problem solving and demonstrate human intelligence and emulate advanced reasoning abilities.

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[1] "Digital Economy and Society." *TopLink*, World Economic Forum, toplink.weforum.org/knowledge/insight/a1Gb0000001SH21EAG/explore/summary.

2 "Artificial Intelligence | Definition of Artificial Intelligence in English by Oxford Dictionaries." Oxford Dictionaries | English, Oxford Dictionaries, en.oxforddictionaries.com/definition/artificial_intelligence.

Robot

David Schim from Korea Advanced Institute of Science and Technology (KAIST) mentioned that "AI is the brain and the robotics provide the body to interact with the physical work"[3]

A robot can be defined as: "A machine capable of carrying out a complex series of actions automatically, especially one programmable by a computer."[4]

Workforce

Workforce refers to "The people engaged in or available for work, either in a country or area or in a particular firm or industry"[5]

BACKGROUND INFORMATION

Historical landmarks of AI

Artificial Intelligence has quite an interesting history which officially started in 1956. Since the development of digital computers in the 1940s, it has been demonstrated that computers can carry out complex tasks utilizing algorithms by being programmed. In 1956, the first ever workshop on Artificial Intelligence was carried out and resulted in the coinage of the term. In the 1960s all scholars seemed very optimistic and undertook some development regarding the technology. The US Department of Defense appeared to be interested in such technologies and started training computers with basic reasoning systems. IBM's chess computer was the first successful AI program to beat the chess champion in 1997. In the 21st century, Artificial Intelligence has demonstrated critical advancement. The applications of Artificial Intelligence are various and their impacts multiple. Today, bots and virtual assistants like chatbot, Siri and Alexa, self-driving cars, quantum computing, computing systems for healthcare, manufacturing and robotic process automation are only some of the applications of AI.

Positive impact of AI & Robotics on the workforce

The implementation of AI and Robotics in the workforce can definitely have both economic and social positive impacts.

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[3] "Artificial Intelligence and Robotics." *TopLink*, World Economic Forum, toplink.weforum.org/knowledge/insight/a1Gb0000000pTDREA2/explore/summary.
[4] "Robot | Definition of Robot in English by Oxford Dictionaries." *Oxford Dictionaries | English*, Oxford Dictionaries, en.oxforddictionaries.com/definition/robot.
[5] "Workforce | Definition of Workforce in English by Oxford Dictionaries." *Oxford Dictionaries | English*, Oxford Dictionaries, en.oxforddictionaries.com/definition/workforce.

Economic impact

The utilization of robots and AI in the workplace carries advantages both for the employers and the employees. To start with, a plethora of robots is designed to perform routine manual and hard work for the industries. Automation robots for massive production in factories are a widely known phenomenon. This implementation is beneficiary for employers as well as workers. The use of production robots causes significant considerable saving for employers. As reported, the production of one working hour costs to the German automotive industry more than €40, whereas a working hour with production robots costs around €5.[6] Robots work constantly 24/7, are accurate and not prone to mistakes. Their performance is not influenced by any psychological or external factor. They can carry out difficult dangerous and routine jobs. Due to all the reasons mentioned above, robots demonstrate a highly efficient and standardized work. Potential human mistakes can be eliminated and transparency in the industry can be ensured. Thus, the industry will be benefited. The employees will be also benefitted. Their work will not be based on monotonous, manual and dangerous working conditions. The employees will be trained for more advanced and high-skilled jobs.

The aforementioned example not only does apply for automation robots but also for autonomous Artificial Intelligence systems in the service sector. The workers will not be required to perform back-office manual work. A certain AI algorithm system will collect and transfer data to the parties involved automatically and solve potential clients' problems. Hence, no workers will be required to manually enter information into databases.

Some examples of system algorithms and robots embedded in the workforce which aim to have a positive economic effect exist. Firstly, some robots can be used in medical diagnosis. Their highly accurate systems including cameras can reliably diagnose potential healthcare issues. This will eliminate the potential human mistake of doctors and replace the time-consuming and expensive doctor visits. However, some potential ethical questions may be raised after such implementations.

Figure 1: **Robot used as a doctor's assistant, source: "Robot Passes a Medical Licensing Exam for the First Time Ever."** *The New Stack*, **7 Dec. 2017, thenewstack.io/robot-passes-medical-licensing-exam-first-time-ever/**

Jobs in demand

It is reported that after AI systems and robotics are massively adopted in the workforce, new job opportunities will be created. The following are examples of job categories which are predicted to experience direct AI-driven growth in the future:

Engagement Jobs

Engagement jobs refer to occupations in which humans will actively need to engage with a robotic system in order for it to operate and for conclusions to be met. Such AI systems promise to increase humans' productivity instead of replacing them. Thus the demand in workforce will most probably be expanded. For instance, IBM's Watson AI technology could perform early diagnosis of cancer and other illnesses but only with the help of doctors communicating with patients and treating them in the correct way.

Development Jobs

Development jobs are also reported to be created after massive use of AI technology takes place. The category of development jobs includes high-skilled software developers, engineers and data scientists. These occupations are highly crucial due to the fact that they design, program, train and coordinate robots and AI systems in their initial stages. Apart from engineers and computer scientists, development jobs could also include philosophers, sociologists and legal specialists who will investigate and analyze the ethical questions and concerns that the implementation of AI raises. New AI technologies and applications will then take place to encounter ethical and social dilemmas.

Supervision Jobs

Supervision jobs category includes occupations regarding monitoring, licensing and repair of AI technologies. Human judgment is of great value in order to ensure the good quality of the technology and that it is in accordance with its original intended uses. Due to the fact that multiple applications of AI are relatively new, their constant repair and maintenance by technicians and engineers is necessary. Real-time supervision jobs conducted by humans are particularly useful when AI systems encounter ethical and moral issues.

Figure 2: Self- driving car, source: Leventhal, Jamie. "In a Crash, Should Self-Driving Cars Save Passengers or Pedestrians? 2 Million People Weigh In." *PBS*, Public Broadcasting Service, 24 Oct. 2018, www.pbs.org/newshour/science/in-a-crash-should-self-driving-cars-save-passengers-or-pedestrians-2-million-people-weigh-in.

In high-stakes cases, human social and emotional intelligence, which robots lack, is required. Such occupations could be performed through online moderations and recommendations of the choices of AI made by humans. For instance, self driving cars are groundbreaking AI implementations which definitely need human supervision so that safety could be guaranteed. Human registration and testing is required in order for quality in the roads, moral choices in high-stakes cases and repair to be ensured.

Response to paradigm shifts Jobs

This job category includes all occupations which will be created due to the disruptive effect of new technologies. In other words, groundbreaking technologies, such as AI and its applications, will significantly reshape multiple fields. Therefore, job opportunities for people who respond to these changes will be created. For instance, the massive use of automated vehicles (AVs) may cause crucial shifts in traffic law and urban planning. Paradigm shifts may also occur in fields such as cyber security. Thus, the job market will be expanded because of the fact that lawyers, urban planners and architects as well as computer scientists will be required.

Negative impact of AI & Robotics on workforce

The massive implementation of AI and robotics in the workforce surely carries some disadvantages. The automated robots and AI system algorithms are predicted to replace and eliminate jobs and provoke inequality in the job market.

Elimination of jobs

According to a study conducted by Oxford University in 2013, "AI applications could replace up to the half of US workforce within a decade or two"[7].

Routine occupations both manual and cognitive along with simple physical work are the ones which will be primarily influenced by the massive adoption of AI in the workforce. Receptionists and information clerks, paralegals and legal assistants, personal financial advisers and accountants are routine cognitive jobs which will be most likely replaced by AI software in the future. Security guards, production robots in factories and fast food cooks are some of the human physical routine jobs predicted to be replaced by robots. Taxi drivers and chauffeurs jobs will also be eliminated due to the rapid development of automated vehicles and self-driving cars.

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[7] Peterson, Hayley. "The 12 Jobs Most at Risk of Being Replaced by Robots." *Business Insider*, Business Insider, 28 Mar. 2017, www.businessinsider.com/jobs-at-risk-of-being-replaced-by-robots-2017-3.
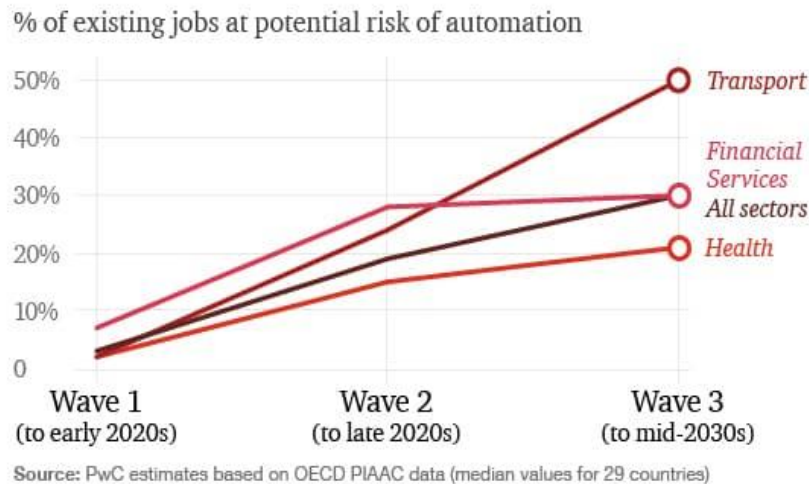
*Figure 3: Jobs at risk due to AI, source:
PricewaterhouseCoopers. "How Will Automation Impact Jobs?" PwC,
www.pwc.com/sk/en/publikacie/the-impact-of-automation-on-jobs.html.*

Inequality in the job market

Inequality in the job market may also be created as a consequence of the digitalization of many occupations and the automation of multiple simple jobs. People who used to perform manual, cognitive routine work or simple physical work will need to become high skilled, educated and trained to develop, engage or supervise AI systems. Not all workers will be given such an opportunity. Henceforth, many untrained vulnerable workers who might lose their jobs may constitute a regular phenomenon. This will cause social exclusion and if correct training does not take place, critical social instability might be the case.

Ethical Concerns

It is crucial the fact that AI and Robotics applications have given rise to various ethical considerations, which are necessary to be solved. A serious ethical concern is that applications of AI and robotics could threaten human dignity. It is widely acknowledged that in case future robots developed empathy and emotion, they would constitute a threat to humanity. Moreover, nowadays some States have been investigating and considering the initiation of Robot rights. Robot rights refer to moral obligations and the humane treatment that humans should demonstrate towards robots.

Machine ethics and the use of AI for military purposes are ethical issues that need to be examined. These issues refer to the potential construction of machines which would deliberately cause damage and commit unlawful acts. Such robots should be closely observed and avoided. However, no strict legislation exists that would ban the use of robots for malicious purposes. Additionally, the ethical

question of surveillance v. privacy could be identified. Most AI applications gather huge amounts of information in order to achieve surveillance and security. However, how could it be ensured that the privacy of individuals is not harmed during this rapid gathering of data? Multiple ethical issues regarding this breakthrough technology could be identified. They should be solved in order to guarantee the undeniable advantageous use of AI.

MAJOR COUNTRIES AND ORGANISATIONS INVOLVED

China

China published a plan in July 2017 called "*A Next Generation Artificial Intelligence Development Plan*"[8] outlining its actions and aiming at leading innovation in the Artificial Intelligence sector. They also aim at recruiting the best AI scientists and carrying out comprehensible strategies towards technological supremacy. On December a three year action plan was also published.

United States of America (USA)

Despite the fact that the USA has not adopted a national policy regarding AI yet, their involvement in the technological sector is huge. Certain reports and research has been carried out in order to further investigate the impact of AI on the workforce, increase its benefits and decrease the costs.

Russian Federation

Russia has not shaped a formal government policy and national strategy yet. However it has conducted extensive research and experiments in the sector of AI and wishes to soon adopt in the system. People often quote Putin's famous statement concerning AI: "whoever becomes the leader in this sphere will become the ruler of the world".

European Union (EU)

The European Union has adopted a certain strategy towards the implementation of AI. In April 2018 the "Communication Artificial Intelligence"[9] document was voted upon which refers to the EU's approach towards AI. EU is willing to increase its industrial and technological capacity, prepare for socioeconomic change and outline legal framework tackling ethical issues of AI.

[8] "China's New Generation of Artificial Intelligence Development Plan." *FLIA*, 31 July 2017, flia.org/notice-state-council-issuing-new-generation-artificial-intelligence-development-plan/.

9 Communication Artificial Intelligence. European Commission, Communication Artificial Intelligence, ec.europa.eu/newsroom/dae/document.cfm?doc_id=51625.

TIMELINE OF EVENTS

Date	Description of event
1956	Artificial Intelligence was born and the term is coined and refers to the "the science and engineering of making intelligent machines"
1961	"Unimate", the first industrial robot is created and replaces humans in the assembly line.
1964	"Eliza" the first ever chatbot is invented by MIT which holds communications with humans.
1977	Japan's Tsukuba Mechanical Engineering Laboratory developed the first automated vehicle.
1989	Deep Thought Program becomes the first computer to defeat a chess master player David Levy
1992	After spending considerable resources for research and development, Japan's Fifth Generation Computer Systems project is abandoned
1997	"Deep Blue" IBM's chess computer defeats the chess champion Garry Kasparov
2011	Apple integrates Siri, the virtual assistant using voice communication
2014	Amazon launches Alexa, a smart virtual assistant with voice interface
2017	Waymo started testing and supervising self-driving cars without a driver

RELEVANT RESOLUTIONS, TREATIES AND EVENTS

Some events have taken place and agreements have been adopted in the past which ensure cooperation on Artificial Intellignece and ensure the fact that robots and systems are used for their original purpose and aim at solving ethical concerns.

Firstly, the United Nations Interregional Crime and Justice Research Institute (UNICRI) launched on 2015 its program on AI. In the 71st session of the General Assembly (GA) it was announced that this organ of the UN has created a Center for Artificial Intelligence and Robotics.

Furthermore, on February 2017 a workshop was conducted by the University of Cambridge in cooperation with the United Nations referring to the opportunities and threats that AI poses to the contemporary world.

The European Union has signed a Declaration of Cooperation on Artificial Intelligence (AI) which points out that all member states will cooperate, prepare socioeconomically, solve any social, educational and ethical issue the implementation of AI will cause and expand their technological and industrial capacity preparing for potential AI advancements and applications.

 "AI for Good Global Summit" was organized by the UN specialized agent International Telecommunication Union in 2017 and 2018 and focused on how AI will contribute in achieving the UN Sustainable Goals and underlined its benefits.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Artificial Intelligence is a disruptive new technology which will provoke changes in our everyday life. Certain actions have taken place in order to maximize AI benefits and limit its disadvantages.

In order for some ethical matters to be solved, certain legislation and framework has been adopted in order to ensure cooperation. For example, the Civil Law Rules on Robotics proposed by the European Parliament has been a great initiative to guarantee privacy, security and cooperation in this digital era.

Furthermore, it is advantageous the fact that education initiatives have been taken place and citizens are trained in order to become digital citizens. For example, the United Kingdom has added coding in the national curriculum and many other countries have been organizing seminars about new technologies and the impact they will have on the workforce.

Additionally, various policies and strategy plans have been formed by Member States aiming at maximizing AI's benefits on the workforce and minimizing its disadvantages. Preparedness, gradual research and development and provision of capacity are actions already deployed by some nations. Most countries rely on AI's potential and have funded research and investment in such applications. Some countries have started training workers and youth for the jobs of the future and ensure that they have obtained broad technological knowledge. Countries have been launching pilot projects as well as proposed liability and safety frameworks.

AI is a principal part of technological development. Policies and measures provided could influence technological development and contribute in its most beneficial use. As stated, certain actions have taken place. However, multiple others are necessary for the most advantageous development of AI.

POSSIBLE SOLUTIONS

Artificial intelligence and robotics is a newly developed sector and due to the fact that it carries both significant advantages and disadvantages for the contemporary world feasible solutions need to be found.

To start with, no UN Convention which covers ethical questions about AI and its relation to humans exist. Thus delegates could propose the council to ask for a potential UN convention to be created, which will point out the fact that all robots will be used as originally intended and there will not be any effort to construct robots which will harm the human physical health.

Moreover, the council should definitely adopt regulations which will focus on implementing shared growth across communities. The benefits of AI & Robotics should be equally shared among communities, so that inequality in the technological sector is prevented.

Additionally, AI is a topic which requires the raising of awareness about its potential to all member states. Both the threats and opportunities of AI should be outlined so that people are informed about new technologies and wish to make a good use of them.

Furthermore, one of the most important solutions to the topic of AI and robotics embedded in the workforce is the enforcement of digital education. Education to be a digital citizen should be encouraged so that any inequalities in the job market are encountered. Citizens should be prepared for jobs of the future, in order to avoid vulnerable and untrained cases of workers and provoke an easier AI adoption. Apart from education, in order to fight social inequality, workers could be aided during their transition in this era when technology has taken over society and the job market will be hugely influenced.

Last but definitely not least, AI and robotics is a highly promising sector of technological and socioeconomic development. Its benefits should be maximized in the best possible way and the threats it may pose in the job market eliminated. Henceforth, constant investment in Research and Development strategies should be encouraged so that efforts to detect the opportunities and threats of this technology are made easier.

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