**Issue:** Addressing the problems and possibilities of Artificial Intelligence in the future
**Forum:** Group of Twenty Summit
**Position:** Deputy Chair
**Name:** Elene Amiranashvili

# Introduction

Technology has developed drastically over the past two decades reaching a new level when the term artificial intelligence was first coined by John McCarthy in the 1950s. The first prototype of Artificial Intelligence to resemble that of today's was invented by Frank Rosenblatt in 1957. The Perceptron, Rosenblatt's invention, allowed for distinguishing of patterns through a computer learning network. Then in 1965, a software program that could conduct a dialogue in English regarding any topic was created by Joseph Weizenbaum which started the development of Artificial Intelligence in modern society.

However, Artificial Intelligence has not reached its full potential. To predict how AI will play into the future of technology is difficult to anticipate as AI can have various different outcomes. As this technology continues to develop the imminent risks and conveniences must be taken into consideration when acknowledging AI in fields such as healthcare, education, privacy and cybersecurity, sustainability and job markets.

# Definition of Key Terms

### Artificial Intelligence

Artificial Intelligence (AI) is a theory of computer systems that are developed and able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision making and translating between languages.

### Industrialization

Industrialization is the widespread development of industries within a region or country. Industrialization tends to have a positive effect on a nation's economy.

### Sustainability

The ability to be maintained at a certain level or rate.

**Ethics**

Ethics is based on moral principles that govern a person's behavior or the conducting of an activity. Moral principles are usually determined individually by oneself, but these tend to fit within societal guidelines.

**Algorithm**

A process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.

**Development**

An event symbolizing a new stage in a changing situation or the changes a situation for the better.

## General Overview

To fully understand the problems and possibilities Artificial Intelligence can bring to the future of technology and how it could impact our society one must fully grasp what AI entails. As Artificial Intelligence is still an up and coming technology there is no exact definition, but it is generally a software used in science, technology, engineering and math (STEM) which is meant to imitate human brain power. Some of the main tasks AI is used for are pattern-finding, image and voice recognition, as well as interpretation of language.

Most of the ideas behind the concept of artificial intelligence aren't anything new, in fact, some even date back to the 70s. However, a few main developments in modern technology have facilitated the broadening of AI's reach. The first development is an upgrade in computing power. In the last few years, computing power has been on a steady upward streak, allowing for more tasks to be in the range of software capabilities. Secondly, there has been a huge surge in the amount of data shared online in the last few years especially due to the increased popularity of social media networks. From photographs to traffic data, our world has become increasingly digitized within all sectors and levels of society and the market. This leads us to the third and final development leading to the spread of artificial technology, the creation of algorithms to handle the new data that has become available. Many tech companies have spent more and more time and resources looking at the progression of machine learning, in order to further enhance these algorithms to cope with the demand for new markets.

## The impact Artificial Intelligence has on the world

Since the popularity of artificial intelligence has been on the rise, this technology has begun to affect many different aspects of modern society. Some of these include: healthcare, education (ex. online courses changing how we learn new information), privacy and cybersecurity (collection of online data poses a real threat to privacy and identity on the internet), sustainability, and environmental management (one possible pro is its efficiency in the field of sustainability).

According to the World Economic and Social Survey of 2018 conducted by the UN Department of Economic and Social Affairs, artificial intelligence has an incredible potential to improve health care. Firstly, this technology (along with other systems) can help to calculate and manage the risks involved in specific treatments and policies in order to make them more effective. Along with this, its algorithms can allow the World Health Organization (WHO) to respond appropriately to the possible emergencies and outbreaks by "facilitating better prediction, scenario modelling, resilience hardening, and response planning." Another possible benefit of AI in healthcare is the improvement of record-keeping in hospitals, which currently consumes more than 50% of a physician's time according to a US-based survey. On a smaller scale, algorithms to analyze different images and medical scans can help detect "skin malignancies, breast cancer, pneumonia and other diseases;" hence, saving thousands of lives around the world. By using AI in the aforementioned ways not only would it save time for the doctors to take care of patients that cannot be helped by AI technology, but it will also allow for a smaller error margin.

In recent years, the environment in schools has become increasingly reliant on technology, especially with the development of tools like SMART boards. Many classes have also shifted their focuses to become centered around innovation and engineering, and computers classes are increasingly focused on artificial intelligence and robotics. Also, cheap bandwidth has fostered the availability of different online learning platforms and software programs such as Quizlet and Khan Academy ultimately changing learning in general. However, the way we learn is not the only educational factor that has been influenced by Artificial Intelligence. Since these machines can easily complete routine jobs without much effort, humans are left to complete tasks that involve interpersonal intelligence, creativity, and critical thinking. For this reason, the focus of most schools' curriculums will shift from mathematics and reading to more intellectual and personal skills that will allow cooperation with machines in the workforce. Curriculum such as the International Baccalaureate focus heavily on academics yet put an increasing amount of pressure on critical thinking, empathy and communication which involves personal

opinions and interactions between humans, and this cannot be taught by an Artificial Intelligence program.

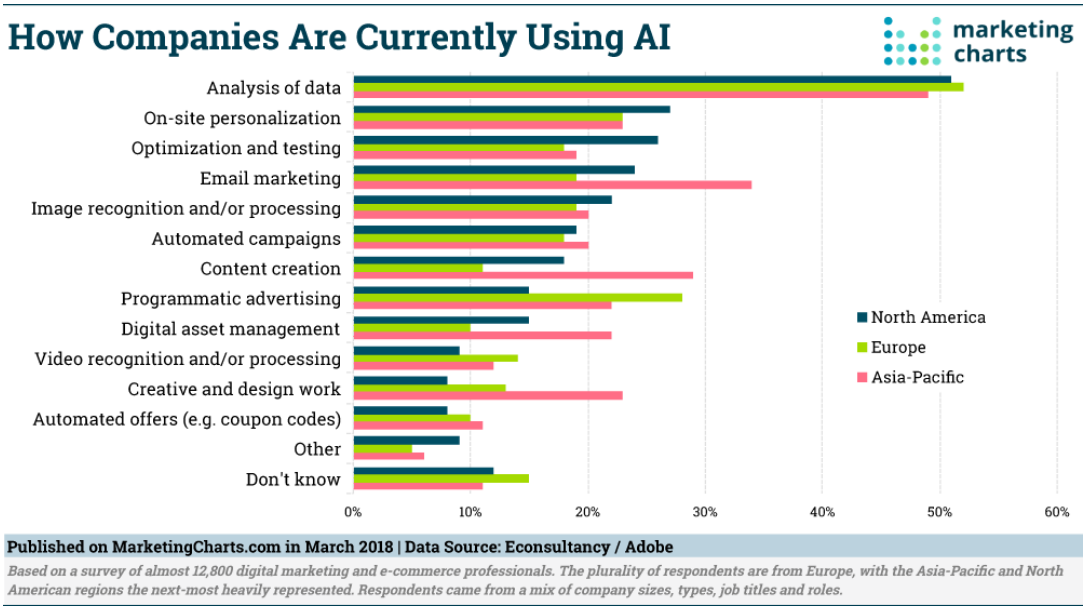


Image 1: How companies are currently using AI in the corporate world.

https://www.marketingcharts.com/customer-centric/analytics-automated-and-martech-82540

Since Artificial Intelligence machines are specially programmed with algorithms for repetitive and routine tasks, they are especially good at analyzing information and reading databases. Due to this, Artificially Intelligent machines can become a great addition to efficiency in the field of sustainability and environmental management, as well as a large portion of research and scientific development." Also, these robots are being crafted to become more and more eco-friendly in regard to the usage of energy, meaning that they can perform specific jobs without requiring excess energy, thus taking away from its carbon footprint. Technology generally leaves a large carbon footprint as a lot of energy is put into making and then using such technologies, when companies do not consider energy consumption and energy emission this leaves a large negative impact on the increasing problem of Global Warming and the future state of the Earth.

One very important consequence of technological development in the field of Artificial Intelligence is how it undermines other development objectives within the United Nations' agenda. Even though robots driven by AI significantly minimize the need for manual labour and routine while improving output, they also have the potential to replace workers in their jobs. This in turn hinders the process of achieving social equality, a part of Sustainable Development Goal 10. Computer-generated labour is also often cheaper than humans, which is another reason why it replaces many people in their jobs. Experts have a legitimate concern that unlike other technological revolutions that have

happened all throughout history, Artificially Intelligent technology has the ability to replace human labour at a higher rate than we can adapt and catch up. Then the question may arise whether or not it is ethically sound to place thousand and millions out of work to be replaced by cheaper robots.

In this day and age, social media and similar types of online platforms have become an inevitable feature in our modern society. This software, run almost exclusively on algorithms, has many benefits such as bringing different people together in virtual communities and spreading important information about positive initiatives, sustainable practices, educational opportunities, and charities in a user's local area. This way, sustainable goods and services are advertised and absorbed into the range of consumer choices. However, this system can be abused and weaponized, thereby enabling the spread of misinformation, as well as influence political procedures and undermine the government. Essentially, these social media algorithms are meant to pitch ideas to specific people, but because these machines lack the ability to think critically, there is no evaluation of the ideas being pitched (Hodes).

## Current applications

To understand how this new technology will affect the future it is important to understand how it is already affecting our daily lives today. Considering that AI is a relatively new technology not close to reaching its fullest potential this technology has

already spread to various different hidden uses within our society today. Examples of Artificial Intelligence in daily life are:

- Translators (Google Translate)
- Digital Assistance (Siri, Alexa)
- Manufacturing (creating goods used day-to-day)
- Navigation Software (Google Maps)
- Self-Driving cars (Park assist, Tesla)

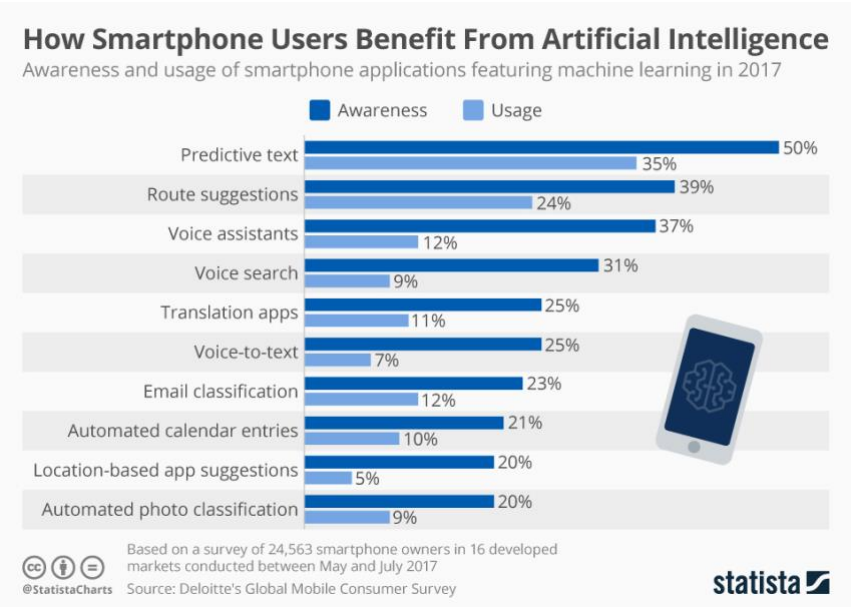


Diagram 2: portraying how Artificial Intelligence is used in smart phones

https://www.statista.com/chart/12463/usage-and-awareness-of-ai-applications-on-smartphones/

## Major Parties Involved

### United States of America (USA)

In 2018 McKinsey Global Institute published a report in late September showing that the US is ahead in terms of Artificial Intelligence software research. According to a similar study done in 2016, 66% of 'external investment, including venture capital, private equity, and mergers and acquisitions' was accounted by the US (Singhe, 2018). In addition, the US is the top country regarding the large amount of companies that invest

and publish research regarding Artificial Intelligence, these companies include IBM, Amazon, Facebook, Microsoft, Google and Tesla.

### Japan

The island nation of Japan is very involved with AI, Japan has according to the Times Higher Education rankings published 12 thousand papers on the issue. AI is and must play a crucial role in the economy's growth in the future as there is a large increase in retirees and decrease in workforce.55.7% of current work activities could be done by machines especially in sectors such as manufacturing, office and administration claims Harvard Business Review.

### China

China is one of the world's climbing AI superpowers. A total of 41 thousand reports were published within China between 2011 and 2015, China published twice as many reports on the issue as the United States of America. The Chinese government is also open to the integration of AI within the Chinese society. By 2030 China hopes to become a 'principal world center of artificial intelligence innovation' as they announced in 2017. Chinese investments made up 17% of investments into the AI industry through companies such as Alibaba, Baidu and Tencent (Singhe, 2018).

### United Arab Emirates (UAE)

The United Arab Emirates has been taking large steps into the future of Artificial Intelligence, one of the steps the UAE has taken was appointing a State Minister, Omar bin Sultan Al Olama, who boldly stated that the UAE will be 'the capital of AI in service and government,' (D'Cunha, 2018). The government has also implemented a Strategy for Artificial Intelligence which covers a variety of areas including: development and application in transport, health, space, renewable energy, technology and education. Additionally, the UAE has launched a $279 million Dubai Future Endowment Fund to meet the growing needs of organizations and companies in regard to AI.

### Saudi Arabia

Saudi Arabia another MIddle Eastern nation has shown interest in Artificial Intelligence. On October 25, 2017 Saudi Arabia was the first country to grant citizenship to a robot (Sophia). According to the World Economic Forum's Future of Jobs analysis, implementation of AI would help expand the nation's economic activities and manufacturing base, which means that by 2030, artificial intelligence could contribute about 13% of the GDP. This push towards machine technology is supported by the public opinion as a study found that around 66% would be willing to have doctors as robots, which is a higher percentage than in Europe or Africa.

**United Nations Interregional Crime and Justice Research Center (UNICRI)**

In 2015, when UNICRI launched its AI and Robotics program they initiated their launch into the discussion regarding Artificial Intelligence. Fundamentally, the organization believes that "it will be possible to progress discussion on robotics and artificial intelligence governance" by informing stakeholders, especially those involved with public policy- making through expert information. Also, during the UN General Assembly 71st session, the organization president, Cindy J. Smith, announced that the UNICRI was undergoing the process of opening the first AI and robotics center below UN supervision. She clarified the purpose of this by saying "The aim of the center is to enhance understanding of the risk-benefit duality of Artificial Intelligence and Robotics through improved coordination, knowledge collection and dissemination, awareness-raising and outreach activities."

## Timeline of Key Events

| Date | Description of event |
|---|---|
| 1952 | Audrey, the first speech-recognition software is introduced by Bell Laboratories. |
| 1954 | Scientists from Georgetown University and IBM developed an |

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| | early version of a translation machine that could convert over sentences Russian to English. | 60 |
| 1962 | The first industrial robot, Unimate, was introduced at General Motors. | |
| 1969 | The first robot, Shakey, that could make its autonomous decisions based on information from its surroundings. | |
| 2002 | The first robot, an autonomous vacuum, meant for the home was piloted and considered commercially successful. | |
| 2005 | Artificially-intelligent robots introduced to the military in the United States. | |
| 2014 | Tesla uses radar for all autonomous cars | |

## Previous attempts to resolve the issue

Disregarding the modernity of Artificial Intelligence there has already been a lot of involvement by the United Nations regarding the up and coming technology. An example of how the UN is focusing on the developments of AI is that a branch of the UN opened in The Hague titled UNICRI Centre for Artificial Intelligence and Robotics. This organization enlists experts of Artificial Intelligence in order to reinforce understanding and build consensus between those involved on all scales.

There have also been other actions taken by the UN and other organizations. For example, the UN International Telecommunications Unit, along with the XPRIZE Foundation, hosted the AI for Good Global Summit in June of 2017. This brought experts along with academics and humanitarians to the city of Geneva to discuss how Artificial Intelligence will affect our future. This conference provided a platform to debate the

ethical, industrial, and general societal concern surrounding the subject, as to make sure that this technology "benefits all of humanity." (AI for Good Global Summit, 2018).

A further example of a discussion-based step was the Roundtable in Paris which was organized by UNESCO in September 2018. Several moderators and speakers attended this conference to discuss and assess the risks and benefits of new advances in Artificial Intelligence. Inequality and Human Rights were specific areas that were kept in mind when assessing these risks.

## Possible Solutions

There is obviously a lot of risks surrounding Artificial Intelligence and the implementation of such a technology the most effective solution to the fear surrounding AI is to embrace the change it would bring. Our education systems could change to promote interpersonal skills and prepare new generations for jobs that are not just a collection of simple tasks that are easily computable, and instead focus on fostering cooperation between humans and technology. If the workforce shifted from low to high skill jobs, there would be no risk of robots replacing humans, since the jobs would become harder to codify. Through this, the opportunity for new jobs that haven't been created also arises.

Another solution relies on the development of a sustainable framework to manage the new technology and its future development. Frameworks could be set up on both national or international levels to form checks and balances in order to better monitor Artificial Intelligence. This solution would signify the importance of cooperation on an international scale if an international framework would be set up between the private sector and the government in a national approach. For this framework to be enforced there would need to be new laws created that would have legal implications on limiting or enhancing how AI machines effect societies and the economy.

The continuing development of technology will only further enhance in the future. Worldwide economies tend to thrive off of new technology, this is due to the changes in the supply and demand ratios that regulate the flow of the market. Since AI is

still in its early stages of development therefore no one knows what new products it could introduce to the markets and the possible employment opportunities it could create. This would largely benefit the economy if its progress is carefully regulated. Careful regulation plays a vital factor because otherwise one cannot see whether or not it is truly benefiting or negatively impacting the economy.

The largest problem regarding newly developed technology often finds to be the funding needed to fully investigate and develop new designs. Sustainable Development Goal 8 which states 'Decent Work and Economic Growth' essentially yearns for new technology and its development to be integrated into a globalizing world as the progress of technology must be shared. Without the integration of new technology into our current societies the majority cannot benefit from this technology. However, Sustainable Development Goal 9 discusses the importance of technology in future developments by stating "without technology and innovation, industrialization will not happen, and without industrialization, development will not happen." This is why it is vital to invest

in the development of new technologies that can essentially shape our production efficiency benefiting societies in the form of development. (Hodes)

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