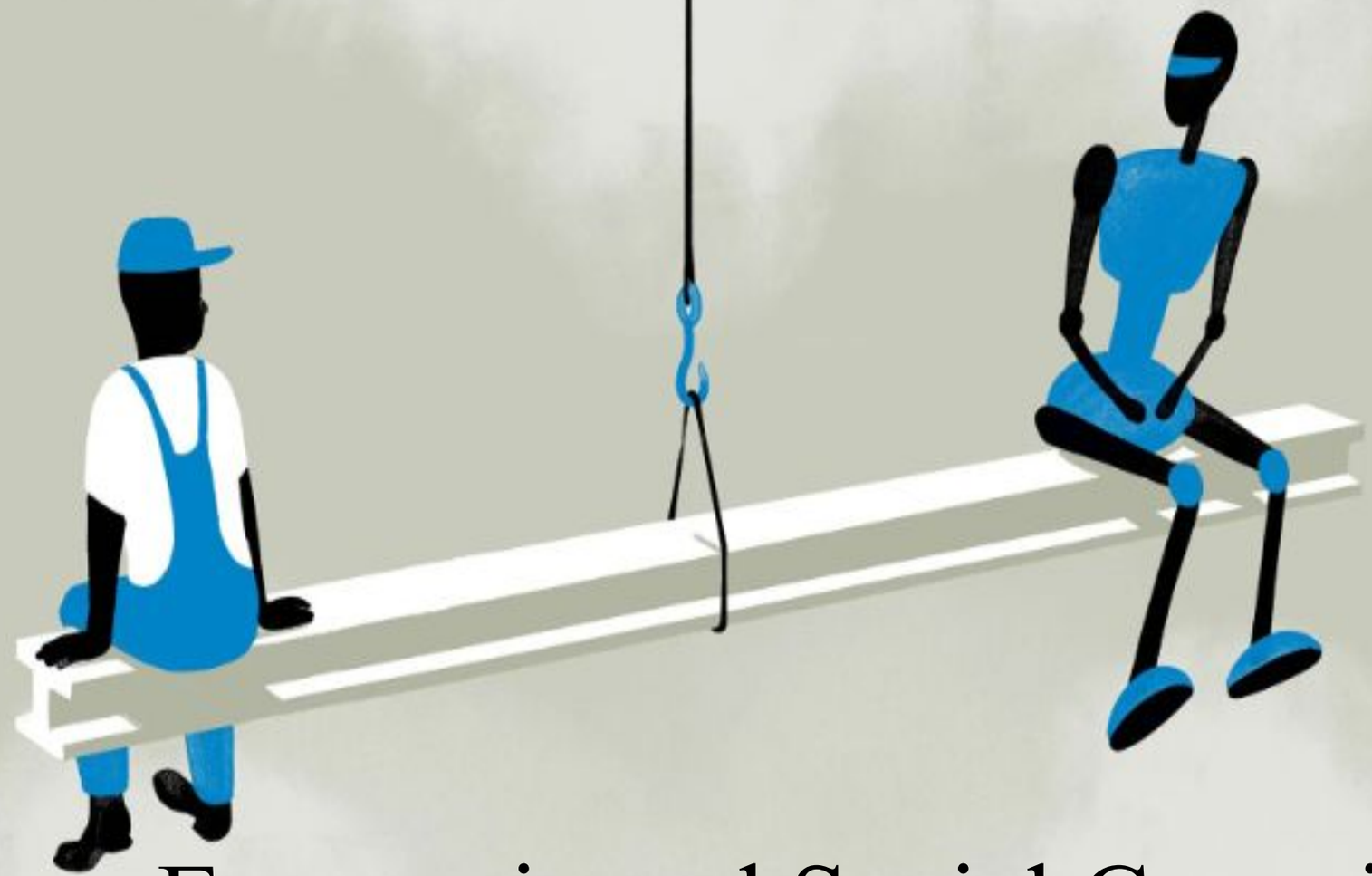


Economic and Social Council

Countering unemployment caused by automation

Layla Zemmouri

NOTRE-DAME DU GRANDCHAMP

Forum: Economic and social council
Issue: Countering unemployment caused by automation
By: Layla Zemmouri
Position: Secretary General

Introduction

1965, philosophy professor Hubert Dreyfus, a staunch critic of artificial intelligence, boldly claimed that a machine would never beat a human at the game of chess. It would only be two years before the sceptical scholar was himself checkmated by an MIT-developed computer.

By 1997 machines were advanced enough to defeat one of the greatest chess minds of his time – Garry Kasparov. In 2015, our species' finest player of the very intuitive and "human" game of Go repeatedly conceded to Google's computer.

With the rapid technological advancement of recent years, computers are increasingly encroaching on domains that were previously considered exclusively human. The astonishing progress in such areas as artificial intelligence (AI), robotics, 3D printing and genetics has enabled computers to perform the tasks of architects, medical doctors, music composers and even a 16th century Dutch master of painting.

It is easy to see why new technologies are increasingly viewed as a major threat to labour markets. Some estimates even claim that a staggering 80 per cent of jobs run the risk of being automated in the coming decades.

A new report by UN DESA's Development Policy and Analysis Division (DPAD) finds some of these calculations unrealistic. Drawing from historical lessons of past industrial revolutions and from a wealth of current research, the study offers several reasons why our planet is not on track to becoming a robot's world just yet.

First off, artificial intelligence, 3D printers and other innovations are generally designed to excel at a very specific set of tasks. They will rarely be able to substitute an entire occupation, which, in most cases, requires much more versatility and adaptability.

Secondly, new technologies not only destroy, but also create jobs. "Throughout history, technological innovations have enhanced the productivity of workers and created new products and markets, thereby generating new jobs in the economy. This will be no different for AI, 3D printing and robotics," says the report.

Thirdly, just because it is technically feasible to substitute an entire profession with computers, does not mean it will happen. Various economic, legal, regulatory and socio-political factors will prevent many occupations from disappearing. A recent study found that by 2016, only one out of 270 occupations listed in the 1950 US census had been eliminated by automation – that of an elevator operator.

In many cases, people will continue to do the work more cheaply than machines. In others, we will have to make tough legal and political choices. For example, who should be held responsible for a medical AI's wrong diagnosis – the system's manufacturer, the programmer or the doctor?

New technologies are contributing to increasing inequalities – both between different groups of workers and between labour and firm owners. While they do not cause widespread loss of jobs, they do change the demand for certain skills and contribute to a shift towards more flexible but precarious "contingent work" arrangements.

Technology is one of the reasons behind the growing disparities within the workforce in many countries, with middle-wage earners losing ground. Internationally, the lack of access to new technologies in least developed countries and the rapid gains by manufacturing powerhouses threaten to increase inequalities between countries even further.

If left unchecked, disruptions caused by advanced technologies will have devastating consequences. This is enough reason for policymakers to look closely at technological progress: what it means for their countries and how best to intervene.

Key differences between automation and artificial intelligence

Types of automation and AI		What they can do	
Robotic process automation		Repetitive; Rules-based work.	
Artificial Intelligence (AI)	Applied AI	Judgement-based processing	"Thinking"
	General AI, machine-learning		"Learning"; improves over time. Example: natural language processing to understand human communication.
	Synthetic, computer-based ("runaway") AI	Decision-making; learning; doing; independent creation and improvement of AI without a need for human intervention.	

Source: Division for Sustainable Development, UN/DESA.
Note: All the technologies listed in the table can be either physical or virtual.

Key Terms

MEDCs - More economically developed countries

A more economically developed country is generally a well industrialized nation with a high income and standard of living. The country's government is typically wealthy, with a high GDP - gross domestic product and growth per capita. Some examples of more economically developed countries are The Netherlands, The United States, Germany and Sweden.

LEDCs - Less Economically developed countries

A less economically developed country is generally not as industrialized as a nation and has a lower income and standard of living. The country's government is typically less wealthy, with a low GDP - gross domestic product and growth per capita. However, this is not always the case, as the UN has not updated the terms for developing or developed nations and there are no partitions within the LEDCs to define how developed the nation is. Some examples of less economically developed countries are Sudan, Afghanistan and Kenya. And some examples of Less economically developed countries that do not match all indicators are, India and China.

Structural change

Structural change is a reference to a dramatic shift or change in the way a market, country, or industry operates. This is usually put in place via huge economic developments such as advancement of technology, Artificial intelligence and “cashierless stores”.

Automation

Automation is a wide range of technological projects that reduce and minimize human intervention. This decrease occurs through the predetermination of the decision criteria and subprocess relationships, which is embodied within machines. Some examples of automation are;

- Employee analytics
- Auto fill forms
- Online customer support
- Employee help desk support
- Hiring process

Employment

Employment generally refers to the state of having paid work in a structured manner. This could mean with a daily, weekly, monthly or yearly income or simply being paid to work in aid of someone or something else. Employment also leads to contribution of the nation's economy and requirement to pay taxes.

Unemployment

Unemployment is when one does not have a stable income from work. The term refers to individuals who are employable and actively looking for a job.

Labour work

Labour work usually regards work that does not involve or require any particular skill, but mostly activities involving physical exertion and effort. However, in recent definitions it can also define work including mental effort, such as that of a cashier. Labour work can be broken down into two sections, skilled and unskilled labour, in this forum unskilled labour is the main victim in terms of job loss due to automation.

General Overview

Details of the issue

“There certainly will be job disruption, because what’s going to happen is robots will be able to do everything better than us. ... I mean all of us,” said Elon Musk, speaking to the National Governors Association. It is now more than convenient to say that automation, assuredly, is taking over and replacing jobs that were previously done by a human. Jarvis - the robotic butler is already on duty at the Grand Hotels.

It has been estimated that 45 million Americans will lose their jobs due to advanced automation by 2030, which is almost one quarter of the workforce. This prediction is 6 million more than the one made in 2017 which means as time progresses the numbers will increasingly become more alarming. But now we must also look at it from a brighter perspective. While automation currently poses a threat to those with labour or low educational jobs, over time it's predicted that technology will create millions more jobs than it will replace. Just as in the past there were waves of panic due to mechanization or the industrial revolution, in retrospect it may be seen that it has improved our quality of life. Hence, with technological advancements taking place at an increasingly rapid rate, we must face the challenge of allowing it to continue unobstructed whilst keeping unemployment low.

History of unemployment due to Automation

Unemployment due to automation has been an issue since the very beginning of time, it started with the simple creation of tools and has evolved into entire artificial intelligence machines. But starting from a couple centuries ago, major shifts occurred.

In the 16th century, labour was manual up until the mechanization of production, which then evolved into textile machines. Hundreds of years later, during the industrial revolution, riots occurred due to unemployment caused by automation (i.e. luddites). The same happened in the car manufacturing industry during the 20th century which now is an entirely automated industry. The global pandemic has exacerbated the issue. People are worried of being overlooked by governments in a hurry to rebuild economies.

Job creation and job destruction

The main objective of introducing new workplace technology is to increase productivity. This is often achieved by substituting capital for labour, with new machines performing tasks that were previously carried out by humans. The tractor, the combine harvester, the forklift and desktop publishing software are prominent examples of labour-saving technologies. In general, new technologies substitute workers only in specific tasks, but do not necessarily eliminate entire occupations, for instance farm workers, warehousemen and typesetters. According to a recent study by Bessen (2016), only one out of the 270 occupations listed in the 1950 US Census had been eliminated by 2010 due to automation: the elevator operator.

Rather than eliminating occupations, technology changes how jobs are performed and the number of humans needed to carry them out. Through the introduction of new tools and techniques, technological progress at times alters the tasks an occupation requires. The role of bookkeepers, for example, has been rapidly changing with the use of computers and specialized software. Instead of mainly tracking and recording financial transactions, they increasingly serve as data managers and advisors for clients. Therefore, the automation witnessed over the past half century can be characterised as ‘partial automation’. Often the result is a reduction in the number of jobs in an occupation, as was the case for telephonists and telegraph operators in England and Wales.

The job-destroying effects of new workplace technology are counterbalanced by job creation effects. There are several channels through which technology helps create jobs. First, automation complements specific job tasks. This makes workers who perform these tasks become more productive and more valuable, potentially boosting demand for such labour. In recent decades, this effect has been reflected in the increased demand for workers that perform non-routine, cognitive tasks, particularly in knowledge-intensive industries.

According to Stewart et al. (2015), management consultants, business analysts and information technology managers have been among the fastest-growing occupations in England and Wales since the early 1990s. Second, technological innovations propel new industries and help develop new products, often meeting previously unfulfilled human needs and generating additional employment. Third, technological innovation and automation positively impact productivity, driving down costs and prices. This is likely to raise demand, thus increasing production and employment.18 Fourth, productivity gains lead to an overall increase in economic growth and income, thus creating higher demand for both new and existing products and services. For example, rising incomes have boosted expenditures on activities related to leisure, such as travel or dining, and on health care, generating more jobs in these industries. Many of the occupations that have seen particularly strong job growth in recent decades are non-tradeable service occupations that are not automatable—at least for now.

Just because a job could be eliminated, does not mean it will be eliminated. In many cases, where automation is technologically feasible, it may not be economically optimal. Firms will weigh the benefits of new automation technologies (for example a lower wage bill or higher productivity) against their costs. In terms of potential benefits, an important factor in a firm's decision-making process is the cost of labour. This partly explains why developing countries with abundant cheap labour have so far not been visibly affected by automation. The generally low level of wages in many developing countries, particularly in the service sector, will also help to stave off automation and job displacement going forward. There are also immense legal and regulatory issues that need to be addressed for automation technologies to have a more far-reaching impact. The most prominent example is driverless vehicles, where the liability for accidents is difficult to resolve. For AI to be deployed on a large scale in healthcare, it must be decided who will be responsible when something goes wrong. Finally, there are often powerful interest groups, including trade unions, that fight to protect some workers and industries against the negative effects of automation.

LDCs and the Technological Revolution

Source: Gay, Daniel. 2017. "LDCs and the Technological Revolution." Support Measures Portal for Least Developed Countries. www.un.org/ldcportal/ldcs-and-the-technological-revolution/

"When you're next driving the clogged streets of Kinshasa, Democratic Republic of Congo, don't be surprised if you run into an eight-foot high solar-powered traffic robot. Five locally-designed automatons stationed throughout the capital each do the job of four traffic lights. Fitted with camera eyes that monitor and record drivers, they play pre-recorded messages to pedestrians, letting them know when it's safe to cross the road.

The robocops are welcomed by local people – not only because they improve safety but because they never get tired and they don't take bribes. The next logical step, speculates the New York Times, would be to give them artificial intelligence and to transfer the technology to other jammed African streets (Okorafor 2016). Kinshasa's robots are proof that even the least developed countries (LDCs) are not immune from the so-called fourth industrial revolution. New technologies are affecting a range of economic activities.

Agriculture, where 60 per cent of LDC employees work, is the sector in which new technologies could have the greatest impact. Drones have the potential to scout crops and to reduce the work involved in seed planting and fertilization, raising yields. Automated irrigation systems can enhance precision and reduce manual labour. The genetic modification of seeds, although controversial, can increase disease-resilience, flood and drought resilience and thus increase yields.

It is not just agriculture: the biggest economic challenge confronting the world's 47 LDCs is the move from low to high-productivity activities, the process by which East Asian and developed countries industrialised through technological catch-up (UN Committee for Development Policy 2017). In recent decades, most LDCs have been excluded from this traditional route to development, experiencing a shrinkage of manufacturing and a rise in underemployment as people moved from the countryside to towns and took up semi-formal services jobs.

Additive or 3D manufacturing has the potential to address many of the problems of industrialisation in LDCs, namely isolation, distance from major markets and low economies of scale. Flexible manufacturing processes require lower investment than old, specialised machines. The absence of tooling costs reduces fixed outlays and facilitates small production runs.

Technological know-how, training and open-source designs can be found for free online. Even the cost of importing inputs may not be insurmountable. Some products can be 3D printed using recycled plastics rather than expensive foreign polymers. Yet the very labour-saving and productivity benefits of the robot revolution represent a threat to countries with abundant labour supply.

Just at a time when rising Chinese labour costs presented an opportunity for LDCs to industrialise by attracting low-wage manufacturing, some of those jobs are likely to be mechanised. As noted elsewhere in this report, China is the world's biggest market for industrial robots, while some previously outsourced jobs are beginning to be 'reshored' to developed countries. Even if LDCs stand to benefit from the productivity gains associated with the fourth industrial revolution, it is not productivity per se that they need; it is jobs.

Youth unemployment in LDCs is over 10 per cent on average, according to the World Bank, having gradually worsened since 1980. Informal or part-time work is much higher. These high rates of joblessness are not only undesirable in themselves but bring associated social problems and political instability. Lant Pritchett of Harvard University argues that tech entrepreneurs should not be aggravating the unemployment problem. The technological revolution is not an inevitable process, driven by market forces. "The technologies pioneered and developed in the US and Europe and Japan then blow back into poor countries," says Pritchett. "We cannot continue to ignore the obvious that technological progress is being driven in rich countries by distorted prices and availability of labour and is then inefficiently and uneconomically destroying jobs all over the world" (Pritchett 2017).

Many LDCs do not yet possess the required skills, energy infrastructure, broadband or transport networks to take advantage of the new production techniques. Investment rates in LDCs remain lower on average than in developing countries—and below the rate required to spark structural transformation. Just as in previous waves of technological advance, in the absence of policies to mitigate the negative impact from rapid technological change, many peripheral nations will miss out.

Not many LDCs are at a point where a robot, with its significant electricity and maintenance costs, will replace a traffic policeman on a few dollars a month. Many potential workers are waiting to take those jobs. Ultimately it may be the very defining characteristics of LDCs which insulate them from the full impact of the fourth industrial revolution for good or ill: their cheap wages, lack of infrastructure and weak human resources. Governments in LDCs and international agencies are challenged by the need to support net job creation and to simultaneously promote the adoption of new technology to improve health and a safe environment."

The impact of the development of new forms of AI i.e. ChatGPT

2022 has seen the emergence of ChatGPT, a revolutionary tool that provides direct, single-query responses and is free to the public, rendering Artificial Intelligence much more accessible to all and opening up the doors for its commercialisation.

Chatbots and artificial intelligence tools like ChatGPT can almost instantly produce increasingly sophisticated written content and are already being used to perform a variety of tasks, from holding a conversation to writing high school assignments and even generating legal documents and even authoring legislation.

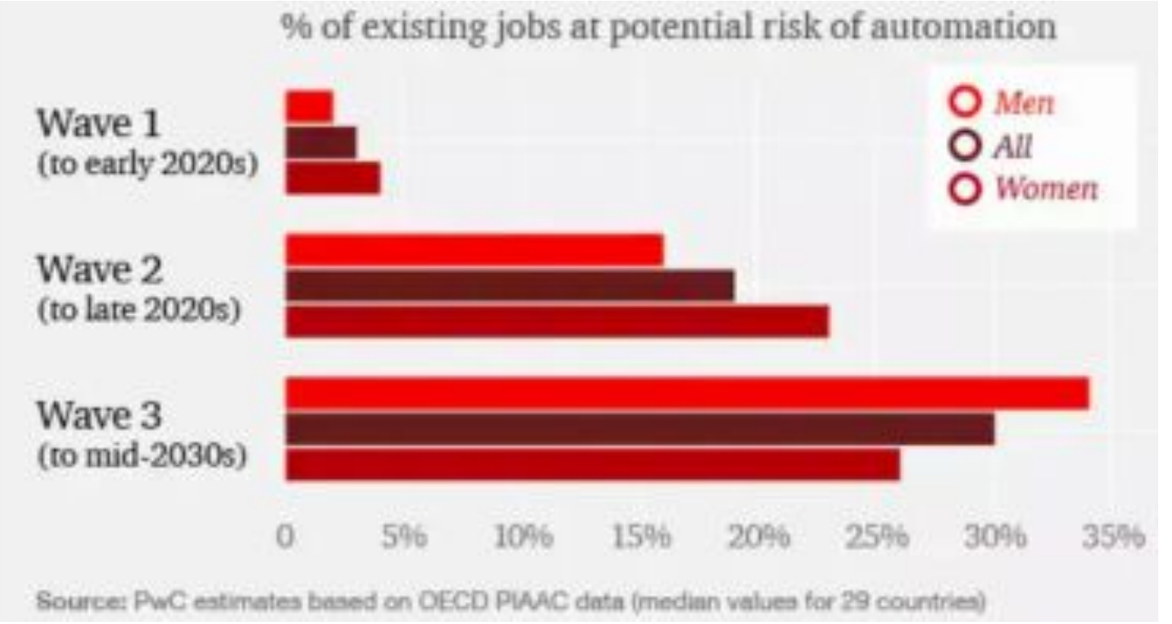
As in every major cycle of technological innovation, some workers will be displaced, with artificial intelligence taking over their roles. At the same time, entirely new activities and potential opportunities for employment will emerge.

However, contrary to previous threats to unemployment posed by AI, 'white collar' workers are more vulnerable to unemployment caused by ChatGPT. Google found that, in theory, the search engine would hire the bot as an entry-level coder if it applied for a job at the company. Amazon employees who tested ChatGPT said it does a "very good job" of answering customer support questions, is "great" at making training documents, and is "very strong" at answering queries around corporate strategy.

Earlier this month, it emerged that consumer publication CNET had been using AI to generate stories since late last year, a practice put on pause after fierce backlash on social media. Academia was recently rocked by the news that ChatGPT had scored higher than many humans on an MBA exam administered at Penn's elite Wharton School.

Website designers and engineers responsible for comparatively simple coding are at risk of being made obsolete. In essence, AI can draft the code hand-tailored to a user's requests and parameters to build sites and other pieces of IT. Relatively uncomplicated software design jobs will be a thing of the past by 2026 or sooner.Writing simple administrative or scheduling emails for things like setting up or canceling appointments could also easily be outsourced to a tool like ChatGPT. Jobs in the legal industry such as paralegals and legal assistants are responsible for consuming large amounts of information, synthesizing what they learned, then making it digestible through a legal brief or opinion.

However, users of ChatGPT also found that the bot can generate misinformation, incorrectly answer coding problems, and produce errors in basic math. This shows that human judgement still needs to be applied to these technologies to avoid error and bias



Major Parties Involved

Amazon

Amazon is one of the most important artificial intelligence companies in the world. They invested in the consumer-oriented side of artificial intelligence and applications designed for company processes. They have made it clear that they are in favour of automation and see the loss in jobs worth the gain. Amazon's popular Alexa device has allowed for voice activated vacuum cleaning, door closing, lights switching and so much more, replacing many people's need for an at home assistant. This of course is only for those who can afford one in the first case, but this example serves as a microcosm showing the bigger current issue. Other than Alexa, they are also actively working towards a self-driving car, eliminating the need for taxi drivers, public transport for many and drivers overall. Amazon believes in the paradox of automation, which states that the more efficient the technology or automation is, the more vital the human contribution of the operators becomes. A common example of this is when an autopilot of a plane stops working, pilots were not prepared for the manual flying causing failure. Their contribution became much more valuable.

IBM Watson

IBM Watson is an automated system designed to answer questions naturally. This company has helped transform healthcare industries through aiding meet business and clinical needs. The artificial intelligence developed by David Ferucci and his research team helps many organizations predict future outcomes and optimize their employees time. This means that they reduce the need for lower income jobs. One of the biggest shifts IBM has caused is one in healthcare, they speed up DNA analysis in cancer patients helping to save lives and medical professionals time, allowing them to put focus on multiple patients at a time.

Google

"At Google we all think that AI can meaningfully improve everyone's lives and that the biggest impact will come when everyone can access it." is stated as an opener on Google's website. Google since its creation has been a strong example of automation causing unemployment. The concept of a universal search engine with access to all books, materials, and information has caused many libraries to have a reduction in demand and so much more. But they are also an example of how we must wait to allow automation to change the world. Google now provides millions of jobs to people related to their AI and is providing training to those lacking the skills. Google employs over 135,000 people alone and with its current efforts towards AI development will be employing even more which they themselves teach the skills too.

Timeline of Events

Date	Event
1778	The steam engine was improved and advanced by James Watt after the benefactors and past engineers Thomas Newcomen and Thomas Savery. This improvement made steam power take off and influenced many automations after. For example; one of such creations was The Automatic Flour mill which was designed by Oliver Evans which was the very first fully automated flour spinning mill which essentially replaced jobs in that sort.
	INDUSTRIAL REVOLUTION
1804	Creation of Railways allowed for much more faster advancement in technology, which has dramatically impacted the course of the labour market for humans
1807	Creation of Steamboat, in the similar way, has shifted the course of transportation and also allowed for much more improvement.
1826	Creation of Photography, at the time, was considered such an automation that completely replaced the human work of resembling a real life picture, and shifted the whole idea and meaning behind art and its artists, mass media and journalism.
1831	Reaper was created to lower the emphasis of the labour-intensive task of harvesting crops.

UN involvement, Relevant Resolutions, Treaties and Events

- Promoting full employment and decent work for all, 24 July 2008 (E/2007/49)
- Brief for GDSR, Automation and artificial intelligence - what could it mean for sustainable development?
- General Assembly High-level Meeting on the Future of Work Organized on the occasion of the 100th Anniversary of the International Labour Organization, united nations headquarters New york, 10-11 April 2019
- United Nations world development report 2019 - Argues that while automation displaces workers, technological innovation creates more new industries and jobs on balance.

Possible Solutions

Delegates can suggest solutions that mandate companies to provide aid to workers before laying them off as well as giving them a choice between financial aid or a training session for workers to acquire new marketable skills. Said training session also being mandatory as a choice to all workers being laid off. Additionally delegates may add a clause to control how fast the shift is by allowing companies to drop only a certain number of workers in one go.

Moreover, proactive policies are needed to ensure that the benefits of AI in the workforce are shared and displaced workers receive support. If technology changes the nature of work and disrupts traditional social insurance systems, policies can reduce vulnerabilities by expanding social protection systems. If technology leads to less equal income distribution, policies are called to redistribute income. If new technologies change the nature of skills demanded on labour markets, curriculums in schools and universities can be adapted and on-the-job and life-long learning opportunities can be promoted.1 National policies re enforcing trade unions power are a viable solution as well. Technological progress should not be used as an excuse for policy inaction, but rather as an incentive to find better solutions.

1844	Telegraph was invented which was able to transform the communication between humans, which allowed for a more stable collaboration
1876	With the creation of a Telephone, people were able to express the messages much more faster, concisely, and with the benefits of a much more improved collaboration.
1876/1879	After the creation of the Internal-combustion engine in 1876 by Nikolaus Otto (which was later used in the automobiles), later, In 1879, Thomas Edison was able to create a lightbulb which drastically shifted and transformed humans ability to create power, light, heat and so much more in the years after. With this invention, a new gate of much more opportunities and inventions that can be done by humanity, was unlocked.
1937	Computer was invented by John Atanasoff. It also important to mention that many advancements were made before this invention (such as Television and etc.), however with this tool that is a practically half operated AI system that responds to human on commands, the computer catapulted humanity into the new horizons, from which it gave birth to many other inventions, on which modern humanity is structured.
1957	The Soviet Union has launched the world's first artificial satellite, which allowed for the “Space Race” between the USA, not only promoting the tensions of the Cold War, but many new discoveries for humanity.
1974	The Personal Computer and Internet was created in 1974, which was a major breakthrough for humanity.
2012	CRISPR allowed for a much more in depth look into the sciences and let the technology and science to submerge.
2017	AlphaGo team of scientists that have been working at the artificial intelligence program for years and it announced this year that its AI had become the world’s best go player, and the AI has in fact figure by itself how to beat humans in this game, and also, through many improvement (that were done by itself) it was able to beat an older version of AI, of itself in other words.

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