

**Forum:** The Second General Assembly

**Issue:** Navigating the economic disruptions of technological advancements and automation

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## **Introduction**

Technological advancements and automation are transforming the global economy, driving unprecedented changes across industries. These innovations create growth opportunities, boost productivity, and accelerate technological progress in various sectors. Intelligent Technologies (ITs), such as machine learning, robotics, and artificial intelligence (AI), have enabled businesses to streamline production processes and significantly reduce operational costs. Countries can improve living standards and enhance their international competitiveness by effectively integrating these innovations into their economies. This shift underscores the need to navigate the economic disruptions caused by technological advancements and automation strategically and adaptively.

The automation of the economy has caused widespread job displacement as machines have replaced human workers. The rapid change often outpaces the ability of labour markets to adapt, leaving many workers without adequate retraining. In addition to this, the increased use of intelligent technologies has caused ethical privacy concerns. The economic changes brought about by these technologies require the combined efforts of governments, commercial enterprises, academic institutions, and IGOs to establish robust economic settings to ensure that the benefits are distributed evenly and that negative impacts are mitigated.

## **Definition of Key Terms**

### **Economy**

A country produces, distributes, and consumes goods and services in the economy. Economies can be Market-based, command-based, or mixed. Their performance is evaluated using key indicators such as the Gross Domestic Product, inflation, and unemployment rate.

### **Market-based economy**

An economy governed by the forces of supply and demand. They decide on production, pricing, and distribution without government interference.

### **Command-based economy**

An economic system in which the government plays a major role in deciding the production, pricing, and distribution of goods and services. Individual households and firms have little to no input into allocating scarce resources.

### **Mixed economy**

A system that blends the elements of a command-based economy and a market-based economy. Both the private and public sectors share control over the production, distribution, and consumption of goods and services.

### **Labour market**

Where workers offer their skills in exchange for wages, and employers seek to hire, balancing the supply of workers with the demand for jobs.

### **Automation**

Automation is using equipment and technology to complete tasks within a process with the least amount of human interaction possible. It can be installed in the manufacturing, services, and information technology industries.

### **Technological Unemployment**

A type of unemployment occurs due to machines or technology replacing human labour in certain tasks or professions. This drastic shift causes demands within these jobs to decrease and often workers would need to retrain and reskill to adapt to these changes.

### **Reskilling and Upskilling**

Activities which seek to prepare workers to be trainable or retrainable in taking up new skills or higher levels of skills to meet new job demands. Reskilling means training for brand-new positions, while upskilling implies growing employees' current positions within the existing framework.

### **Artificial Intelligence (AI)**

AI is a system that can solve problems and make decisions that mimic human behaviour, for example, by recognising objects, speech, or making decisions. AI is made out of a rule base and knowledge base, making it capable of performing tasks that normally require human intelligence.

### **Knowledge Base**

A database of information and facts that is input by humans. The knowledge base allows AI to collect and store data, helping it to make informed decisions.

### **Rule Base**

A component of AI that contains human-defined and “if-then” rules, guides them to make certain decisions by applying these rules to different situations.

### **Digital Divide**

The differences in exposure to information and communication technologies (ICT) and in the capacity to employ them at the personal, household, business, and area levels of various levels of socioeconomic status. The digital divide harms people’s quality of life, does not close existing gaps, and impedes the possibility of an active economy.

### **Gig Economy**

About temporary or freelance employment models instead of permanent employment relationships in the labour market. The current kind of flexible employment, gig employment contracts, are flexible employment contracts that reduce the benefits and job security, leading to economic insecurity in employees.

### **Key Issues**

#### **Employment Loss, Layoffs and Unemployment**

New technological advancements are making a large percentage of the workforce redundant in businesses globally. Sectors that contain low-skilled and repetitive tasks are where employees suffer severely, leading to poor employment statistics and precarious livelihoods. This results in widespread unemployment and usually forced transitions to other sectors, often with inadequate retraining options leading to economic insecurity and diminishing job opportunities. These implications are partially demonstrated in industries like retail, manufacturing and transportation, where automation has already begun displacing human workers on a global scale.

#### **Income Inequality**

Technological advancement results in an increase in income disparity since there is a distinct separation between the tech-skilled employees and the employees who are skilled in the manufacturing process.

Generally, workers with technical skills are given better-paying jobs in areas such as business, and artificial intelligence, while those without formal technical education often face limited opportunities or lower-paying roles. This causes accelerated income inequality, with more wealthy workers among technology professionals and stagnant wages among blue-collar workers. Income disparity leads to increased poverty, reduced social mobility, and the marginalisation of lower-income communities. This trend is socially destructive, and in the long term, it can destabilise the economy because the increased efficiency due to technological progress is not equally distributed.

### **Ethical and Regulatory Challenges**

The use of technology poses major ethical implications such as privacy and security of data; technologies often collect, process, and store a huge amount of information. Furthermore, there can be impacts arising from biases in artificial intelligence algorithms which can reinforce existing social inequalities and create new forms of discrimination. AI is designed not to be biased, however, the knowledge base is typically compiled from online sources and the rule base isn't strong enough to prevent bias. A clear example of this is how Google's search engine works. Google uses AI which tends to show information that has more clicks rather than what is necessarily true leading to the possibility of inaccurate information being shared. There is a lack of proper regulation which results in these technologies being deployed with minimal oversight which can be misused and exploited.

### **Major Parties Involved and Their Views**

#### **United States Of America**

The USA is one of the leading countries in innovation. The United States Of America strongly supports advancing and integrating technologies like AI and automation to maintain its competitive edge in the global market. The U.S. government embraces the development of the technology sector through policies that support research, development and entrepreneurship. However, the U.S. government also acknowledges the disruptive impact of these technologies on the labour market therefore, the government has approved programs for re-skilling workers such as the Workforce Innovation and Opportunity Act (WIOA), TechHire Initiative, and ApprenticeshipUSA, to reduce the risks that come with automation of the economy.

#### **People's Republic of China**

The People's Republic of China sees technology as a strategic tool to aid them in achieving their economic plan. Through the use of technology such as artificial intelligence (AI), machine learning and robotics, the country aims to enhance economic growth and international competitiveness. Although

handling job displacement is acknowledged to be an issue, China has focused on state-oriented steps including creating jobs in renewable energy sectors and expanding tech-driven manufacturing industries, to redirect employment to forward-moving industries.

### **The Republic of India**

The Republic of India is focused on leveraging technological advancements to drive economic growth and development. India recognises the issues that come with technological advancement, such as income inequality and job displacement. To counteract this, the nation has invested 2.5 billion dollars into educational programs and infrastructure to ensure a smooth transition towards a technological economy. India stresses the importance of economic equity.

### **United Kingdom of Great Britain and Northern Ireland**

The UK believes that automation should be used to boost their economy. In response to the economic disruption caused by technological advancements, the country has implemented policies such as the National Retraining Scheme and the AI Sector Deal. Through these policies, workers are gaining new skills in a changing job market while enforcing ethical guidelines and innovation when using artificial intelligence. The UK emphasises the need for international cooperation to establish ethical guidelines and regulatory frameworks for emerging technologies.

### **Development of Issue/Timeline**

Date	Event	Outcome
1956	Automation in Manufacturing	The introduction of automated machinery in manufacturing industries leads to increased productivity and early job displacement.
1970	Adoption of Computers in Offices	Widespread use of computers transforms office work, increasing efficiency but reducing demand for clerical jobs.

1990	Rise of the Internet	The internet revolutionised communication and business, creating new industries and opportunities while disrupting traditional sectors.
2000	Introduction of AI and Machine Learning	Advances in AI and machine learning enable the automation of complex tasks however, this raised concerns about future job displacement across various industries.
2010	Expansion of the Gig Economy	The gig economy grows rapidly, offering flexibility but also contributing to economic instability and lack of job security for workers.
2015	Implementation of Industry 4.0	The fourth industrial revolution integrates cyber-physical systems, IoT, and automation, further transforming manufacturing and services sectors.
2020	COVID-19 Pandemic Acceleration	The pandemic accelerated digital transformation and the adoption of remote work technologies. This highlights both opportunities and challenges in workforce adaptation.
2023	Global AI Ethics Framework	International cooperation began

		developing ethical guidelines for AI deployment, addressing concerns related to bias and privacy.
2024	Focus on Reskilling and Education	Increased global emphasis on reskilling programs and education reforms to prepare the workforce for technological advancements and automation-driven changes.

**Previous Attempts to Solve the Issue**

**Global Initiatives and Frameworks**

International bodies including The International Labour Organisation (ILO) and the World Economic Forum (WEF) have developed strategies for managing the effects of technology on the economy. The International Labour Organisation’s Global Commission on the Future of Work has created a framework encouraging lifelong learning and reskilling initiatives to help workers transition into new roles as technology evolves. The World Economic Forum Reskilling Revolution aims to provide better education and jobs to over 1 billion people by 2030, focusing on bridging the gap between the skills required by emerging technologies and the current workforce. These organisation efforts attempt to address ethical issues in AI such as displacement of jobs, and algorithm bias. By doing these programs, they aim to create a more inclusive digital economy.

**National Policies and Programs**

Nations such as Germany, Singapore, and South Korea have introduced measures to counter the effects of automation and its impact on the labour market. For instance, Germany has its strategic plan named “Industrie 4.0,” with an emphasis on integrating digital technologies into production, as well as promoting qualifications promotion. Singapore’s Smart Nation strategy encourages IT advancement alongside investments in skill development, making the nation's economy less susceptible. South Korea has implemented its AI national strategy to create a workforce skilled in AI and also introduced the K-Digital Training Program which supports displaced workers by providing training in digital technologies.

### **Public-Private Partnerships**

Collaborations between private and public sectors are leading innovation while addressing workforce challenges. Programs such as the UK's Industrial Strategy and the USA's Workforce Innovation and Opportunity Act (WIOA) demonstrate the importance of partnerships in developing skills and creating pathways for workers to transition into new roles. As automation reshapes industries, these partnerships are crucial in building an adaptable workforce, contributing to economic growth and social equity.

### **Possible Solutions**

#### **Reskilling and Education for All**

Governments and international organisations should further invest in reskilling and educating the population about the requirements of the technology-based economy. Furthermore, efforts should be made to provide equal access to training in science, technology, engineering, and mathematics (STEM), vocational training, along with lifelong learning arrangements. Additionally, this would increase occupational mobility, ensuring workers can smoothly transition between different sectors and jobs as technological advancements reshape the economy.

#### **Strengthening Social Safety Nets**

Good social protection measures must be put in place to prevent economic insecurity arising from job loss. These may include unemployment compensation, medical care, and other forms of assistance that maintain employees during change. Further, suggestions such as universal basic income (UBI) or new basic income proposals can provide an economic safety net in an ever-evolving society. However, the universal basic income poses the risk of a poverty trap, where income thresholds for benefits discourage individuals from seeking higher-paying jobs to avoid losing support. To overcome this, the universal basic income can be paired with policies that encourage job training and education. Therefore this ensures that this is a temporary support while fostering long-term economic empowerment.

#### **Establishing Ethical and Regulatory Frameworks**

This involves setting ethical standards and regulatory frameworks for technological advancements, best achieved through global collaboration. Introducing Technological Impact Assessments (TIAs), similar to mandatory Environmental Impact Assessments (EIAs), could work the same way by regulating emerging technologies. Technological Impact Assessments (TIAs) could be developed to evaluate the economic, social, and environmental impacts of implementing automation and AI in specific sectors.



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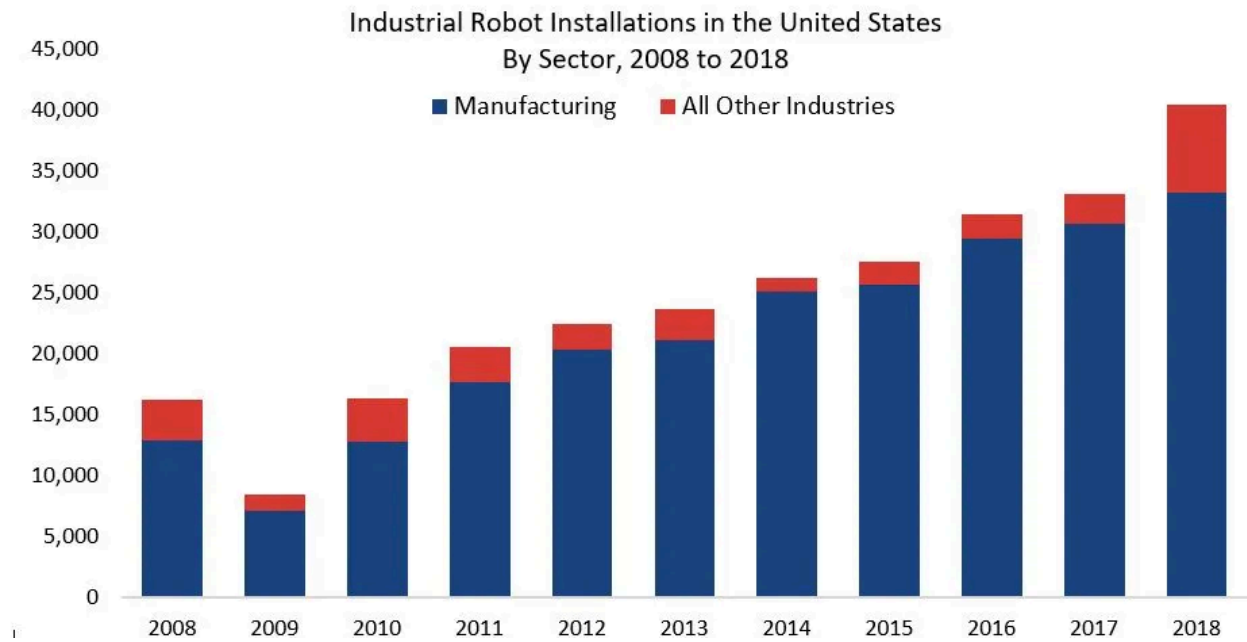
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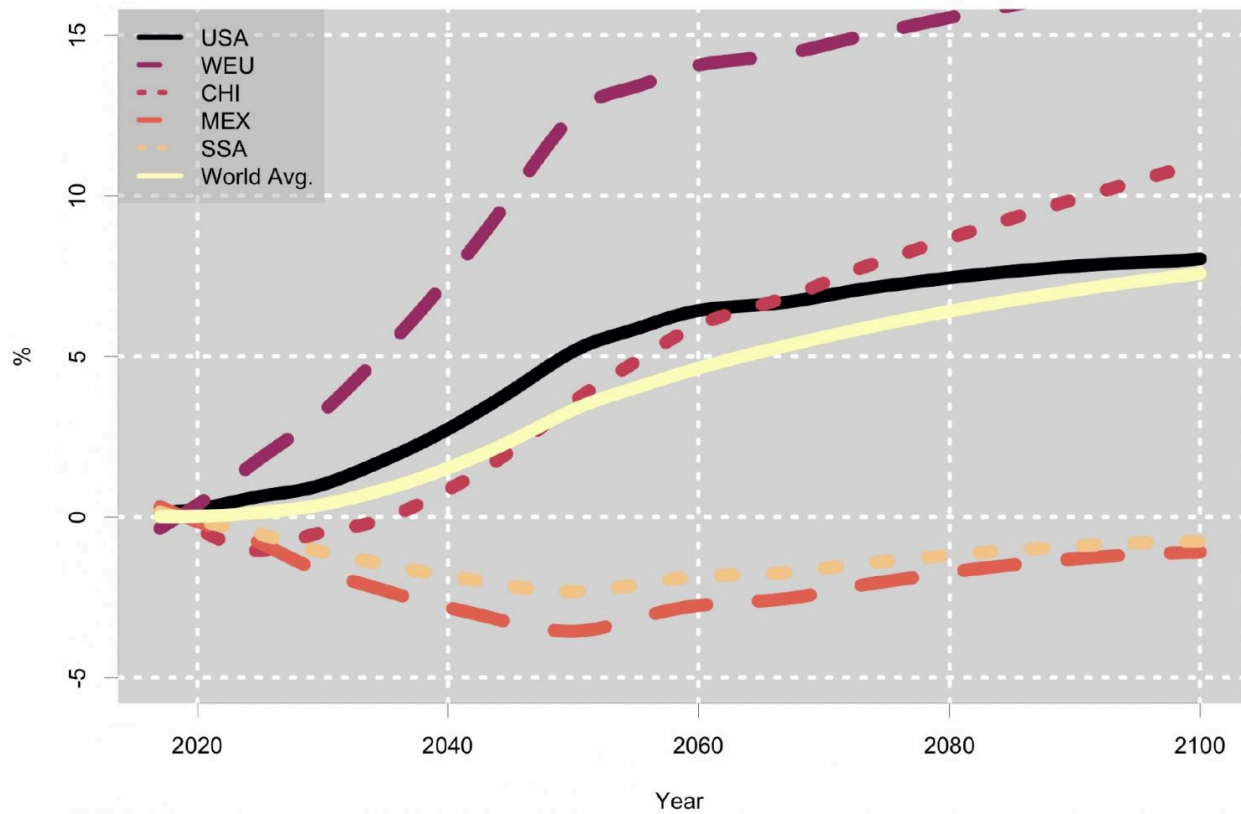
### Appendix



The y-axis shows the number of robots installed and the x-axis shows the year and the number of robots in manufacturing industries compared to all other industries in the United States Of America.

There has been an increase in automation worldwide. The graph shows that within the United States, industrial robot installations increased at a 10.28 per cent compound annual growth rate (CAGR) in the past decade, from 15,170 in 2008 to 40,373 in 2018. The vast majority of U.S. automation is in manufacturing, which represented 82.3 per cent of industrial robot installations across all U.S. industries in 2018. Overall, the graph shows the trend of more robot installations across industries throughout the years within the USA.

“GDP per cent change with baseline automation relative to ‘no automation’ scenario”



USA: United States Of America  
 WEU: Western European Union  
 CHI: China  
 MEX: Mexico  
 SSA: Sub-Saharan Africa  
 World Avg: World Average

The graph shows a simulation of how various country's and region's GDPs are affected by automation. Automation technologies can be detrimental to countries where automation will not boost their economy. The most developed countries can adopt and benefit from new technologies due to their advanced infrastructure and access to highly skilled workforces, enabling faster integration and application. Additionally, these regions have the highest low-skill wages and the most high-skill workers. In contrast, countries with cheap low-skill labour and costly capital have smaller benefits to automate. For example, Mexico is a country where automation may not be beneficial for the country's economy. In the graph's baseline automation scenario, Mexico's GDP will be 3.6% lower in 2050.