

Chapter 14

Artificial Intelligence and Employment: Issues and Challenges

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ABSTRACT

Technological progress in the form of information technology has helped industries immensely by operating efficiently and competitively. In the past decade, the pace of progress in information technology, especially in the area of artificial intelligence, has transformed the way these industries function. Today, almost every aspect of production and business activity is influenced by artificial intelligence. While such transformation has greatly benefited production activities, its impact on social constructs, especially employment, is a matter of debate. This chapter studied the potential impact of artificial intelligence on employment. Based upon the review of the research studies from across the globe, the study concludes that adoption of artificial intelligence will have a positive impact on economic growth, whereas its impact on employment to a great extent depends upon the technology absorption capacity of the economies and the government's ability to incorporate the existence of artificial intelligence while preparing policies meant to mitigate the concerns of society.

1. INTRODUCTION

The advent and advancement of information technology paved the way for the transformation of societies in various ways (Rehman Khan SA et al., 2022; Rodríguez et al., 2015). The intervention of technology in every sphere of life continues to be a matter of debate due to the positive and negative externalities associated with its use. In the last almost two decades, the pace with which information technology has made progress has made the world witness many wonders. In today's competitive world, almost all business entities are dependent upon information technology for almost all tasks, ranging from simple routine tasks to much more complex production processes. The use of information technology has re-

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sulted in many advantages, including a reduction in production costs, improvements in the quality of products, new business opportunities, and a more competitive work environment (Nikoloski, 2014). The dependence of business firms, societies, and economies on information technology has grown to the extent that today, life without technology is an impossible idea.

In the past decade, the advancements made by information technology, especially in the areas of artificial intelligence, have posed an altogether different situation in front of societies, corporations, and economies. The impact of artificial intelligence is so deep that, in a short span of time, almost every individual is aware of the technology and usage associated with it. Artificial intelligence techniques has changed the way societies deal with information and how corporations function (Dwivedi et al., 2021; Makridakis, 2017). Given the intensity of usefulness associated with the use of artificial intelligence, there are certain issues that have also crept up in the academic community due to the advancement of the technique of artificial intelligence. The issue of employment is one such big issue that has caused concerns for the economies. Before moving ahead with the possible issues and challenges associated with the use of artificial intelligence, an overview and understanding of artificial intelligence and its evolution are required.

2. ARTIFICIAL INTELLIGENCE

In a simple sense, artificial intelligence is the process by which machines, particularly computers, imitate human intelligence processes. OECD (2006) and UNCTAD (2017) defines artificial intelligence as “the ability of machines and systems to acquire and apply knowledge and to carry out intelligent behaviour”. Under artificial intelligence, machines are designed to learn from experience, think, work, make decisions, and perform tasks like humans.

The concept of innovation in technology is as old as the invention of technology itself. As far as the idea of artificial intelligence goes, it came into existence even before the invention of computers. Ancient thinkers developed this idea of mechanizing non-human machines with human thinking (Gerber & Hiernaux, 2022). Their idea got a boost with the invention of programable digital computers in the 1940s. The invention of computers encouraged scientists to visualize and materialize the development of the electronic brain, which today is known as artificial intelligence (Copeland, 1993). This idea of including human intelligence in machines in the form of artificial intelligence can be traced back to the 1940s, when Warren Ms. Culloch and Walter Pits proposed a model of artificial neurons. This was followed by demonstration of a rule called Hebbian Learning. Hebbian learning is Donald Hebb’s rule for changing the strength of connections between neurons. In 1950, Alan Turing, a mathematician by profession, published an article titled ‘Computing Machinery and Intelligence,’ in which he proposed a test to measure machines ability to replicate human behaviour (Turing, 1950). During the same decade, Johan McCarthy coined the term artificial intelligence (Kim, 2022).

In 1955, Allen Newel and Herbert A. Simons developed the first AI program in an article called “The Logic Theory Machine: a Complex Information Processing System” which was able to solve a bunch of mathematical problems (Newell & Simon, 1956). This was followed by decades of ups and downs in the development of artificial intelligence with little tangible success. It was only in 2006 that artificial intelligence was used for the first time in business activities, especially in the social media sector. Today, artificial intelligence has developed in many dimensions. The use of concepts like deep learning, big data, data science, etc. is becoming the order of the day. Many multinational technology-centric

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