



Effects of Artificial Intelligence on Innovation

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Abstract

Over the decades, the main focus of research and practices has been on innovations origin and development. The upcoming innovations are being shaped by the technologies which have existed. One of the building blocks of innovation development is Artificial Intelligence. From the research done, the report indicates that through AI, some innovation tasks have been simplified in the process of innovation. Innovation changes are directly proportional to the economic changes, using digital networks and also the algorithms. The core aim of this paper is to prove the power of Artificial Intelligence in reinforcing (substituting) human team innovation using robots and machinery and substantially enhancement of innovation.

Keywords:

GPTS- General Purpose Technologies. Artificial Intelligence. Algorithms. Auto-encoder. Innovations.

I. Introduction

In the past years, the origin and development of innovations have been the primary research practice. Technological improvement has been an integral factor in the innovation processes being carried out across the globe. According to the experts, technology has been described as the pillar of innovation and various things. In recent days, technological advancement has been on the rise, encouraging competition among innovative society member (Dignum, 2019. Artificial Intelligence has become a significant pillar of

innovation whereby different people have different technological parameters.

In health sectors, financial institutions, and human resource institutions, Artificial Intelligence has been used as a tool for achieving specific goals. In development planning, Artificial Intelligence has been applied as a tool for predicting future activities and the kind of emerging trends that might occur. By applying the new technologies, computation of large data is carried out whereby the history is preserved. Through the application of Artificial Intelligence in the Machine Learning capabilities, these applications turn to General-Purpose Technologies (GPT), whereby there are technological impacts in the society. In GPT, various inventions like electrical engineering, locomotion, and engine combustion are achieved. The invention of computer systems has been a significant product of GPT, which Artificial Intelligence primarily impacts.

According to the research conducted by various experts, the application of Artificial Intelligence has resulted in an increased number of industries (Cockburn, 2018). Both short-term and long-term impacts in the production field depend on Artificial Intelligence channeled on the production industries. Society equity, environmental impacts, and social integration also rely on the aspects of Artificial Intelligence whereby new ideas and creativity are put in place hence bringing positive changes in various societies. By applying for numbers in data analysis, accidents and risks are reduced when making certain decisions.

In a society where digital networks have been adopted, both innovation and economy are achieved rapidly. The introduction of the software's in mobile phones has been one of the latest inventions. On the other hand, the production of Tesla cars has applied hardware-related objects that improve the functionality and the output of this latest car. In software integration, the process of passing information from the company to the user has become faster and effective. This paper will focus on the impacts of Artificial Intelligence in society and its efforts in achieving different innovative models in societies.

II. Literature Review

AI automatically allows the process of decision-making and goals of innovation. According to Verganti et al. (2020), AI can improve customer focus, innovation, and creativity by eliminating the typical limits of human-intensive development. He asserts that managers still need to inherently reflect on how their company innovates to capture this possibility. In this AI era, design practice is different from various organizations' current human-intensive innovation processes (Vagrant et al., 2020). In AI-enabled organizations, for example, human beings do not have a role to play in developing complete solutions but rather in understanding the significant problems of innovation, defining the innovation effort, establishing the software and data infrastructure. In this research, the authors illustrated the use of this new design practice by pioneering companies, like Netflix or even Airbnb. However, they are at the start of an innovation process transition, which is hard to capture to the maximum.

According to Rotman (2019), most human beings have come up with discoveries and inventions resulting from Artificial Intelligence, which plays a significant role in innovations. Rotman (2019) states that the significant issue is that human scientists can only explore a small drug molecule of what is possible. But artificial Intelligence crosses seemingly unlimited options. The programs can discover any related molecules after training on large data sets and their characteristics. Rotman (2019) asserts that the development of various products has resulted in the economical solution." That has retained necessary clean technology developments — such as battery technology, more effective solar cells, and fuel catalysts directly produced by sunlight or even carbon dioxide.

Although solar panels and batteries are constantly falling in prices, it is mainly due to manufacturing enhancements and economies of scale and not too significant technological improvements themselves. He further mentions that deep learning instruments such as GANs and a known technology platform will envision anticipating

various products and understanding methods of producing them in a laboratory. These technological inventions will produce its elements; for example, Aspuru-Guzik seeks to develop a cost-effective automated system that can spread new contents on request. When the products are manufactured, instruments like a mass spectrometer can analyze them. Other learning technologies can become relevant in this content transformation and manipulation. According to the author, every hour, this is a potential platform and opportunity that would change productivity in the laboratory completely.

From a study by Soni (2020) on Artificial Intelligence in business, Artificial Intelligence-driven products, as suggested forty-eight years ago, are commercially available in a way that shows that AI isn't hype but can change investment and entrepreneurship; therefore, the world Gross Domestic Product. Two critical factors have been attributed to this continuous development and placement of the AI-led system: Big Data and fast processing units. The research demonstrates four significant sections of comprehensive studying: computer anticipation, scrutinizing the text, verbal and voice recognition, etc., for each of them with a preferred DL algorithm and different successful applications exceeding human levels.

Their assessment of the top two hundred AI participants illustrates the impact of advanced studying and even creativity in AI on the national entrepreneur field (Soni et al., 2020). The survey indicates the AI wave on and that there is an accelerating appetite for IA development. The AI venture has ascended over the most recent six years and is relied upon to stay unaltered for the following not many years. The examination additionally investigates the top AI enterprises, which will give more freedoms to not-so-distant future companies, Intelligence, wellbeing inclusion. An expansion in efficiency, time and viability, human blunder decreases, quicker business decisions, and client inclination amendment and deal advancement are a portion of the significant benefits of AI calculations, computerization, brilliant figuring, and investigation of information.

III. Methodology

In this section, we analyze various AI-related materials, peer-reviewed research papers, and journals. This study is intended to answer the question, "Are there any published evidence to prove that AI influences innovation?" The authors of the different studies and journals are scholars from a wide range of subjects, such as engineering, natural sciences, and social sciences. To show links between AI and innovation, we carried out expert-based literature searches. The following information was deemed sufficient proof: reviewed work on real-world applications, compiled evidence for research lab scenarios, reports from approved organizations, and publicized application for the commercial stage. In contrast, educated conjectures and real applications without evidence of research like media, public belief, or other sources of information also were not deemed appropriate proof for the research.

IV. Findings

The researchers reported that artificial Intelligence significantly impacts the current economy since it increases its efficiency (P Aghion, 1992). Through the research also find evidence of a shift in application-oriented research importance from the year 2009. This has brought changes in the process of innovation, policy, and the institutions' response to the deep learning representing the general-purpose method of the invention. Further, there is evidence of artificial Intelligence from the china manufacturing sector's panel data on technological innovation. For instance, the Obama white house published documents such as 'the public computerized reasoning innovative work vital arrangement and setting up the eventual fate of man-made brainpower.' Additionally, the researches show that AI has been promoting the absorption and learning of enterprise capabilities in which intelligent image recognition and deep learning technologies can assist robots in independent judgment formation and correct measures taken (Du et al., 2018). From the above instances, it is clear that there

is very much evidence that proves that AI remarkably influences innovations in many different ways.

V. Discussion:

First and foremost, AI will help create time for the creation and invention of new products. Through the use of various robots and AI-driven machines and applications, we can create new products. Robots already have resulted in better products, especially in the manufacturing sector, and have short delivery times. These robots are effective in fundamental tasks and duties. Robots are susceptible to fewer errors, needless downtime and are cheaper.

As a consequence, the retention rates are much higher. AI can also advance innovation by avoiding the necessity for professionals and specialists to tire due to lots of work by creating time and space. This is because of the employment of various robots and AI devices. That is to say, making people more productive or effective will indirectly increase their creative ability by just creating space and even time for innovation. Take into account an AI system, for instance, which summarizes any meetings. Instead, people don't have to write notes and summarize them on their own. You can concentrate and make connections to other innovative things you don't have time for. However, this scenario is less motivating since it is more a side effect of AI than that of AI directly impacting the innate capacity of human innovation.

Another way AI impacts innovation is the generation of novel patterns and enhance creativity. More interestingly, AI produces and surfaces new patterns and plans for people to interact with. A significant example is the computer chess game that surfaced new lines of a game that human grandmasters did not find for many years. Alpha-Zero for chess was a good example. In the business setting, too, AI's ability to surface innovative patterns and increase human creativity is being capitalized. For instance, Autodesk's software can collect and process designers' information, including different criteria, to create whatever they want. The Algorithms based on AI then produce several designs that meet the requirements. This leads to a new motivation, a host of ideas that the designer would probably not have developed without AI. One other example is the proof company, which simplifies the concept process for companies seeking to review and validate new start-up alternatives. The AI technology from the company

assesses the distributions and patterns of the sets of data given and produces new, synthetic public records used for the proof of concept environments. AI enhances creativity at all levels. By making human best practices accessible to everybody, AI can improve human creativity. This is different from creating new trends, as the best alternatives are already recognized. This is a point of democratizing creativity instead of creating new ideas by letting any expert or professional tap into the wisdom of experts.

Finally, deep learning may alter the nature of science and technology itself. A method of investigation that aims at identifying a limited number of causal drivers of a phenomenon, based on the underlying theory, drives several areas of engineering and science. Deep learning provides an alternative framework based on the ability to foretell diverse multiclausal phenomena through a black box strategy, which does abstract from fundamental causes. De-stressing the information on causal instruments, too, as theoretical relations can include significant downfalls: numerous significant advances in science involve a comprehension of the central "10,000-foot view" structure to bode well and perceive its suggestions.

VI. Conclusion:

In conclusion, AI influences innovation in various ways. Through the creation and invention of new products, enhancing creativity and generating novel patterns, and altering the nature of science and technology. Through artificial intelligence and data analyses, the world is underway to revolutionize many sectors. Practical implementations have already been made to finance national safety, health, crime prevention, transport, and intelligent cities, which have changed decision-making processes, business strategies, risk management, and system performance. These developments generate significant economic and social advantages.

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