Research Paper: The Study on Impact of Artificial Intelligence on Innovation

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Abstract-This research paper draws a conclusion on the impact of artificial intelligence on innovation. For this purpose, a secondary research work has been done within which the ideas presented by different researchers through their relevant research works has been referred by the researcher to draw a conclusion in the support of research topic. The conclusion presented suggests that there is a significant impact of artificial intelligence on innovation that enables the modern business organizations to present themselves in a different light than their competitors in terms of uniqueness.

I. INTRODUCTION

With rapid advances in the field of artificial intelligence, its prominence and implementation have risen to a great extent in the modern world scenario, thus, reflecting highly profound implications for the economy as well as society at large (Antonescu, 2019).

Also, the aspects of artificial intelligence are bound to contribute towards innovative approaches that the business organizations can adopt and implement in performing their day to day business operations (Startup Daily, 2018).

These innovations have the potential to directly influence the business performance in terms of affecting the business activities ion terms of manufacturing, selling, marketing and distribution. That in turn influences the characteristics of a wide range of products and services, leaving behind significant implications on the organizational productivity, employment, and competition (Cockburn, Henderson & Stern, 2018).

The importance of the effects of artificial intelligence is that it is mainly believed to bring forth the changes in the way business are operated within the organizations using the innovative tools, techniques, approaches, processes, and systems (Lee et al. 2019).

In the current scenario, the aspects of artificial intelligence such as biometric system of attendance, facial recognition, data centres, cloud computing, and various others to be named have been successfully implemented by the business entities to smoothen their work processes and business activities with the help of automation and use of Information and Communication Tools (Richter et al. 2019).

This research paper will, thus, reflect upon the potential impact of advancements in the artificial intelligence on innovation-based approaches and techniques adopted by the modern business organizations along with identifying the role that policy and institutions have to play in proposing and implementing a successful incentive system for promoting innovation, diffusion, and competition within the operating industry.

For this purpose, the research paper will also reflect upon the literature review on the use of artificial intelligence to promote innovation across the business organizations in terms of advancements in the working methodology and business processes, followed by data collection and data analysis sections, the results of which will be discussed in the findings and conclusion part.

II. LITERATURE REVIEW

1. Concept and Relevance of Artificial Intelligence and its role in innovation:

Artificial Intelligence in the modern, techno-savy and revolutionary world has entirely captured our day-to-day lives and become one of the significant reasons for the business organizations to attain competitive edge over the competitors within the operating industry through providing innovative business solution to the complex business problems by implementing more of technology to the work processes and systems (Kour&Gondhi, 2017).

Artificial Intelligence is basically understood as a platform that can provide substitute solutions to the businesses in terms of work that takes place manually by the human beings. It is, thus, believed to be the unique combination of minds and the machines (Verganti, 2020). Within the time duration of past few years, there has been witnessed a significant increase in the acceptance of Artificial

Intelligence as a concept and its various aspects are adopted by the techno-savy business leaders as a means to innovate with their product offerings, processes, systems, work approaches, etc, thus, it has spread its root across all the working fields and domains of work and life (Breakstone, 2019).

Innovation is related to Artificial Intelligence in a way that new inventions and advancements are done in the workplaces which are based on Artificial Intelligence. The aspects of Artificial Intelligence are assisting the performance of business operations and various business across the operating industries, with healthcare industry, whether isisbankingsector, finance sector, healthcare sector, education sector, manufacturingsector or other sectors to be named (Davenport, Guha & Grewal, 2020).

The significant role that the Artificial Intelligence plays is considerable enough in identifying the needs of introducing innovative business approaches to ensure that the operational facilities are provided to thebusiness and its related stakeholders in a variety of ways through the means of data analysis and predicting different outcomes (Lee et al. 2019). AI and machine learning tools provide insights into human health and also propose disease prevention (Kaushik, 2021).

For many businessorganizations to deal with the intense competitive environment and meet the dynamism within the consumer demand and expectations form the businesses in termsof customer centtric product offeringthat satisfy their drive and prompts them to make repeat purchases, there arises a need for the business organizations to keep innovating with their rangeof products and servicesoffered within the consumer market (Cockburn, Henderson & Stern, 2018).

Thus, innovation plays a pivotal role in meeting the consumer demand to a great extend since the business that do not keep their efforts well in managing the expectations and demands of their customers usually face sustainability issues in terms of lack of growth, decline in performance, loosing out the existingcustomers, facing intense competitiveness and others (Startup Daily, 2018).

Artificial intelligence has a prominent role in promoting innovation across the businessorganizationsthrough adopting of various softwares, modules, technology that successfully replaces the manual system of working with Information and Communication Technology (ICT) enables business operations and activities. Thus, the Artificial intelligence and its various aspects are believed to intensely enhance the efficiency of the existing economy through improving the way a business activity or function is performed by the business organizations with the help of modern and technologically advanced business processes and systems (Huang & Rust, 2018).

This is so because innovation can have a larger impact by serving as a new general-purpose method of invention for many business organizations that can restructure the nature of the innovation process and the organization of R&D within their entities (Soni et al. 2019).

The main objective of the modern business organizations behind adopting innovation in artificial intelligence is the potential of business organizations to subside or reduce the given certain constraints in information processing since the domain of Artificial Intelligence is believed to deliver higher quality, greater efficiency, and better outcomes than manual wok processes in system of enhancing the product offerings for the customer base (Kaushik, 2021).

Artificial Intelligence has attained its position as one of the growing domains that is ruling the market and taking over the human efforts done manually by creating a digital marketspace (Soni et al. 2019). The recent surge of covid-19 pandemic and its resultant lockdown imposed by the government of various nations across the world has changed the way businesses are operating across the world, with most of the companies relying on the digital platform for enabling business operations and communication (Sestino& Mauro, 2021).

Thus, the covid-19 pandemic has reflected upon a huge effect on almost all domains across the operating industries that has significantly increased the use of Artificial Intelligence by the businesses during the lockdown and is believed to have witnessed its peak (Kaushik, 2021).

This is evident from the efforts of the companies that have worked on business solutions introduced and powered by one or the other aspects of Artificial Intelligence that has increased the urge among the business users and consumers about the ways innovation can contribute towards Artificial Intelligence in the modern-day world.

2. Most used Artificial Intelligence innovation trends:

2.1 Use of Artificial Intelligence for managing Data Breach and Cybersecurity:
In the recent years and after the covid led lockdown imposed by the governments, the use of data security systems for protection from data breach and data theft has become a matter of prominence for many business organizations since a lack of it will make it easier for the attackers and hackers to steal the company's confidential data that will put data security at risk against the cyber risks such as phishing and hacking attempts (Kaushik, 2021).

The innovative technology that will be introduced by the business organizations with the help of Artificial Intelligence and its related facets will enable the business organizations in enhancing the security of the data that is confidential to them and strengthen safety initiatives (Sestino& Mauro, 2021).

Thus, the contribution of Artificial Intelligence towards promoting innovation will not only subside the cyber security risks associated with a business organization but also prove to be helpful in preventing cyber crime and keeping the user's personal information safe and secure (Haefner et al. 2021).

2.2 Use of Artificial Intelligence to enable Chatbots: Chatbots are widely used by many business organizations across the world as they have become a reliable and easier platform of communication by many business users to communicate with the stakeholders especially during the covid led lockdown period (Kaushik, 2021).

In addition to its use in the current period for communication purposes, the conversational Artificial Intelligence chatbots are expected to take different and customer centric initiatives in future to enable better customer service automation (Haefner et al. 2021). The Chatbots are, thus, expected to be used by the modern businesses to learn and develop better communication and understanding with the customers.

2.3 Quantum Artificial Intelligence: The concept of Quantum Artificial Intelligence has gradually become renowned and grown in the current scenario of modernization and digitization since the businesses are embracing the use of such technology that can enable them to tackle problems in a fast and reliable manner. This aspect of quantum artificial intelligence can help the business organizations with required resources and provision in analysis and processing of voluminous data with the motive to obtain the patterns on an easier note. The Quantum Artificial Intelligence is widely used across the sectors of advanced banking and healthcare services (Kaushik, 2021).

2.4 Use of Artificial Intelligence with the Internet of Things: Internet of Things (IoT) as one of the key aspects of Artificial Intelligence serves as a powerful technology that is used by the many modern companies across various operating sectors in providing a range of business led solutions (Giesel, 2018). This is so because the integration of Internet of Things (IoT) with the Artificial Intelligence can help the business organizations in taking automation to the next level and leading the change towards enabling significant contribution to automation domain and major changes (Haefner et al. 2021).

2.5 Use of Artificial Intelligence for Edge Computing: In the context of modern scenario, it is evident that the companies are relying on converting data into actionable insights since it is becoming critical for the modern business organizations to utilize the stored data stored in a way that can enable the business organizations to grow and become more efficient the edge computing that can help businesses in performing smoother operations while using the stored data in real-time and improve the cloud servers efficiency (Kaushik, 2021).

III. RESEARCH OBJECTIVE

The key objective of the researcher behind conducting this study is to study and understand the impact of Artificial Intelligence on Innovation as a means for many business organizations to stay competitive and dynamic within the operating businessenvironment.

IV. RESEARCH QUESTIONS

- Q1: What is the relationship between Artificial Intelligence and Innovation?
- Q2: What is the impact of Artificial Intelligence on Innovation as a means for business organizations to stay competitive?
- Q3: How can the aspects of Artificial Intelligence and Innovation prove to be useful for businesses in the modern world after covid led lockdown period?

V. DATA COLLECTION AND ANALYSIS

For the purpose of conducting research work on the topic of this researchpaper, 'The Study on Impact of Artificial Intelligence on Innovation', data will be collected from the secondary sources. The secondary sources that will be utilized by the researcher to gather the information related to Artificial Intelligence, Innovation, understanding their relationship and impact of Artificial Intelligence on Innovation will include journal articles, online sources, e-books, reviews, magazine or newspaper articles, and other prominent sources to be named, referring to which the research work will be done.

Secondary sources of information are useful in providing second-hand information and commentary from other researchers. A secondary source of information, thus, describes, interprets, or synthesizes primary sources to provide a fresh perspective on their findings.The data will be analyzed using the method of secondary analysis that will involve analyzing the data collected by researchers in their primary research work. The analysis will enable the researcher to draw useful set of findings, discussion, and conclusion on an account of the secondary research work done with unique research objective and questions. 6.

VI. LIMITATIONS OF THE STUDY

This research work is based on secondary data collection and analysis, thus, is a secondary research work having its own set of pros and cons. The secondary research work although has certain benefits attached to and can prove to be a reliable and useful source of information gathering and analysis, its related limitations is as follows:
- Secondary data collected from the secondary sources of

information can be general and vague and may not prove helpful to the companies in enabling reliable and rational decision making.

- Difficulty in obtaining information specific to the needs of the researcher depending upon the research topic.
- The information and data collected may not be accurate since it comes from a secondary source, that is, collected by some other researcher.
- The data collected maybe old and outdated in few cases.
- The sample used for secondary data generation may not be appropriate or satisfactory.

VII. FINDINGS AND DISCUSSION

The research work on the topic 'The Study on Impact of Artificial Intelligence on Innovation' will effectively contribute to the research and analysis work done in regard to understanding the role of Artificial Intelligence and Innovation in the modern times, especially during the post covid led lockdown period, to the modern business organizations.

The world is become technologically advanced and digitally enabled and as its result it is becoming a matter of significance for the business leaders to adopt dynamism within their work setting in the form of innovative business processes and systems that will help them to deliver unique and Information and Communication Technology (ICT) enabled product offerings.

The advances in Artificial Intelligence technology and data analytics in the form of business innovation will continue to create profitable opportunities and challenges for the business organizations in enabling efficient delivery systems.

For this purpose, the leaders need to be dynamic, effective ad techno-savvy in their character in order to find new and innovative ways of leveraging these advances to restructure their business their organization in terms of revamping of business processes and systems that will drive significant growth in the long run.

During these efforts of the business leaders and the organization, the focus of the company shall remain unaffected in terms of profitability and growth by enhancing its core competencies and business strategy, however, it shall remain open to adoption and encouragement of innovation based models that will shift the company's business model towards just adopting Artificial Intelligence as a means to innovate the business processes and systems and may pose challenge for the business leaders as a significant aspect of change management. The set of findings regarding the study on understanding the impact of Artificial Intelligence on Innovation are as follows:

- The aspects of Artificial Intelligence can be witnessed in almost every walk of life tat a person goes through, be it medical, financial, marketing, production, education, etc. Despite of its lack of familiarity in terms of the conceptual understanding, the Artificial Intelligence has not been able to gain as much prominence as Innovation.
- Artificial Intelligence can contribute to innovation led measures for the business organizations with its use in the domains related to data structuring, ensuring data confidentiality and prevention of data breach, workforce development, enabling chatbots, edge computing, facial recognition, intelligent automation processes quantum Artificial Intelligence, Robotic Process Automation (RBA), etc.
- Artificial intelligence and its contribution to innovation can be widely noticed in the industries related to healthcare and banking.
- Artificial Intelligence enables quick and rational decision making by the business leaders using the innovative tools and softwares.
- Artificial Intelligence has effectively contributed to innovation in various aspects of work lately and significantly resulted into the range of benefits for society, government, businesses, employees, economy, corporate governance, etc.

VIII. CONCLUSION

For many business entities, with most of them being the technologically advanced firms or Information and Communication Technology (ICT) enabled business entities, innovation has been widely implemented across the business processes and systems through introduction of Artificial Intelligence and its various related aspects that has effectively contributed towards process and performance efficiency of the firms in the modern world scenario.

As a result of this requirement to stay innovative and dynamic within the competitive business environment that has demanded the business organizations to stay updated and deliver unique product offerings that help them create some value proposition for the customers resulting into Unique Selling Point (USP) for the business organizations, the leading technologically enabled companies as well as a range of startups and researchers been contributing the best of their efforts to develop advanced Artificial Intelligence enabled solutions to the modern day business problems that can provide the bsuienss organizations a competitive advantage by augmenting human intelligence.

The applications of AI are are numerous in terms of technologies, gadgets and other elements that have been developed leading to a new world and even some new innovations yet to come. Thus, the use of Artificial Intelligence provides an automated path leading to a bright future.

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