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# STUDY THE APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN ORGANIZATION

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**Abstract**

Artificial intelligence (AI) is a term that describes systems that exhibit intelligent behavior by analyzing their surroundings and taking action – with a certain degree of autonomy – in order to accomplish certain objectives. Artificial intelligence employs two basic ways to gain insight: the examination of human knowledge and the act of 'demonstrating the mind'. This method, sometimes referred to as connectionism, is now being associated with research fields such as circulation management and neurological systems. Additionally, it is being used to simulate human cognitive processes in machines, such as computers and robots, in order to provide a representation of human thinking. The primary area of investigation so far has been on the integration of novel information inside computerized frameworks. The discipline of software engineering is intricately interconnected with the examination of artificial consciousness. Moreover, this area encompasses a profound understanding of several interdisciplinary domains, including cognitive science, formal logic, neurology, linguistics, reasoning, mechanical engineering, statistics, economics, and social sciences. The advancement of study disciplines in Artificial Intelligence has been expedited and broadened due to the quick and more pervasive growth of hardware platforms, leading to the utilization of computers for critical thinking.

*Keyword: Artificial Intelligence, critical thinking, knowledge*

Introduction

The field of intelligent systems has made significant strides in developing a comprehensive understanding of Artificial Intelligence (AI) developments. Recent months have seen an uptick in the number of authors providing comprehensive overviews of AI-related technologies. Herbert Simon, a pioneer in the field of artificial intelligence, shared his belief that critical thinking activities, such as the one required by word problems, may not entail any

significant parallel processing. The human mind itself is equipped with a variety of strategies for resolving challenges that arise in a variety of domains; nevertheless, applying these strategies might be difficult for non-experts since Artificial Intelligence is such a vast and diverse field of concentration. Experts in related professions are becoming more concerned about the prospects of other fields as a result of the pressured goals and enormous basic academic challenges presented by artificial intelligence. As a consequence of its social, moral, and philosophical repercussions of demand in software engineering, which determines the funding situation for Artificial Intelligence and the aims of many research projects in this subject, it was depicted as one of the most questionable topics. This was due to the fact that it was seen as one of the most controversial aspects of the field. The study of the human brain has important repercussions for the development of artificial intelligence systems, as researchers strive to incorporate the genuine characteristics of intelligent human behavior into these computer programs. The impression of the programs is affected by the component that was just discussed. The primary purpose of research and development in the field of artificial intelligence is to create computer programs that replicate essential facets of human cognition and are able to successfully interact with human views in order to solve pervasive problems. The formation of initiatives that are computer-based is one way that this goal is being achieved. Computerized reasoning is a term that is sometimes used to refer to the subfield of software engineering that is primarily concerned with the development of intelligent computer systems. One of the most distinguishing features of a smart framework is the remarkable utility it provides, which much beyond that of any other framework working under the same computational restrictions. The usefulness provided by this framework is unparalleled in comparison to that provided by any other framework. According to the theory proposed by Stenberg (1985), insight is the ability to change, shape, and choose configurations largely within the framework of knowledge, which is comprised of three primary components: scientific cognition, creative cognition, and practical cognition. Knowledge may be described as the degree of cognitive thinking and learned abilities, with a primary emphasis on either practical activities or analytical reasoning, according to Turban and Aronson (2001). Alan Turing, a well-known mathematician and computer scientist, came up with an interesting test to determine whether or not a machine is capable of demonstrating intellect comparable to that of a person. This exam is known as the Turing test. He is honored by having the test bear his name. According to the findings of the study, a machine is considered intelligent when an outside observer, who interacts with both the machine and a human participant without the use of visual signals, is unable to successfully accomplish a task that requires the reciprocal responses of both entities. This indicates that the machine is able to understand and respond to the actions of the human participant. The dominant schools of thought on artificial intelligence that have emerged over the course of the last several decades have relied, for the most part, on comparisons to human behavior. In his book titled "Artificial Intelligence,"

Marvin Minsky defines artificial intelligence as the research and development of robots that are capable of doing activities that often need human-like comprehension. This definition may be found in the area that is concerned with the study and development of artificial intelligence. In addition, Staugaard (1987) suggests that some people think of artificial intelligence (AI) as the process of automating or duplicating human cognitive processes. This view is supported by the findings of certain researchers. Schildt (1987) proposes a definition of a "clever program" as a software application that demonstrates human-like behavior when faced with a challenge that is similar to the one that it was designed to solve.

According to Kay et al. (2013), the goals of Massive Open Online Courses (MOOCs) can be succinctly outlined as follows: making educational resources and information more easily accessible, ensuring a coherent and consistent learning experience, and cultivating an environment that is conducive to learning. The capability of massive open online courses, often known as MOOCs, to promote and develop social interaction among students is one of the key benefits of these types of courses. Facilitating student participation in online debate and evaluating their work based on the feedback of their peers are the means by which this aim might be accomplished. Because the technologies that are utilized in the MOOC contain WG12 principles, they make it possible for students to participate in a learning experience that is both individualized and flexible. The use of video lecture recordings, the administration of multiple-choice exams, and the provision of timely feedback to students are the primary focuses of the instructional strategy. Investigations have been carried out by researchers on the challenges involved with expanding massive open online courses (MOOCs) in the areas of education (teaching and learning), and evaluation (evaluating). The aforementioned difficulties have been illuminated by these research, which have provided useful new perspectives. In order to find a solution to this issue, there is a concentrated effort being put into the creation of a new field that will be known as Artificial Intelligence in Education, or AIED for short. Because this technology makes it easier to include instructional interfaces into online learning environments, the overall effectiveness of educational settings may be improved as a result.

In the research that Chusak Yathongchai and his colleagues (2013) conducted, they employed the K-means clustering method to determine the participants' learning habits by analyzing each participant's unique learner profile. The Moodle Learning Management System (LMS) makes use of data mining methods to discover hidden patterns within log files and to provide a structure for classifying students into various cohorts. As a direct consequence of this, the Moodle Learning Management System has incorporated this idea into its day-to-day operations. The C4.5 decision tree algorithm is put to use in order to classify students according to the extent to which they make use of the online materials made available by the learning management system (LMS). The Waikato Environment for Knowledge Analysis (WEKA) is a compilation of software tools that are open-source

and publicly accessible. These tools were developed specifically for the aim of data mining. The use of these technological tools makes both the process of data preparation and the execution of the algorithms easier to accomplish. For the purpose of determining the level of competency of the categorization model used by the learners, the evaluation strategy makes use of a procedure known as 10-fold cross-validation. The findings of the study have informed the development of a method that, in the context of learning management systems, is intended to improve the efficiency of the process by which instructors evaluate the work produced by students.

Richa Sharma's study from 2013 concentrates on problems that arise in adaptive e-learning and offers solutions in the form of adaptive content sequencing strategies. The knowledge-based framework is being created in order to overcome problems associated with social e-learning. The research process is broken up into several stages: During the Socialization phase, the Naive Bayes classifier is utilized in order to categorize people according to the level of knowledge that they possess. Hierarchical analysis and fuzzy modeling are both techniques that are employed throughout the phase known as the externalization phase in order to manage the user's recommendations. During the combination phase, the researchers established a framework based on Stigmergy to analyze the behavior of the learners. The use of the ant-based algorithm results in the creation of individualized digital content for the learner. During the phase known as "internalization," a Mobile Ad Hoc Network (MANET)-based Context-aware Multi-agent Knowledge Sharing System was utilized to facilitate the interchange of learners' respective bodies of information. The study work is offered to underline the necessity of adding social opinion in the process of producing e-content as well as the possible benefits that this may bring. The goal of this research study is to facilitate the acceptance of e-learning approaches and to raise e-learners' levels of social awareness.

An artificial intelligence-based technique for assessing students' level of comprehension was created by G. Pankaj Jain and his colleagues (2014). The program makes use of idea maps. For the purpose of assessing student knowledge, they have chosen to use a parsing strategy that is driven by the eXtensible Markup Language (XML). When assessing a student's understanding of a particular subject, the idea map method is frequently utilized. The researchers examine the data by contrasting the level of expertise held by the experts with that held by the students. According to the findings of research, the customized learning system facilitates adaptive learning and assists in identifying the knowledge areas possessed by pupils. The method that was devised by the researchers is a step-by-step process in which subject matter experts or teachers first generate concept maps, which are then utilized as references for assessing the concept maps that students produce. The map is then translated further into documents that are based on XML. The XML file is parsed using an XML editor, and concepts and relations are retrieved from it. The Markov Chain model of decision making is applied in order to make a prediction regarding the concept

map of the learner based on the student's degree of comprehension. This program, known as AISLE, was constructed using Java and an XML parser in order to extract the necessary information from the idea map.

An intelligent fuzzy assessment method for an effective elearning system is presented in Khalid Salami's (2014) research paper. The creation of a learning profile for each individual learner is facilitated by this technology. Questions are organized into groups according to their level of difficulty with the use of the triangle membership function. The Gaussian membership function is utilized in order to categorize the responses into several groups in accordance with the outcome. The learning levels of the students are arranged into six different fuzzy sets. In order to connect the fuzzy input variable with the output variable while making use of the various operators, fuzzy rules are utilized. The application of these criteria is for the purpose of evaluating the learner's knowledge. The process of converting information into quantitative magnitude is referred to as defuzification and is carried out by determining the center of gravity. Researchers believe that an approach known as fuzzy-based evaluation is an efficient way to determine the knowledge level of students and their performance in e-learning environments.

**ARTIFICIAL INTELLIGENCE HISTORY**

The inextricable link that Mary Shelley established between contemporary science and the Prometheus dream was the culmination of two or three thousand decades of intellectual evolution in the realm of artificial consciousness. The opening correctly lays a stronger emphasis on AI's academic foundations, despite the fact that the significant and social challenges that human intellect has overcome are intriguing and essential. The blessing of Aristotle, or as Dante describes it in the Divine Comedy, serves as the starting point for a history that is filled with examples of artificial intelligence. Aristotle and the careful evaluation and prepared conviction that would come to characterize modern science brought together the hopes, visions, and anxieties of ancient Greek civilization. Together, these elements helped to build modern science. The concept that change is the most interesting aspect of nature was proven by Aristotle. The term "thinking of nature" was defined by him in his Physics textbook as the "examination of things that have changed." He differentiated between the issue at hand and the character of the items at hand, such as the bronze statue of a man, saying that the issue at hand was more important.

Something fresh takes form as a result of the reshaping of the metal. An epistemological justification for the adoption of workaday notions such as delegated computing and data consideration is provided by the problem trademark. In the process of enrolling, we are exercising control over models that are composed of various types of electromagnetic material, with the movements of these types of material addressing various components of the course of action plan. The Reliableation of a theory of data structures, which is the foundation of architecture that is programmatically constructed is obtained via the process of abstracting the structure from the method that is used to depict it. Additionally, the generation of "fake" data is made possible. Building on the legacy of ancient

Greece was the first step for Renaissance philosophers in the direction of forging a new view on the relationship between humans and the natural world. The amazing features of nature are slowly being supplanted by the achievements of modern science. Using inductive reasoning, a sizeable portion of the cutting-edge research in the social and physical sciences was able to trace its origins back to the issue of whether or not anything was real. Scientists and realists understood that the representation and utilization of data in human psychology was a bothersome but vital issue for rigorous research. This was because of the nature of the topic.

As a result of this enlargement, the leading edge of cognitive processes inside the brain was advanced. When individuals attain a certain degree of intelligence, they often begin to delve into subjects such as epistemology, mathematical manipulation, and the deliberate use of the commonsense method as a means to comprehend the world. The proliferation of computerization and the heightened dynamism within the mechanical realm have resulted in a rise in the prevalence and acceptance of many technological devices. In 1981, Langley and colleagues developed an artificial intelligence system with the aim of facilitating covert learning. Their work was influenced by the earlier research conducted by Bacon (Bacon). With regards to the occurrence of miracles, it is possible that certain physical laws may be activated in order to execute the program, using the knowledge that has been acquired. During the mid-20th century, mathematician David Hilbert encountered various challenges in his pursuit of developing a formal decision problem known as the Entscheidungs issue. In response, Alan Turing, a prominent figure in the field, proposed the concept of the Turing Machine, which provided insights into computability and the halting problem. These developments, as discussed by Davis et al. (1976), served as early indications of the necessity for a comprehensive framework to facilitate logical assertions.

The inception of modern computing may be attributed to the mid-20th century, with its advancement gaining momentum in the aftermath of World War II. Various academic institutions, including as Manchester (the birthplace of Alan Turing), Penn (the Moore School), and Harvard (home of Howard Aiken's Lab), have made significant contributions to the advancement of computer technology.

In the 1940s, computers were sometimes likened to "goliath personalities" because to the extraordinary computations that they were capable of doing. The disconnection of the mind from the body has two repercussions, both of which have an effect on the intellectual potential of humans as well as on efforts to develop artificial intelligence. Existing mental processes, for instance, are in agreement with guarantee norms, and the fields of epistemology, mind science, higher mathematics, and even the majority of modern literature may now be examined alongside the fundamental approach of artificial intelligence. Descartes' connection between the mental (his rescogitans) and the physical (his res extensa) is extremely vital to human life. Intellectuals have long recognized the necessity to understand how to reconcile the two, and Descartes' relationship between the two is highly

fundamental to human existence. The workshop paper that Alan Turing published in the rational magazine Mind in 1950 is widely regarded as the defining point in the development of artificial intelligence (AI). Artificial intelligence has been able to construct early computers that test hypotheses about the segmentation of the mind and provide a clear direct description of the structure, just as theoretical potential results from the past have been able to do. The history of human inventiveness is a record of the beginnings of the causes that led to the creation of new technologies. This history also recounts the consequences of these advances on the disciplines of science, fiction, and the creative arts. People who worked in building, science, exploratory cognitive research, correspondence speculation, joy theory, mathematics, data bits, foundation and justification, and semantics were the ones who came up with them in the first place. On the other hand, the most obvious successes of artificial intelligence in terms of organizing and identifying available resources may be seen in the self-administrating spacecraft that NASA has sent into space. The same fundamentals of maintaining the attributes of intelligent thought and action via the use of COMPUTERS are at work here. Early attempts at implementing self-rule were more concerned with mechanical structure than they were with intelligent control. This is despite the fact that robots have always been a part of the general public's image of intelligent computers. In recent decades, robots have emerged as useful platforms for putting our hypotheses about intelligent control to the test. These were executed more on a whim than according to any predetermined strategy. They educated us on mechanical views and demonstrated why we shouldn't be frightened of them in a way that was clear and concise.

In spite of this, there were a number of significant examples of tasks really dealing with difficulties that only intellectual people had just been capable of recognizing. In spite of the fact that millions of words have been published on mind-body issues, very little progress has been made in describing the incontestable partnership that exists between a person's mental state and their level of physical activity in order to create a significant difference. The study of AI offers answers to these concerns that are commonly recognized today, and one of these solutions is that the mind and the body are not fundamentally different from one another.

Find out more about this mental activity, which is most likely carried out by physical things such as brains and computers. The ACM Special Interest Group on Artificial Intelligence (SIGART) had its start as an early venue for AI professionals from a variety of professions to talk with one another about AI. Since 1969, the International Joint Conference on Artificial Intelligence, often known as IJCAI, has taken place twice per year. In 1980, as a direct consequence of these efforts for the AI community in North America, the AAAI was established. As a direct consequence of this, a number of different nations have come together to create similar alliances. Since the 1960s, both the complexity of the representations and our comprehension of the components that make up such representations have seen remarkable expansions. The investigation of common ways of thinking, such as case-

based reasoning, similarity, acceptance, thinking while vulnerable, and default thinking, has made significant strides forward in recent decades. Recent research conducted with experienced operators demonstrates that several strategies need to be included into cohesive plans in order to achieve maximum performance.

There are a wide variety of strategies that may be used while developing AI; however, I will focus on a few of the more important ones here:

➢ TECHNICAL LEARNING - Here, the computer "learns," or gets trained, incrementally toward a predetermined goal. If a computer needs to recognize a banana, for instance, it doesn't get any information about bananas from the code; rather, it learns via exposure to several photos of the object and the instruction to group like images together.

➢ ANALOGOUS LANGUAGE ENTRY - The term "natural language processing" pertains to the computerized manipulation of human languages. The use of software is employed for the purpose of transforming voice and textual content. The identification of spam emails serves as a prime illustration of natural language processing (NLP).

➢ AIM - Since it enables machines to "see," this may be called their "eye." The gadget uses a camera to capture visual data, which it subsequently converts to digital format and processes. It has a lot to do with how we see things.

➢ MECHANISMS - This subfield of AI focuses on the design and construction of robots for usage in situations where humans would struggle. Robots are utilized because human beings are unable to maintain the level of performance required for such activities, which are often industrial in nature. Initially, robots were utilized for mundane tasks like cleaning and automobile assembly. But as of now they are even acting as policeman in certain zone of globe and also interfacing socially such As Sophia Robot.

➢ AUTOMOUS VEHICLES - Most influential area in AI, maybe. A large number of cars, lorries, trains, boats, submarines, and aircraft that fly themselves have been built with the use of artificial intelligence. Using AI in this industry demonstrates its utility.

**ARTIFICIAL INTELLIGENCE IN ACTION**

Simulations of human cognitive processes are used by artificial intelligence systems. It does this by quickly connecting a large amount of data via repetition and processing, and it obtains knowledge for the product by studying the highlights and instances. Within the larger topic of artificial intelligence, there are numerous key subfields.

✓ Methods from neural networks, statistical analysis, data mining, and scientific experimentation are all included into machine learning. It finds instances of coverage in data without changing the context of the search or the conclusion reached. In artificial intelligence, a neural framework is a system of neurons that communicate with one another. This structure responds to outside input by transmitting information between each unit.

✓ Like human neural networks, artificial neural networks are made up of linked modules. These cells receive information from the outside world and send it to other linked units via a network of 15. This facilitates the extraction of useful information from data that is otherwise murky.

✓ Deep learning employs very large neural networks with several layers of preparatory units. It allows you to study advanced cases in great depth. Another branch of Ai is Cognitive registering. The goal is to define the human experience while interacting with technology. Using artificial intelligence, it learns to decipher images and recitation, and then it can converse clearly as a person would.

**APPLICATIONS OF ARTIFICIAL INTELLIGENCE ENABLEMENT:**

Artificial intelligence enablement encompasses many processes such as algorithm development, system training, and infrastructure enhancement, all of which contribute to decision-making capabilities. This pertains to the concept of autonomous technologies that has the capability to independently activate equipment, hence enabling system functionality by comprehending the contextual conditions across many industrial sectors including both production and services. Artificial intelligence (AI) finds application in several domains, which will be expounded upon in the next discourse. In the current era of global market competition, artificial intelligence has emerged as a leading digital technology that has significant potential for sectors and organizations seeking to use its capabilities. However, the decision-makers inside organizations have recognized the potential advantages of integrating artificial intelligence (AI) into their business operations. They have taken steps to integrate AI into various sub-functions with the aim of using its capabilities to increase profitability and capture a bigger market share throughout their diverse range of enterprises. Recognizing the potential for machine learning and artificial intelligence to unlock new and unexplored opportunities, hence resulting in increased profitability in the long run. Artificial intelligence is integrated into certain business operations, hence conferring enhanced capabilities onto enterprises.

**1. Research and Development**

The improvements are considerably changing the way of doing things in organizations day by day. That is reflected elsewhere by the research and development team of a firm who are mostly responsible for the drastic change and innovation is part of every organizations' journey. It enables every organization to switch the offering by understanding the market and specially the changing desires of clients and customers nearly in every industry,

from information technology, banking and finance, healthcare and pharmaceuticals, online retail, automotive and more. The research and development crew collect and gather data, analyze and evaluate the results of organizations efficiently of those who have incorporated artificial intelligence in their business functions and if that works out well, then they collect and evaluate tremendous amount of data and find the out-research problem and develop the AI based solution by training the system using machine learning and deep learning techniques and deploy it the functions of business. Thus, it helps research and development activities to be more efficient, effective and result oriented (Iain M. Cockburn and Rebecca Henderson, 2018).

**2. Human Resources Management**

A comprehensive comprehension of the role that artificial intelligence and other digital technologies fulfill in the management of human resources is of utmost importance. The human resources department is considered the primary facilitator of all other elements of a firm, making it a crucial component of the company's operations. The assessment of artificial intelligence skills may be conducted in this particular context, where the merging of these evaluations with the perspectives of other individuals has the potential to completely revolutionize labor-intensive occupations. Artificial intelligence has the capacity to enhance human resources via the reduction of repetitive tasks, the detection and elimination of mistakes, the maintenance of consistent outputs, and ultimately, the facilitation of professional development. The cost of artificial intelligence expertise has increased as a result of a scarcity of proficient individuals in the field of artificial intelligence. Although artificial intelligence allows human resources to provide personalized services to clients and customers by comprehending their needs and preferences and offering tailored products and services through AI-enabled solutions, the cost of acquiring artificial intelligence talent has increased. Moreover, according to Cappelli and Tambe (2018), artificial intelligence facilitates decision-making, streamlines the recruitment and selection process, and enhances operational efficiency inside organizations.

**3. Marketing and Sales**

There are organizations that are incorporating artificial intelligence in marketing function, also artificial intelligence is used in building and executing the strategies for marketing and sales activities, and in addition it also streamlines the marketing activities on both offline and online platforms. It also segregates clients and customers based on their interest and demographic factors so that target advertisements are kept towards in interest of them based on their browsing habits that also enables the organizations to understand and predict the customers' preference and expectations, market forecasting and can have a track of them and other way where artificial intelligence is incorporated is marketing through chatbots where this bots can help in solving minute problems, answer the frequently asked questions, improve communication, recommend the services, and support sales

activity. Artificial intelligence does help marketers in analyzing the data on understanding consumer behavior in a faster phase as accurate as humans or even better. These data help the marketers on planning the campaign activities both online and offline with much better targeting and segmentation thus result on proactive sales performance effectively (Thomas Davenport and Abhijit Guha, 2019).

**4. Information Technology Services**

Artificial Intelligence is driving information technology enabled services by creating effective Information Technology (IT) infrastructure that enables more sophisticated channel and uncomplex platforms to enhance the IT operations and solve complex problems by accelerating artificial intelligent system in the IT infrastructure such like NLP, Computer Vision and Machine learning helps in text detection and analysis, voice and image recognition for the seamless flow of tasks in management services, process automation aspects like network innovation, reducing the manual work and repetitive and routine tasks, quality assurance aspects like software and application testing, digital and social media analysis, efficiency testing, analysis of defects density rate, and managing of services like effective service delivery, assisting and optimizing operational process, tracking user behavior, make suggestions and improve business strategy (Sikender M. Mohammad, 2020).

**5. Banking and Finance**

With the help of digital efforts, AI has revolutionized the banking and financial sectors. The use of AI-enabled chatbots has helped banks better manage their large customer bases by allowing them to more quickly and accurately respond to customer inquiries about their accounts and financial transactions, as well as provide more nimble and cost-effective services, including around-the-clock support for opening new accounts, checking account balances, and filing complaints. Chatbots powered by AI may work as an assistant to staff, a consumer engager, or a financial adviser to their customers by using NLP architecture. Critically, AI is used to prevent money laundering, electronic or online banking, identity fraud, and other forms of financial crime, as well as mobile transfer and e-wallet payment fraud, electronic data theft, and other similar threats that plague the banking and finance industry with each new update and round of accounting reconciliation.

**6. Manufacturing Sector**

Artificial Intelligence is transforming the architecture of product development and design parameters in the manufacturing domain the functions like equipment maintenance, quality maintenance and consistency, evaluating and tracking the deviations in production and correct it accordingly then and there, enhances real time monitoring of AI driven products and services. According to the Capgemini research insights artificial intelligence implementation of twenty nine percentage is in manufacturing sector in terms of managing the machinery and equipment. It is also used in analyzing the product quality inspections (Louis Columbus, 2020). The role of

artificial intelligence on sustainable development was discussed on the promising side considering the factors like boosting the productivity, optimizing the delivery of products, automating several logistical tasks enables to reduce the costs through intelligent manufacturing process, digitized network manufacturing, smart maintenance by unleashing towards the industrial revolution 4.o that pushes organization to foresee new boundaries of institutional development by culmination of extensive knowledge and understanding the real challenges for a better and sustainable manufacturing system (Borut Buchmeister and Ivan Palcic, 2019)

**7. Education Sector**

In educational institutions, artificial intelligence systems are used for a variety of functions, such as automating grading systems, keeping track of and automating the data base files of students, faculty, staff, facilities, and operations, and also been used in classrooms and libraries; in addition to this, AI and ML are adapted in increasing levels of education in terms of improving the real-time learning process and the learning experience; artificial intelligence is avails education at any time, making it on a 24/7 learning advantage; and artificial intelligence is improving The use of current digital technologies such as virtual reality and augmented reality promotes improved teacher-student interaction, which in turn makes the subject matter more dynamic and entertaining. Artificial intelligence-based solutions may assess the questions posed by students and provide answers that are appropriate to the questions by making use of use cases. In addition to this, it evaluates the performance of the students and offers support to them in the form of more individualized training as well as assistance to the students on their own rate of comprehension in terms of speed and tempo (Lijia Chen and Pew Chen, 2020).

**8. Healthcare Sector**

Businesses are using machine learning techniques in order to enhance the efficiency and accuracy of diagnostic processes, beyond the capabilities of human practitioners. The system has the ability to comprehend and interpret natural language, hence enabling it to provide responses to inquiries posed in relation to it. To formulate a hypothesis, the system extracts patient data and other relevant data sources, subsequently presenting them with a trust score methodology. The integration of artificial intelligence into the healthcare sector has become an established phenomenon. It is in the applications of many different paths and pretty much in charge for the growth of world healthcare market be it in smooth clinical operations, disease diagnoses, better patient care, assisting healthcare professional in managing their daily activities on time and helping them aware of their task in complex scenarios on treatment protocol, Artificial intelligence is the research that has been undertaken to imitate human intelligence into computer technology and then into devices that could assist both healthcare professionals and patients in the following ways: by providing a laboratory for medical knowledge examination, representation and cataloguing, artificial intelligence enabled medical imaging and screening, detecting the problems with creating a

new instrument into the computerized solution providence system, and by incorporating artificial intelligence enabled solutions into the application and process of medical diagnoses, integrating artificial intelligence systems in the day-to-day clinical operations and facility management activities, helping doctors to make better decisions on treatment and mild surgical precisions, software and cognitive sciences are helping to build active systems in healthcare management, and by supplying the future scientific medical societies with a content-rich discipline (Fei Jiang and Yong Jiang, 2017).

Davenport (2019) argues that with the increasing ubiquity of artificial intelligence, there is a pressing need to augment open-source coding repositories, online communities facilitating resource and expertise sharing, and the integration of computer processing with other technologies like robotics, human-machine interfaces, and photonics (the amalgamation of applied optics and electronics). Several national governments, notably Russia in 2017, have publicly recognized the significance of AI leadership as a determinant for attaining global supremacy in the next decades. Artificial Intelligence (AI) has emerged as a prominent subject of discourse in influential countries, like the United States and China, since the mid-twentieth century. In recent months, there has been a notable surge in the European Union's (EU) attention towards artificial intelligence (AI), leading to the initiation of coordination efforts with its member states. A number of European nations have initiated proactive measures to mitigate the potential risks associated with artificial intelligence (AI). There are those who continue to exert effort in order to complete the task.

According to Rong (2020), it is projected that artificial intelligence would have an influence on the global economy of 14.23 trillion euros ($15.7 trillion) by the year 2030 and will have a substantial short-, medium-, and long-term economic impact across all industries. The European Commission allotted around 2.6 billion Euros in Horizon 2020 for research into artificial intelligence and robotics, in addition to 9.2 billion Euros for research into related topics from 2012-2017 (including high-performance computing and AI). In 2017, Europe had a GDP growth rate of 1.66 percentage, which was lower than both China's 2.16 percentage and the United States' 3.33 percentage. On the other hand, the percentageages of digital information and communications technology (DICT) were higher in Europe than in the United States. Since 2014, more than seventy-eight percentage of all patents related to artificial intelligence have been submitted in China, the United States, and Japan.

According to Schonberger (2019), the major applicants for artificial intelligence patents are enterprises. According to a list of the top 20, 12 of the applicants for AI patents are from Japan, three come from the United States, and two come from China. There are seventeen Chinese applicants among the top twenty academic contenders. According to one global assessment, artificial intelligence is forecast to have an influence on the global economy equal to 26.1% of China's GDP and 14.5% of North America's GDP by the year 2030. The growth rate in Southern

Europe is expected to be 11.9 percentage, while the growth rate in Northern Europe is expected to be 9.9 percentage. It has been estimated that the use of artificial intelligence to medical and health care will have a significant economic impact. The health care sector contributes at least 10 percentage to the gross domestic product of the majority of EU countries (in 2016). According to a recent research, the use of AI in medical applications might end up saving $150 billion annually in healthcare costs in the United States alone by the year 2026. Only the genetic testing market is likely to develop, and by 2024 it is projected to be worth $22 billion. There are currently over 75,000 gene tests accessible, the majority of which are offered for sale directly to customers.

According to Li (2020), this term may be used to describe the revolution in medicine and health care that is now taking place but is going largely unnoticed. AI is the driving force behind this revolution. Although it has the potential to bring about revolutionary medical improvements and great benefits, it also comes with a plethora of issues that have yet to be answered and ramifications that are very questionable. As a direct consequence of this, AI has already made it possible for new paradigms to emerge in the fields of medicine and health care. According to research conducted by Manne (2021), despite the fact that several AI-based services (including social networks, e-commerce, and other online services) are now an integral part of Europeans' day-to-day lives, worries over privacy and data protection continue to exist. The majority of the time, the topic of debate is a technology that is either now in use or that is anticipated to be used soon (for example, autonomous automobiles) (human-in-the-loop, responsibility, consequences on professionals, and employment). On the other hand, the social repercussions and human effect of AI systems are rarely researched until the technology is accessible to the public and begins to spread globally (i.e. not just in Europe). Following the implementation of the systems, a great number of people have queries. The phrase "autonomous killer robots" is commonly used to refer to (lethal) automated weapons systems (LAWS). LAWS are a recent example of an application of AI that has created debate all over the world about the technology's deep social and ethical consequences.

According to Gulshan (2016), one of the fields in which artificial intelligence (AI) has experienced rapid development in the most recent few decades is the healthcare industry. A number of different medical research have made use of AI to simulate the diagnostic abilities of medical professionals. Utilizing AI in such a way as to ultimately make human healthcare more effective is the ultimate goal. Despite the fast expansion and development of these technologies, patient care settings have not yet made widespread use of them, despite the fact that they are quickly developing.

Investigating unstructured data and analyzing medical imaging are two examples of the applications of artificial intelligence in the field of healthcare. Other applications include lowering the cost of developing new drugs, building sophisticated and integrated drug discovery platforms, contributing to the research and treatment of

cancer, particularly radiation therapy, promoting the development and discovery of genetic medicine, and contributing to the investigation of unstructured data.

2016 Darcy at Elizabethan Era Imaging and the diagnosis of tumors : Machine learning has a number of applications in the field of medicine, the most important of which is picture identification. Imaging has already discovered novel tumor traits that are crucial to diagnosis, which has contributed to the development of technology in pathology. These algorithms are able to handle personalized risk profiles and conduct analyses on illnesses that have a variety of causes. Because it makes use of decision trees and other analytical methods, physicians are able to extract the bare minimum of data required to settle on a treatment strategy for a particular patient.

(Source: Sennar 2019) Medical imaging firms are forming partnerships with artificial intelligence (AI) start-ups in the field of medical scanning equipment in order to improve their picture quality and clinical results while simultaneously reducing their patients' radiation exposure. Wearable technology is also starting to emerge as something that researchers and healthcare organizations are interested in. GE Healthcare is now working on CT scans that may detect kidney and liver diseases.

2017 according to Fei Jiang There are two distinct categories of artificial intelligence (AI) medical devices. The first category is comprised of machine learning technologies that investigate structured data. The machine learning processes used in medical applications look for patterns in patients' characteristics and try to infer the likelihood of certain illness outcomes. The other category include things like Natural Language Processing (NLP) technologies, which are used to supplement organized medical content by extracting information from unstructured data like clinical records and medical publications.

(Fiumara and others, 2018) AI's Role in Public Health: A sizable number of doctors and other medical professionals now act as moderators on various online communities. Patients face substantial risks while using healthcare social networks because of the possibility that they will get information of poor quality or that is completely inaccurate. Possible causes for worry for patients include the spread of inaccurate information, damage to a practitioner's reputation, invasions of patient privacy, breaches of the boundary between personal and professional spheres of activity, and licensing or legal complications. Because of the enormous amount of information that has to be analyzed and processed, several scientific endeavors have discovered that they require the assistance of decisional support systems. The production of a wide variety of cloud-based healthcare systems can be triggered by the use of artificial intelligence in healthcare social networks (HSN), patient post-analytic systems, and HSN systems themselves.

Davenport (2019) argues that with the increasing ubiquity of artificial intelligence, there is a pressing need to augment open-source coding repositories, online communities facilitating resource and expertise sharing, and the

integration of computer processing with other technologies like robotics, human-machine interfaces, and photonics (the amalgamation of applied optics and electronics). Several national governments, notably Russia in 2017, have publicly recognized the significance of AI leadership as a determinant for attaining global supremacy in the next decades. Artificial Intelligence (AI) has emerged as a prominent subject of discourse in influential countries, like the United States and China, since the mid-twentieth century. In recent months, there has been a notable surge in the European Union's (EU) attention towards artificial intelligence (AI), leading to the initiation of coordination efforts with its member states. A number of European nations have initiated proactive measures to mitigate the potential risks associated with artificial intelligence (AI). There are those who continue to exert effort in order to complete the task.

According to Rong (2020), it is projected that artificial intelligence would have an influence on the global economy of 14.23 trillion euros ($15.7 trillion) by the year 2030 and will have a substantial short-, medium-, and long-term economic impact across all industries. The European Commission allotted around 2.6 billion Euros in Horizon 2020 for research into artificial intelligence and robotics, in addition to 9.2 billion Euros for research into related topics from 2012-2017 (including high-performance computing and AI). In 2017, Europe had a GDP growth rate of 1.66 percentage, which was lower than both China's 2.16 percentage and the United States' 3.33 percentage. On the other hand, the percentageages of digital information and communications technology (DICT) were higher in Europe than in the United States. Since 2014, more than seventy-eight percentage of all patents related to artificial intelligence have been submitted in China, the United States, and Japan.

According to Schonberger (2019), the major applicants for artificial intelligence patents are enterprises. According to a list of the top 20, 12 of the applicants for AI patents are from Japan, three come from the United States, and two come from China. There are seventeen Chinese applicants among the top twenty academic contenders. According to one global assessment, artificial intelligence is forecast to have an influence on the global economy equal to 26.1% of China's GDP and 14.5% of North America's GDP by the year 2030. The growth rate in Southern Europe is expected to be 11.9 percentage, while the growth rate in Northern Europe is expected to be 9.9 percentage. It has been estimated that the use of artificial intelligence to medical and health care will have a significant economic impact. The health care sector contributes at least 10 percentage to the gross domestic product of the majority of EU countries (in 2016). According to a recent research, the use of AI in medical applications might end up saving $150 billion annually in healthcare costs in the United States alone by the year 2026. Only the genetic testing market is likely to develop, and by 2024 it is projected to be worth $22 billion. There are currently over 75,000 gene tests accessible, the majority of which are offered for sale directly to customers.

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**Conclusion**

There has been a lot of AI initiatives undertaken by healthcare and education sectors during the time of Covid and has made life at ease for many. Healthcare and education are perceived to be making remarkable difference in the AI space in the near future. There has been a dedicated budget and resources now allocated for AI in both this sectors. No association was found between company location, types of sector, types of businesses and increase in sales turnover after implementing of AI in the organization. This means that increase in sales turnover is uniform in all organizations after implementing AI irrespective of company location, type of sector and business. It has also been found in the research that there are some major hindrances in implementing AI which includes lack of

adequate knowledge about internet security about AI technology and its benefits. The other moderate factors are budget constraints to implement and manage on-going AI operations. Some respondents also consider possibility of degradation of drugs and medicines during transportation to the consumer's house act as a possible hindrance to implement AI in the pharmaceutical sector. The further hindrances to this as online grocery food is having long delivery times and distances mean that produce is not always fresh when it arrives and it is a big barrier in consumers mind to use online grocery and food app. Some respondents were of the opinion that online grocery retailing being capital intensive business acts as a possible hindrance to implement AI in the organization.

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