THE EFFECTS OF ARTIFICIAL INTELLIGENCE (AI) ON INDIA'S BUSINESS ENVIRONMENT: PROSPECTS AND OBSTACLES

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ABSTRACT

The business environment is highly volatile and has affected Indian industries on a large scale. India has come a long way toward becoming a force to be reckoned with in the international economy. India is being projected as a manufacturing hub through the "Make in India"' campaign.India emerges as one of the greatest marketplaces for digital consumers, with a population of 1.38 billion and more than 500 million internet users. In February 2018, NITI Ayog led a nationwide initiative on "National Strategy for AI," which emphasizes India's AI strategy. It offers more than 30 policy proposals, including accelerating the implementation of artificial intelligence throughout the value chain, promoting ethics, confidentiality, and security in AI, and promoting investments in scientific research.

Countries like the USA, China, Singapore and Canada have announced their national AI strategy documents. Investment in AI start-ups in India has grown to USD 73 million in 2017 from USD 44 million in 2016. Among the G-20 countries, India had the third-highest number of AI start-ups in 2016. The government identified various areas where AI could be effectively used, such as health care, agriculture and education. This paper attempts to examine the changing scenario of the business environment, and it also studies the opportunities and challenges of the digital economy considering AI in India.

Keywords: Business Environment, Artificial Intelligence, Prospects and Obstacles, Effect on employment

1. INTRODUCTION

The business environment is made up of all the internal and external elements that have an impact on an organisation. It aids in the identification of strategic business prospects, the planning of activities, and the improvement of the profitability and expansion of the company.(Ghosh, 2018).Artificial intelligence (AI), a branch of computer science, places a strong focus on creating intelligent robots that behave and react much like people. In 1950, John McCarthy was the first person to use the term "artificial intelligence." According to his theory, every component of learning and every other quality of intelligence could be so thoroughly described that a computer could be programmed to duplicate them. It will be investigated how to make robots comprehend language, create abstractions and concepts, address issues now handled by people, and grow. The "#AI for all" working paper exhorts India to leverage its assets by making investmentsin the Indian economy's "gold mine," or the areas where AI will have the most positive socialimpact. These industries have been broken down into five categories: smart mobility and transportation, smart infrastructure and cities, smart agriculture, and smart healthcare. The study suggests that NITI Aayog uses a three-pronged approach to achieve these goals. First, it needs to create AI proto type programmes to prove the notion. Second, it has to develop a comprehensive national policy toimprove India's ecosystem for AI. Third, in order to carry out these ambitions, it shouldcollaborate with top AI research institutions and organizations. The NITI Aayog has designated this aim of deploying transformative technologies for social and inclusive growth as #AI for all, as suggested by the title of its discussion paper.

The adoption of artificial intelligence is still subject to debate. Elon Musk, for instance, described it as the "greatest existential threat" and likened it to "summoning the demon." Expertslike Stephen Hawking and a vast percentage of scientists releasing ground-breaking discoveries agree with Elon Musk that AI may be extremely destructive. They are concerned that we areavidly pursuing the deployment of robust AI systems and that we might do so in a way thatmakes us vulnerable to making dangerous errors.Only 386 of the 22,000 AI researchers with PhDs in the globe are based in India, accordingto the Global AI Talent Report 2018. Additionally, less than 50 researchers are actively engagedin significant AI research in India, with the majority of their efforts concentrated in institutionslike the IITs, IIITs, and IISc.

Thus, it is important for India to formulate well drafted policies that consider application inInfrastructure development, Healthcare, Education and Agriculture. Public as well as the privatesector need to work on drafting policies that can help in the creation and application of AI.

2. ARTIFICIAL INTELLIGENCE APPLICATIONS

The application of AI is very wide in today's scenario. There are various areas where the application of AI will prove to be a boon for development and inclusive growth of India. The sectors discussed below include: AI has applications in Healthcare, Marketing, Banking, Agriculture, Transport and Education.

Healthcare

Artificial intelligence in healthcare largely relates to accessing enormous data collectionsof potentially life-saving knowledge by medical professionals and facilities. This includesinformation on treatments, their results, survival rates, and the pace of care derived from data onmillions of people, many places, and countless, occasionally linked health complications.Due to the necessity for automation in a wide range of tasks, India's healthcare industry utilises AI extensively.

Start-ups like Advancells, formed in 2005, are focusing on regenerative medicine, a field of tissue engineering and molecular biology-based translational research that focuses on replacing and regenerating human cells, tissues, and organs in order to produce or restore normal function. It provides patients throughout the world with technology that allows for safe and efficient treatmentalternatives that adhere to the highest medical standards.

The nation's first online doctor consultation platform, Lybrate, launched in 2014. In today's fast-paced, demanding environment, we hardly ever have time to visit a doctor in person for every little health concern we encounter. Because of our excessive job commitments, we frequently end updisregarding symptoms that, to us, appear small but ultimately turn out to be dangerous. Patients

can connect to doctors and conduct online consultations through the Lybrate website. Onlineappointments and lab tests are also accessible to patients.

BeatO now serves roughly 50,000 patients across 1,500 cities since its launch in 2015. Thesoftware works well and includes a glucometer that can be connected to a smartphone to get

readings. Following that, the reading is saved in the app for later reference and emergencyuse.Since 2016, the healthcare sector in India has expanded at a compound annual growth rate of roughly 22%. It is expected to reach USD 372 billion in 2022 if it continues at its current rate.

Marketing

Artificial intelligence has changed the way traditional marketing is done. AI-based chatbotsare a key component of modern marketing. A chatbot is a type of conversational interface thatenables communication with software in a human-understandable natural language.

A well-known fashion retailer called H&M utilizes chatbots to ask clients questions abouttheir own fashion preferences. When the chatbot has gathered sufficient data from the user, itgenerates suggestions that are in line with the user's replies.By using voice search technology, Domino's has made it possible for consumers to make orders through Alexa by simply speaking to the device. Sales for Domino's have grown because of this innovation.

Banking

According to a recent report, financial institutions will save $1 trillion in project costs because of artificial intelligence. The Indian banking industry is moving quickly to integrate AI. According to a PwC Trends Report (India) 2017, $5.1 billion was invested globally last year in AI applications, up from $4.0 billion in 2015. The study states that "AI and ML applications give the prospect for exponentially more personalised and rapid user experiences, greatly improved insights, and automation of back-end processes." With 420 million customers, SBI is India's largest public-sector bank. It is beginning its AI journey from the viewpoint of both its employees and its customers. SBI organised a nationwide hackathon in 2018 called "Code for Bank" with a focus on technologies like AI, machine learning, BOTS, digital payments, the IoT, and robotic process automation to encourage developers, start-ups, and students to come up with fresh concepts and solutions for the banking sector. The Bengaluru-based Senseforth AI Research developed the AI-powered chatbot Eva for HDFC Bank. Since its launch in March 2017, the Electronic Virtual Assistant, also known as Eva, has handled more than 2.7 million client inquiries, interacted with more than 530,000 distinct clients, and participated in 1.2 million dialogues. Any irregularity may be used to increase the precision of credit card fraud and anti-money laundering detection. Back-office processing times may be significantly reduced by utilising OCR to gather document data and then machine learning or artificial intelligence (AI) to extract insights from the text data. Back-office processing times may be significantly reduced by utilising OCR to gather document data and then machine learning or artificial intelligence (AI) to extract insights from the text data. At ATMs, fraud and crime may be detected and prevented using real-time camera pictures and cutting-edge AI techniques like deep learning. Indian banks' use of AI is transforming the way that banking operates there.

Agriculture

AI in agriculture is providing major benefits to farmers, which can drive an agriculturalrevolution. In 2018, the market for AI in agriculture was estimated at USD 600 million, and by2025, it is anticipated to reach USD 2.6 billion. Agriculture is fast adopting artificial intelligence (AI) and machine learning (ML), both in terms of agricultural products and field farming techniques.

Crop yields are optimised using AI driven by Intel. An automatic lens is wrapped around a tomato seedling's vibrant flower. An artificial intelligence program utilising images from the plant calculates the precise time it will take for the bloom to mature into a ripe tomato that is prepared for picking, packing, and displaying in the produce area of a supermarket.

Intello Labs, for example, uses image-recognition software to monitor crops and predict harvests on Indian farms. Aibono offers solutions to stabilise agricultural production using agri datascience and AI. Drone technology from Trithi Robotics enables farmers to precisely analyse their soil and monitor crops in real time. An Indian startup called SatSure analyses agricultural photos and forecasts the economic worth of their future crop using machine learning (ML)techniques.

By using sensors, cameras, and infrared rays to assess the soil's nutritional properties, AI may be utilised to monitor the health of the soil(Sennaar, 2019; Baruah, 2018). This makes it easier to understand how various soils respond to different seeds, how weather changes would affect the soil, and the likelihood that diseases and pests will spread (Irimia, 2016).

In terms of agricultural sowing, predictive analytics that determine when and how to seed are mostly powered by AI. It assists in estimating the best times to sow, apply fertiliser, harvest, bale, till, and perform other activities based on climatic data, historical circumstances, input and output market conditions, personal information, and other factors.Furthermore, crops may be seeded with the help of AI-assisted machinery at the proper depths and intervals. The quantities needed for any predictive modelling are provided by data from e-NAM, the Agricultural Census (which contains information on over 138 million operating holdings), AGMARKET, and more than 110 million soil health tests.

Transport

In order to decrease the number of accidents on highways and boost production, businesses like Uber and Tesla have created self-driving trucks. By utilising AI to forecast the routes taken by bikes and walkers, traffic accidents and injuries will be reduced, allowing for a wider range oftransportation options and a general decrease in carbon impact.

Real-time crime monitoring enhances citizen safety while using public transportation inurban settings. Additionally, by patrolling and ensuring the safety of its population, this willallow the police to work more efficiently..

Transport will be one of India's most capital-intensive industries by 2030, predicts aMcKinsey analysis from 2010. The same research states that more than 7,400 kilometres of metroand subway lines must be built.

India's economy is expanding, but because of its poor infrastructure, we are still havingissues. Modern AI and algorithms can be used to optimise the transportation system so that ituses less fuel and is on the road less often. By 2030, it is expected that there will be a $10.30 billion market for AI in the transportation sector. Another important problem is the talent gap. As the industry becomes increasingly data-driven and digital, the labour requirements will alter. The demand forAI specialists who are also knowledgeable in transportation-related technology will increase.

Education

According to the 2011 Indian Census, 19.1% of all people in India are between the ages of15 and 24. By 2020, there will be 34.33% more young people in India than there are now. Theeducation system needs to be strengthened since it may change a nation by increasing humancapital and reducing productivity.

AI has the potential to revolutionise the sector by improving education and developing tools to steer and aid decision-making across stakeholders and administrative levels. Both students and instructors may benefit from the digitisation of the educational platform thanks to AI. Around the world, a variety of tutoring services and learning programs with skill-based curricula are being created. Many courses are available through platforms like Swayam and NPTEL, which may help students gain a broad understanding of the topic.

The Central Board of Secondary Education (CBSE) in India has chosen to include artificialintelligence in their curriculum for pupils in an effort to change their educational system to prepare students for the rapidly evolving and extremely demanding technology of today.

After carefully examining the content at numerous checkpoints, AI is capable of directingstudents to free learning resources. By filling in any explanation gaps that may occur during acourse, this form of approach ensures that all

students are acquiring the same conceptualfoundation.

To tackle this difficult problem, Microsoft and the Andhra Pradesh government collaborated. In order to uncover trends based on certain factors, such as gender, socioeconomic demographics, academic performance, school infrastructure, and teacher skills, an application powered by Azure Machine Learning evaluates the data pertinent to all pupils. These data insights enable the district education authorities to act and support students who are most likely to drop out. For these youngsters and their parents, various activities and counseling sessions might be held.

3. PROSPECTS AND CHALLENGES

India has a number of potential ways to use AI to create the necessary automation. With 1.3 billion people, the nation already has a labour shortage due to its large and growing labour force.There were 63,000 unfilled positions on its railroads in February 2018, and 19 million peopleapplied. The youthful workforce should be educated by being exposed to the tech-enabled workplace of the future with AI interfaces, machine learning, and increased automation since half of the population of the country is below the age of 25.

Acquisio and other AI-enabled systems may help marketing operations in a wide range of channels, including Google AdWords, Facebook, and Bing. According to a December 2017 Accenture estimate, AI may boost India's GDP by $957 billion, or 15% of the current gross value added, by 2035. The three main methods for unlocking economic value are productivity ($277 billion), intelligent automation ($83 billion), and augmentation given through human andmachine collaboration ($597 billion).

The variety of languages spoken in India offers a great opportunity for developing AI tools that synchronise communication across many digital platforms.

Every opportunity is accompanied by a number of difficulties. The effect of AI on jobs isIndia's largest problem. Many people worry about losing their jobs as a result of AI, but it'scrucial to realise that, in order to fill the gap created by this technology, individuals mustautomate themselves.

In order to create local AI-using businesses, the government needs to finance the educationof the best and brightest students in AI. Prodigies in math and engineering should be identified ata young age, trained hard, and sent to prestigious international universities to study. A Team Lease Services examination of secondary data forecasts that 52–69% of repetitive and predictive tasks in sectors including IT, financial services, manufacturing, transportation, packaging, and shipping would be vulnerable to automation in the coming years.

A data-validation clerk, for example, will assume the place of a data-entry clerk after that position is automated. A cashier would be replaced by a query handler, a financial analyst by a financial adviser, a telemarketer by a marketing algorithm builder or a personal adviser, a customer service agent by a customer interaction executive, and a retail salesperson by a retail adviser, style adviser, or shopping assistant.

WAY FORWARD

A proper structure of regulations and procedures that can improve India's job market isrequired with the introduction of AI. According to NASSCOM, a remarkable 46% of the Indian labour force will be employed in professions that either don't exist yet or have changed significantly according to the skill needs by 2022. Some predictions state that by 2018, demand for AI and machine learning specialists in India will rise by 60%. By 2020, India will have a 2,00,000-person shortage of data analytics professionals, according to an independent study.

The millennial generation and India's growing middle class account for a sizeable percentage of the market for technology-enabled items in that nation.The demand for these items and,consequently, the labour that can make them, will grow along with these demographics' size.Increased globalisation was a significant factor in the growth of the services sector.

Online and self-learning platforms like Coursera and edX, which connect students to the topcolleges and organisations worldwide, might be extremely important in this situation. The growing middle class in India and the millennial generation account for a sizable percentage of the market for technology-enabled items there.

If initiatives to reskill workers or allow employees to engage in reskilling programmes have a significant opportunity cost, private organisations may be less reluctant to let their employees participate in the process on a broad scale. Therefore, it is advised that co-funding options between the government and businesses be investigated, with an emphasis on the ITindustry.

AI has been slowly adopted in India and still has a small market. Only 22% of Indiancompanies, according to estimates, use AI in any business operation. Compared to the nearlyUSD 28 billion raised by Chinese start-ups in 2017, Indian start-ups were only able to raise USD87 million. With the rising usage of technology, there is a desire for new jobs that quicken the pace of an expanding economy. The funding of AI should be more widespread in industries

like healthcare, transportation, and education, but more crucially, government actions can accelerate overall growth. To promote the engagement of digital giants, research collaboration should be increased, and qualified start-ups should receive government funding.

4. CONCLUSION

India can gain from AI in the upcoming years due to its competitive advantage. The biggest issues are found in sectors like healthcare, education, and transportation, where using AI can outperform costly and ineffective traditional methods. In India, there is a shortage of 600,000 doctors (1 doctor to 1,000 patients is the recommended ratio by the WHO) and two million nurses (the WHO advises a doctor to patient ratio of 1:1,000, however the ratio is 1:483.). These figures themselves highlight the need to switch to new approaches for employing AI to diagnose the issues.

According to the NITI Ayog's "National Strategy for AI," in order to perform remote condition monitoring, the Ministry of Railways, Government of India, has chosen to use AI. Non-intrusive sensors will be employed to monitor signals, track circuits, axle counters and their interlocking subsystems, power supply systems, including the voltage and current levels, relays, and timers. The government must therefore develop policies that genuinely go in this direction. It is necessary to expand the infrastructure development areas that can support the 2018 National Strategy for Artificial Intelligence #AIFORALL.

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