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EDUCATION 4.0

Enhancing India's Workforce for the AI-Powered Future

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VOLUME- I

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IMPACT OF ARTIFICIAL INTELLIGENCE (A.I.) ON EMPLOYMENT OF INDIAN WORKERS

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Abstract
Artificial Intelligence (AI) is a fast emerging technology that can boost worker productivity and efficiency and encourage innovation in a variety of industries. The impact on employability could indicate either a benefit or a drawback, though. In India, artificial intelligence is predicted to start a new industrial revolution that will cause a large number of job losses. Artificial Intelligence (AI) has the power to revolutionize the global labor market drastically, even as it also has the potential to automate existing jobs and worsen inequality and prejudice. This study examines the opportunities and challenges that artificial intelligence (AI) robots may pose to employment across a range of industries. The study looks at how AI will impact jobs by reading reputable blogs, trade journals, and academic research. The research report offers a comprehensive analysis that makes clear how AI affects jobs in India while taking into consideration how the country's economy is rapidly changing as a result of international concerns. India's IT industry has expanded at a remarkable rate, contributing to technologies that have improved people's lives in several ways. Due to its consistent commitment to skill development, economic change, and job creation, this industry is currently leading the way in the country quest of advancement and change. This research examines how AI has an impact on employability in India and addresses several significant subjects. In the first place, it highlights the programs for up skilling and the demand for new job categories other sectors that have developed as a consequence of the application of AI. It also examines how AI is transforming existing jobs areas and emphasizes the need for retraining in light of AI-driven enterprises. In order to improve productivity and efficiency, it also discusses the possibility of human and AI cooperation in the third section.
Keywords:*Artificial Intelligence, Discretion, Reasonable, Data Privacy, Employment, CRM.*

Introduction

Artificial intelligence (AI) is a fast-growing field that combines "artificial" and "intelligence" components. Identifying the exact "Intelligence" has been defined as an incredibly challenging undertaking over time. The Details Indian technology (IT) services industry, which is regarded as one of the leading worldwide sourcing locations, has a considerable cost advantage over the US market—about three to four times less than that of the an alluring proposal. Additionally, India provides source nation’s access to a sizable

number of highly qualified technical graduates at a noteworthy 60–70% reduction in cost. However, the increase in automation begs the question of the sustainability of the conventional Indian paradigm for the IT sector. Empirical data currently available reveals the important AI's impact on Indian employment. The World Economic Forum released a detailed report that states that automation and artificial intelligence (AI) are expected to eliminate about 5.1 million jobs by 2025 in India. The sectors that are anticipated to the industries most impacted are manufacturing, retail, and conveyance. However, the report also observes that the AI applications could lead to the creation of 2.3 million jobs new jobs in India, primarily in the high-tech the fields of industry, energy, and healthcare. Additionally, a thorough examination of the AI environmental studies in India was conducted by the National Association of Service and Software Providers (NASSCOM). This study aims to investigate the potential effects of AI on job possibilities in India, as well as the associated opportunities and challenges that may arise. This research attempts to provide insights about the changing Indian workforce by investigating the intricate implications of AI on work

Review of Literature

The 2019 Microsoft and IDC report was based on a survey of 202 Indian workers and 200 business leaders. (affiliating with different verticals, such agricultural, manufacturing, and healthcare automobile, retail, services, and so forth), discovered that laborers and company executives in India hold favorable opinions on the effects of AI on the employment landscape of the future. Greater than half (64 sixtythree percent of corporate executives and of workers) think AI will either to do their current duties more effectively or to cut recurring daily duties. When the time arrives sixteen percent when it comes to adding or removing jobs business executives think artificial intelligence will generate additional employment, yet 18% believe that automation will supplant human labor. Interestingly enough, Employee optimism is higher, with only 4 % anticipated.

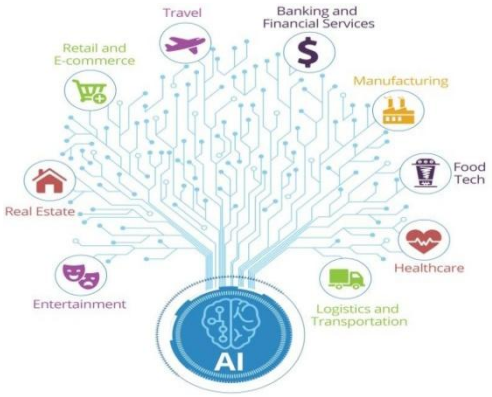
According to an ICRIER (2020) study, econometric estimation revealed a favorable and substantial relationship between businesses employing AI and Total TFP increase, or factor productivity. As the computed that a rise of one unit in the strength of AI will boost TFP growth by 0.05%. A unit increase was discovered. in AI intensity by businesses utilizing AI can reimbursement of USD 67.25 billion, or 2.5 percent GDP contribution to the Indian economy in the in the near future. Concerning the employment situation, the study claimed that "the current AI applications do not possess the capacity to substitute all responsibilities performed by collective work, but only those regular and non-cognitive tasks.

The "impact on" of "Responsible AI" (NITI, 2022) has been taken into account by NITI Aayog. Among the "societal" factors are "jobs." even as you recognize the general Principles an AI that is Responsible. Furthermore, it acknowledged saying "AI's explosive growth has resulted in the automation of several menial tasks. It further said that this field needs more thorough investigation and, as a result the actions that were suggested to be conducted as soon as possible.

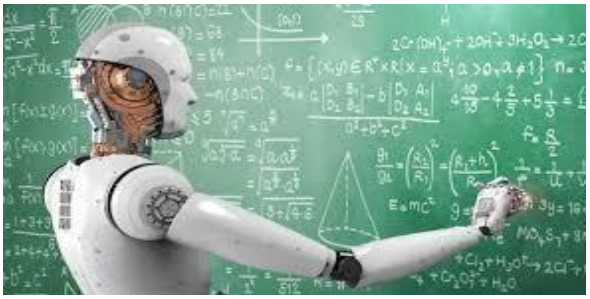
Objectives of the Study

- To know the impact of AI on employment prospects across several Indian industries.
- To recognize and understand the challenges that artificial intelligence (AI) poses for occupations across a range of industries that need varying degrees of skill—from low to high.
- To examine how India's usage of AI is creating a wide range of job opportunities

The Impact of Artificial Intelligence on Employability in a Variety of Industries
Education Sector



Artificial intelligence is transforming the education sector through personalized learning experiences, automated grading, and intelligent tutoring systems. It may affect teaching roles by automating some administrative tasks, but it also gives educators new opportunities to apply AI technologies



Industrial Sectors

Data and AI might add $ 450 billion to $500 billion to India's GDP by 2025. It is projected that the retail and consumer goods, banking and finance, and agriculture sectors will contribute roughly 45% of the total value. Due to its ability to improve yield and production planning, AI has the potential to greatly boost farmers' profitability in agriculture. Similar to how the banking and financial services sector may utilize AI for credit underwriting and financial risk modeling, the retail and consumer goods sectors can benefit from targeted marketing and focused campaigns.

Agricultural Sectors

Artificial intelligence has the ability to drastically change Indian agriculture by addressing problems including farmers' lack of infrastructure, resources, and knowledge.Weather forecasting, robotic agriculture, precision farming, drone-assisted crop health assessment, robotic agriculture, identification of pests and weeds, soil monitoring, and agricultural robots are just a few of the uses of AI in agriculture. Artificial Intelligence is expected to alleviate stress in the agriculture sector and promote data-driven farming, which will increase output. There are over 72 AI in agriculture companies in India, and many different organizations and startups are using AI in agriculture. Increased use of the internet and government support and efforts are driving the growth of technology-assisted agriculture. It is anticipated that the Indian agritech industry will be worth between US$30 and US$35 billion by 2025, attracting significant investments from private equity and venture capital firms. With the government's support, growth is expected to be stimulated throughout India's whole agricultural value chain

Health Care Sectors

Artificial intelligence is transforming India's healthcare sector, and it is predicted to grow significantly in the next years. Predictive analytics, remote monitoring, customized treatment, diagnostics, and enhanced patient experiences are a few uses for artificial intelligence. It is tackling the shortage of radiologists by enabling speedier and more accurate diagnoses. Artificial intelligence (AI) systems that generate personalized treatment plans from patient data are producing better outcomes. Owing to devices for remote monitoring, medical practitioners may now keep an eye on patients from a distance, especially those with chronic conditions. AI-powered chat bots enhance patient experiences by providing mental health services and prompt assistance. Predictive analytics identifies patients who are at high risk, enabling early intervention. However, concerns including data protection, legal frameworks, skilled labor, education, and building confidence must be addressed. By creating a cooperative and inventive atmosphere that encourages.

IT Sectors

India's IT sector is keeping up with quickly evolving tech fields like cloud, artificial intelligence, and cyber and data security thanks to the presence of top multinational corporations like TCS, Infosys, Wipro, and Tech Mahindra there. These companies invest in research and development (R&D) to address customer needs, with a focus on creating cutting-edge technologies like artificial intelligence (AI) and machine learning (ML). The industry is aware of how critical it is to modernize technology stacks, leverage cloud infrastructure, and automate software delivery in order to accelerate development. It is projected that the Indian IT landscape of the future would be AI-driven and reliant on hybrid cloud solutions, with an emphasis on data protection and privacy. Companies like

IBM have already made key acquisitions in areas like hybrid cloud infrastructure and AI automation. How big the industry gets will depend on its ability to assess real-time data sets, make decisions based on data, and easily manage apps and data across platforms.

Banking and Insurance

Artificial intelligence is quickly enhancing efficiency and customer service in the Indian banking industry. Startups are using AI for chat bots and data analysis. However, India lags behind global leaders in the AI business. AI revolutionizes asset management, hiring, and customer service in banking. The Reserve Bank of India promotes cutting-edge technology like block chain in an effort to improve customer satisfaction. India's status as a hub for innovation is bolstered by both its financial sector and its technology landscape. Although additional financing is needed, AI offers a lot of potential in the banking industry.

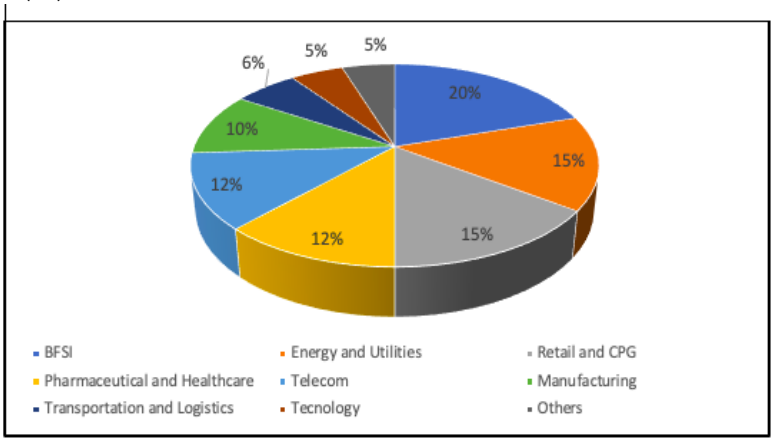
Manufacturing Sectors

Artificial intelligence is automating repetitive tasks in the manufacturing sector, which is displacing workers in several industries. However, technology also creates opportunities for skilled workers to manage and run AI- and robotics-powered systems.

Retail Sectors

AI is influencing retail through focused marketing, inventory management, and customer service. Customized recommendations and process automation, including inventory control and replenishment, can be facilitated by it. However, it could also lead to the loss of jobs in traditional retail settings.

Sector Adoption (%) of AI Platforms



Challenges for Occupations across a Range of Industries

Building trust: The AI is all about science, technology, and algorithms which mostly people are unaware of, which makes it difficult for them to trust it.

AI human interface: Being a new technology, there is a huge shortage of working manpower having data analytics and data science skills; those in turn can be deputed to get maximum output from artificial intelligence. As the advancement of AI rising,

businesses lack a skilled professional who can match the requirement and work with this technology. Business owners need to train their professionals to be able to leverage the benefits of this technology.

Investment: AI is an expensive technology that not every business owner or manager can invest money into as large amount of computing power will be necessary and sometimes hardware acceleration with GPU, FPGA, or ASIC must be in place to run machine learning models effectively. Though adoptability of AI is surging high, it has not been integrated fully in business's value chain at the scale which it should have. Moreover, enterprises of those who have incorporated are still in nascent stage which have resulted in the slowdown in the lifting of the AI technology at scale and thus been deprived of cost benefit of scale. After decades of speculation and justifiable anxiety about the social implications of intensifying & potentially de-stabilizing AI technology for humankind and Black box problem, AI investors are bit skeptical from parking their money in potential startups.

Software malfunction: With machines and algorithms controlling AI, decision-making ability is automatically ceded to code-driven Black Box tools. Automation makes it difficult to identify the cause of mistakes and malfunctions. Moreover, due to the lack of ability of human beings to learn and understand how these tools work, they have little or no control over the system which is further complicated as automated systems become more prevalent and complex.

Non-invincible: (Can replace only certain tasks) Like any other technology, AI also has its own limitations; it simply cannot replace all tasks. However, it will result in emerging new job domain with different quality job profile. High expectations: Research in artificial intelligence is conducted by large pool of technologist and scientists with varying objectives, motivation perspectives, and interests. Main focus of research is confined in understanding the underlying basis of cognition and intelligence with heavy emphasis on unraveling the mysteries of human intelligence and thought process. Not everyone understands the functioning of AI and might also have very high expectation of functioning.

Data security: Machine learning and decision-making capability of AI and AI application are based on huge volumes of classified data, often sensitive and personal in nature. This makes it vulnerable to serious issues like data breach and identity theft. Mostly, companies and government striving for profits and power, respectively, exploit the AI-based tools which are generally globally networked which make them difficult to regulate or rein in.

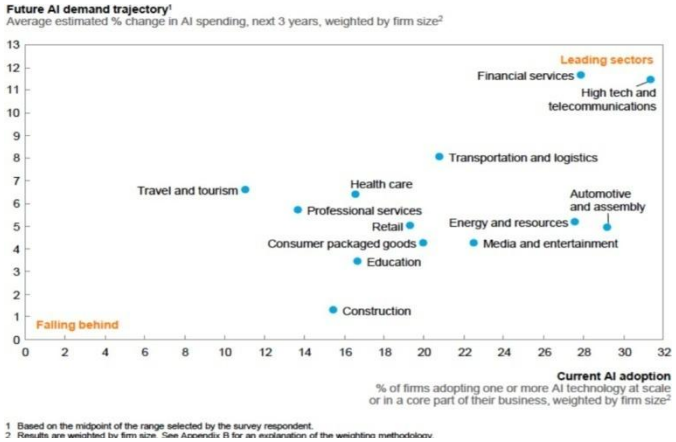
Algorithm bias: AI is all about data and algorithms. Accuracy of decision making capability of AI is purely based on how accurately it has been trained and by using authentic and unbiased data. Unethical and unfair consequences are inherent in vital decision-making if data used for training is laced with racial, gender, communal, or ethnic biases. Such biases will probably be more accentuated, as many AI systems will continue to be trained using bad data.

Data scarcity: Power and capabilities of AI and AI applications depend directly on the accuracy and relevancy of supervised and labeled datasets being used for training and learning. There is scarcity of quality-labeled data. Though efforts are underway by means

of transfer learning, active learning, deep learning, and unsupervised learning, to devise methodologies to make AI models learn despite the scarcity of quality-labeled data, it will only aggravate the problem

The Possible Effects of Artificial Intelligence on Employment

Technological advances have historically increased employment generally rather than decreasing it. Still, economists concur that incorporating AI into our society is a novel idea. The extent to which the development of robots and artificial intelligence will contribute to long-term unemployment is a matter of debate among economists. Nonetheless, most economists agree that if productivity gains are distributed equitably, using AI might have a positive net effect. The potential risks that artificial intelligence might present vary greatly. For instance, an OECD analysis identifies only 9% of American jobs as "high risk," despite Michael Osborne and Carl Benedict Frey estimating that over 47% of American employment is "high risk" of automation. However, it is crucial to remember that forecasting future employment levels lacks a solid empirical foundation and may incorrectly attribute all of the unemployment to technological advancements rather than accounting for more extensive social programs and layoffs. AI has the potential to replace a significant portion of middle-class jobs, unlike previous waves of automation. It makes sense for The Economist to be concerned that artificial intelligence (AI) could have the same impact on white-collar jobs that steam power did on blue-collar jobs during the Industrial Revolution. However, occupations associated to providing care, such as personal healthcare and clergy, are predicted to become more in demand; they include paralegals and fast-food cooks.



Source: NITI Aayog

Conclusion

India is rapidly progressing to meet the needs of the shifting global landscape as well as its growing economy. Experts believe that the development of AI will trigger the fourth Industrial Revolution, which will change both the manufacturing and service sectors. The AI revolution is putting a lot of professions in different industries at danger. Cities are evolving into smart hubs with modern amenities, but this shift also signals the end of some employment. It's important to keep in mind that automation won't completely replace all

jobs, as other experts have noted. Some jobs may be eliminated by intelligent automation, but critical decision-making positions requiring a high level of skill will always require human intellect. This change is expected to strengthen India's infrastructure and encourage further economic growth. But in the next five to ten years, it's expected that developments brought about by AI will lead to the disappearance of some jobs within specific industries.

References

1. Crawford, J., Cowling, M., & Allen, K. (2023). Leadership is needed for ethical ChatGPT: Character, assessment, and learning using artificial intelligence (AI). Journal of University Teaching & Learning Practice, 20(3). https://doi.org/10.53761/1.20.3.02
2. Gupta, V., Chatterjee, S. (2023). India's technology-led development: Managing transitions to a digital future. World Scientific.
3. Javeed, N. I. (2023). The impact of industry 4.0 on employability and the skills required in India. Global Economics Science, 1–10. https://doi.org/10.37256/ges.43202315933.
4. Ra, S., Shrestha, U., Khatiwada, S., Yoon, S. W., & Kwon, K. (2019). The rise of technology and impact on skills. ˜the oeInternational Journal of Training Research, 17(sup1), 26–40. https://doi.org/10.1080/14480220.2019.1629727
5. Picatoste, & Ruesga-Benito, S. M. (2018). A new educational pattern in response to new technologies and sustainable development. Enlightening ICT skills for youth employability in the European Union. Telematics and Informatics, 35(4), 1031–1038. https://doi.org/10.1016/j.tele.2017.09.014
6. Damiani, E., & Mathkour, H. (2018). Policy making for smart cities: innovation and social inclusive economic growth for sustainability. Journal of Science and Technology Policy Management/Journal of Science & Technology Policy Management, 9(2), 126–133. https://doi.org/10.1108/jstpm-07- 2018-079
7. https://niti.gov.in/national-strategy-artificial-intelligence
8. https://meity.gov.in/artificial-intelligence-committees-reports
9. https://www.aitf.org.in/
10. https://medium.com/politics-ai/an-overview-of-national-ai-strategies-2a70ec6edfd
11. https://futureoflife.org/ai-policy-challenges-and-recommendations/