Journal Publication of International Research for Engineering and Management (JOIREM)
Volume: 04 Issue: 05 | May-2026
ISSN (O) 3107-6696

Impact of Artificial Intelligence on Employment Pattern in India

Pratik Pramod Bhosale[1] , Sanket Suryakant Khape[2] , Shriraj Rajendra Patil[3]

[1]Department Of Management Studies Rajarambapu Institute Of Technology , Sakharale India

[2]Department Of Management Studies Rajarambapu Institute Of Technology , Sakharale India

[3]Department Of Management Studies Rajarambapu Institute Of Technology , Sakharale India

---

Abstract - This research article explores the impact of Artificial intelligence (AI) on employment in India, and argues for the need for new policy interventions to address this change. With the increasing use of technologies such as robotic process automation (RPA), machine learning and cognitive analytics, AI is emerging as a dominant technology which is likely to have a profound impact on the world of work. Its rapid adoption across industries in IT as well as non-IT sectors such as manufacturing, banking and finance, healthcare, logistics, retail and public administration in India is changing the employment dynamics. On the other hand, the technology promotes more productivity, better efficiency and greater innovation, while on the other hand, it also generates negative effects, including replacement of workers, skills mismatch and rising income inequality. This paper is a literature review that tries to identify and synthesise the impact of AI on employment in India. It draws from a vast number of secondary data resources including policy reports, industry studies and academic research studies.

Keywords— *Artificial Intelligence (AI), Employment in India, AI Automation, Job Displacement, Skills Mismatch .*

I. INTRODUCTION

Artificial intelligence (AI) is a computer program that is capable of being trained to think and behave as a living being. It can carry out tasks which are similar to human cognition such as reasoning, problem-solving, learning and perception, which in this context includes language comprehension. Over the last few years, the global spread of a variety of new AI applications such as machine learning, robotics, natural language processing and predictive analytics has fundamentally changed our economy.

As the third largest country and one of the emerging economies in the world, India is progressing at a remarkable speed in the adoption of Artificial Intelligence (AI) across numerous domains. The digital India, Skill India and the National AI Strategy are all aimed at positioning India as one of the leading AI countries in the world [1]. Almost all multinational companies, as well as Indian companies, are investing heavily in AI technologies from financial technology and e-commerce to healthcare analytics and manufacturing automation.[6],[7].

For centuries, technological advancements have always disrupted employment [12],[14]. Since the Industrial Revolution, humans have consistently lost jobs to new technologies and machines, but new employment opportunities were always created as well. With India's demography undergoing rapid changes, AI could not have arrived at a more complicated time given the fact that India also has a large young workforce, and an economy comprising of heterogeneous end use industries and therefore, it is essential to understand the employment disruption that India may face in the coming years. The research is trying to figure out how Artificial Intelligence affects jobs in India. It is also looking at how Artificial Intelligence will get rid of some jobs and create ones and how it will change what people need to learn to do their jobs.

A) PROBLEM STATEMENT

Artificial Intelligence is changing the way people work in industries. This is a big deal right now. We need to think about how Artificial Intelligence's changing things. Artificial Intelligence can affect people's jobs in industries. This is what we need to think about. The research wants to find out how Artificial Intelligence affects people who work in industries.

II. OBJECTIVES OF THE STUDY

1. To investigate the AI adoption in India
2. To examine the effect of AI on job elimination & job creation
3. To define the alterations in skills between AI implementation & integration
4. To assess sector wise job change
5. To provide strategic policies & managerial action

III. RESEARCH METHODOLOGY

A. Research Design

This study follows a descriptive and analytical research design.

B. Data Collection

The data used for the research paper is secondary data. These sources include government reports from NITI Aayog, international organizations like the World Economic Forum and industry publications from companies like McKinsey, Deloitte and PwC. I also used peer-reviewed journals for the research. The information from these sources is very useful for the research on data for this research. Secondary data, for this research is important.

C. Analytical Tools

The study uses a different way to look at information that is already available. It compares industries like IT, manufacturing, banking, healthcare and retail to see how they are using Artificial Intelligence and how it is affecting jobs. The study also looks at trends in Artificial Intelligence adoption. How it is changing the job market in India. Furthermore the study examines what people are saying about Artificial Intelligence in reports and research to find ideas, about Artificial Intelligence and how it is affecting jobs what skills people need now what new jobs are coming and what the government should do about Artificial Intelligence.

D. Limitations Of The Study

This study uses data that has already been published in reports, journals and industry publications. The results of the study are based on the information that's already available. The study does not include data collected from surveys or interviews with professionals in the industry.

IV. REVIEW OF LITERATURE

NITI Aayog (2018) said that Artificial Intelligence can make changes in important areas in India, such as healthcare and agriculture and education and smart mobility. The report says people need to learn skills and we need good digital infrastructure and policies to help workers adjust to new technologies like Artificial Intelligence.[1]

Hammer and Karmakar (2021) looked at how automation and Artificial Intelligence will affect jobs in India. They found out that jobs that are repetitive and routine are more likely to be automated. Their study says areas that have a lot of work may see big changes in employment because of Artificial Intelligence.[4]

Bhattacharyya and Nair (2019) looked at how work's changing in India in 2019. They think people will need to be better at analysing things and using technology and working with others to do well in a world were Artificial Intelligence's common. This means people need to learn skills to work with Artificial Intelligence.[5]

McKinsey Global Institute (2019) reported that automation can change the way people work in industries. They also say new technologies can create jobs even though they change the way old jobs are done. This is because Artificial Intelligence can help companies work better.[6]

PwC India (2023) said that Artificial Intelligence is being used more and more in areas, like banking and healthcare and retail. This is helping companies work better and make decisions using Artificial Intelligence.[7]

Deloitte India (2024) also noted in 2024 that Artificial Intelligence is changing industries by automating things and using data to make decisions and changing the way things are done with the help of Artificial Intelligence.[8]

Acemoglu and Restrepo (2018) said that Artificial Intelligence and automation affect the job market in two ways: they can replace jobs and they can create tasks that need people and machines to work together with Artificial Intelligence.[12]

Brynjolfsson, Rock and Syverson (2017) also said in 2017 that Artificial Intelligence can help companies work better and make money even though it may take some time for companies to adjust to Artificial Intelligence.[13]

As the literature on Artificial Intelligence (AI) indicates, there is a plethora of knowledge and information about the role AI plays in work and the economy. Other researchers have uncovered that the application of AI is very effective, in both aspects of enhancing the productivity of firms and economies, and simultaneously leading to structural change of the labour market [12], [13]. Regarding labour markets in developing countries, scholars have found that opportunities and threats exist regarding the application of AI, particularly in economies where informal and semi-skilled labour force is a significant part of it [9], [11]. The effects of AI on employment can be typically divided into three broad dimensions: Task automation, task augmentation and the creation of new tasks. The automation of tasks is connected to the substitution of tasks with intelligent systems. Task augmentation is connected with the assistance of the human decision-making by AI. The creation of new tasks is connected to the development of new AI-related positions and new job categories in the companies [12], [14]. To the Indian economy, several studies and reports have shown the possibility of job displacement within the

Indian industries like the customer support, data entry, bookkeeping and other routine-based jobs [4], [6]. We would like to understand how AI is changing the employment trends. AI has impacts in the Indian economy sectors. This paper examines how AI will affect jobs, in India.

V. AI ADOPTION IN INDIAN MAINSTRAMS

Artificial Intelligence (AI) in India has grown exponentially over the last decade. Investments in AI technology have seen a broad-based expansion across various sectors.

Table I: AI Adoption in Indian Mainstreams

Sector	Level of adoption	Application
IT & Software	High	Automation , analytics & Cloud AI
Banking & Finance	High	Fraud detection , Credit scoring
Manufacturing	Moderate – High	Robotics & Predictive maintenance
Healthcare	High	Diagnostics Telemedicine's
Retail , E-Commerce	Moderate	Personalized marketing
Agriculture	Emerging	Crop monitoring, yield prediction

The table indicates that the highest rates of adoption of Artificial Intelligence are held in such areas as Information Technology and financial services. The reason is that they possess an online infrastructure and they spend much on technology. Artificial Intelligence, on the other hand, is not applied extensively in such areas as agriculture and government. These areas are yet, in the phases of applying Artificial Intelligence.

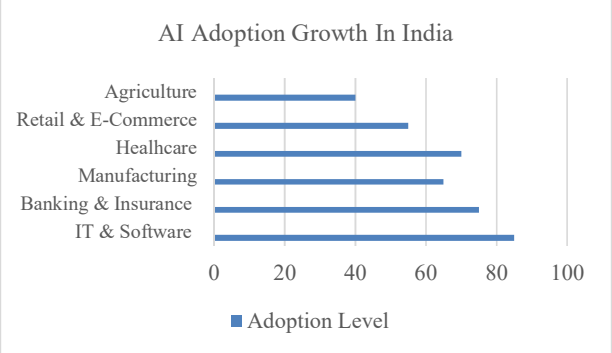

Fig. 1. Indian adoption of artificial intelligence in various sectors.

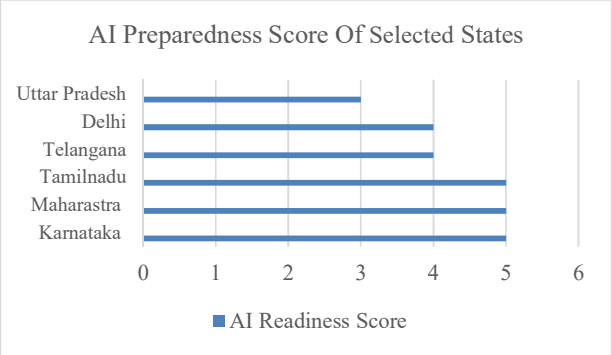

Fig. 2. Artificial Intelligence preparedness in the selected states in India.

The figure indicates the extent to which some states in India are prepared to utilize Artificial Intelligence. Karnataka, Maharashtra and Tamil Nadu are better prepared as they have digital facilities, technology centres and competent individuals. Telangana and Delhi are increasingly prepared with investments and government assistance on AI. On one hand Uttar Pradesh is not quite prepared since it does not have a technological infrastructure and talented individuals. Between states the big differences indicate that India must invest in infrastructure, policy assistance and skill training to develop AI equally.

VI. IMPACT ON EMPLOYMENT PATTERNS

A. Job Displacement Risk

Table II: Automation Risk Across Different Job Categories

Job Category	Automation Risk Level	Reason
Data Entry Operators	High	Rule-based tasks

Assembly Line Workers	High	Robotic automation
Customer Support Agents	Moderate-High	Chatbots & NLP
Bank Clerks	Moderate	Digital banking
Creative Designers	Low	Requires creativity
Strategic Managers	Low	Complex decision-making

According to the table, such types of job as data entry and assembly line work are at risk of automation. Such jobs consist in repeating the tasks and set rules. Creative thinking jobs, Strategic planning and making tough decisions on the other hand are less likely to be substituted by the Artificial Intelligence systems. Examples of rule-based jobs with a high risk of automation include data entry and work on assembly lines. Artificial Intelligence systems will have fewer chances to displace employment positions that involve creativity, strategic thinking and complex decision-making.

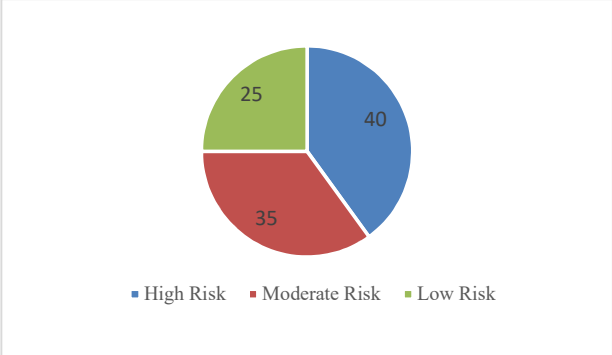

Fig.3. Percentage impact of AI on employment in India

B. Job Creation and Emerging Job Roles

A new set of specialized technical and hybrid roles will emerge.

Table III: Emerging AI-Driven Job Roles in India

Job Role	**Required Skills**	**Growth Potential**
Data Scientist	Statistics, Python, ML	Very High
AI Engineer	Programming, Deep Learning	Very High
Cybersecurity Analyst	Network security	High
Digital Transformation Consultant	Strategy, Analytics	High
AI Ethics Specialist	Policy, Governance	Emerging

The increase in Artificial Intelligence jobs demonstrates that technology does not only eliminate Artificial Intelligence jobs it also generates Artificial Intelligence jobs. The artificial intelligence jobs require individuals with skills. These Artificial Intelligence roles also demand employees to continue learning. The new Artificial Intelligence jobs are transforming our way of doing our work. Artificial Intelligence is providing opportunities to individuals to work in the technology sector.

C. Skill Transformation

The skills that AI requires are:

- Analytical thinking
- Digital literacy
- Coding skills
- Problem-solving skills
- Emotional intelligence

The educational institutions and corporations need to change their training models.

VII. SECTOR-WISE EMPLOYMENT ANALYSIS

The impact of Artificial Intelligence (AI) on different sectors is vastly different and depends upon the nature of work, level of technology adoption, capital intensity and the required skill sets. The following section will elaborate on the employment scenario in the case of selected sectors in India.

A. Information Technology Sector

The Indian IT industry is rapidly moving towards an Artificial Intelligence or AI-based service model which includes predictive analytics, intelligent automation and AI-based programmes solutions among others. There are plenty of career opportunities for those with skills in programming, statistical modelling and algorithm development.

Artificial intelligence has created a lot of demand for jobs that need people, such as certain positions that require a lot of

training and experience like jobs that involve artificial intelligence. Artificial intelligence is changing the way we work. It is making some new jobs that are very important, like the ones that deal with artificial intelligence.

- Data Scientists
- Machine Learning Engineers
- AI Architects
- Cloud AI Specialists
- Automation Consultants

Artificial Intelligence is still reducing our dependency on these routine roles such, as

- Manual software testers
- Basic technical support staff

The NASSCOM India report says that the AI sector will create jobs for data scientists AI engineers and machine learning experts in the future.[3],[7]

B. Manufacturing Sector

India's manufacturing sector is changing fast. It is adopting Industry 4.0 technologies, like robotics and artificial intelligence. These technologies help with maintenance.[6],[8]

The sector is also using sensors and automated production lines .A recent survey said this change is happening quickly. . At the same time automation has also created a need, for certain things like:

- Robotics Engineers
- Automation Supervisors
- Industrial Data Analysts

Manufacturing has long been an important sector of employment for both developed and developing countries. The increasing use of capital intensive and highly automated technology has been a key factor in shifting the demand for labour from low skill to medium skill and to supervisory activities. Therefore, production in manufacturing has become more capital intensive and less labour intensive. So there is skill biased technological change in this sector.

C. Banking and Financial Services

Artificial intelligence in Banking and Financial Services sector has witnessed a huge transformation in the way banks and financial institutions carry out their day-to-day activities and it has also helped in reducing risks and enhancing customer experience. Here are some of the use cases of Artificial Intelligence in BFS sector:

- Fraud detection systems
- Credit scoring algorithms
- Robo-advisory services
- Algorithmic trading
- Chatbots for customer service

Modern Advances in Artificial Intelligence (AI) technology have helped in providing better information for financial decision making, as well as in cost reduction. Consequently, many administrative clerical roles have become redundant, including: Digital banking platforms and the automated loan processing system have reduced the need for paperwork. On the other hand new jobs have come up in:

- FinTech analytics
- Cybersecurity
- Risk modelling
- AI-based compliance monitoring
- Digital transformation strategy

Reports say that technologies driven by intelligence are changing how banks work. This change is making banks work efficiently. It is also lowering the costs of running a bank. These AI-driven financial technologies are transforming banking operations.[7] They help banks to do things faster and at a cost. The use of AI, in finance is making banking operations smoother.

D. Healthcare Sector

Although much of the health care industry has been bombarded with the notion that AI is here to replace humans, there is little evidence to support that the use of AI in health care is truly a replacement technology yet. Most uses of AI in the health care industry are considered to be augmentee. Some examples include:

- Medical imaging analysis
- Predictive disease diagnosis
- AI-assisted robotic surgery
- Telemedicine platforms
- Electronic health record management

With Artificial Intelligence (AI) being increasingly incorporated in the healthcare sector, doctors are now able to diagnose cancers and heart diseases with greater accuracy. [8] This, apart from telemedicine, is one of the key ways in which the sector is reaching out to more patients in rural and distant areas. Banking jobs that are manual and repetitive, such as assembly line work and administrative tasks, are at a high risk of being replaced by machines. On the other hand, doctors and nurses who deliver the healthcare to patients will not be easily substituted with technology due to the human factor, such as

the need for medical judgement, empathy and ethics, industry analysts say.

AI creates demand for:

- Health informatics specialists
- Medical data analysts
- Telemedicine coordinators
- AI system operators in hospitals

Artificial Intelligence (AI) can boost the capability of clinical staff leading to improved productivity and thus it is a tool for capacity augmentation as opposed to replacement.

E. Retail and E-Commerce Sector

There is a growing trend of artificial intelligence (AI) being used in the marketing, logistics and customer analytics for the retail and e-commerce sectors in India. Recommendation engines is one such use case where AI is highly likely to transform the retail businesses. Recommendation engines refer to an engine which uses data such as customers purchase history and the items, he tends to view more frequently in order to provide the customers with suggestions which they are likely to buy.

- AI applications include:
- Inventory optimization
- Demand forecasting
- Supply chain automation
- Chatbots for customer queries
- Dynamic pricing algorithms

Inventory Management With the implementation of Automated Systems, many organizations have reduced their headcount of manual Inventory Management staff, however there are a number of roles that they can now consider replacing them with.

- Data analytics
- Digital marketing
- Supply chain management
- AI-based consumer behaviour analysis

The Sales role is changing and therefore we are looking to recruit graduates with a higher level of analysis and a digital marketing skill set. Rather than the traditional Sales Graduate.

VIII. ISSUES WITH AI-DRIVEN DEVLOPEMENT

Although there is a potentially transformative potential of the Artificial Intelligence, its implementation in the Indian frugality does not come without very significant issues. There are structural changes, to be considered with care, associated with the shift toward an AI-driven workforce.

Skill Mismatch

The increasing disconnect between the skills required in AI-powered sectors and the skills currently possessed by a significant portion of the labour force is one of the most urgent issues that should burn. many workers who are employed in routine jobs or semi-skilled workers should be offered access to digital tools, data analysis, or programming abilities. With associations gradually automation of repetitive processes, simple workers should find it difficult to stay employable. This misalignment presents a pressure in the need to undertake massive reskilling and upskilling programmes. [4],[11]

Digital Inequality

The adoption of AI is centralized in civic and technologically developed areas, where the absence of digital infrastructure, sporadic access to high-speed internet and elite training facilities and technological consciousness is often a limiting factor to employment between civic and pastoral communities. In India, AI will inadvertently congeal indigenous difference without the inclusion of digital expansion. [9],[10]

Income Polarization

The automation due to AI is inclined to benefit mostly the purported professionals and to decrease the necessity of low-skilled labour force. Such a phenomenon could lead to the polarization of income with high- professed workers experiencing an increase in stipend and increasing career opportunities, and low- professed workers experiencing a decline or relegation. In the long term, this imbalance may result in socio- profitable inequality in case of no corrective actions.

Moral and confidentiality programmes.

The additional application of AI in the decision- making process analogous to reclamation, fiscal blessings, and client profiling - poses programmes of bias, transparency, and data privacy. Algorithms bias can cause bias unintentionally against particular groups of people so does the practice of broad data collection, which has traps of confidentiality and cybersecurity. Responsible use of technologies therefore requires ethical AI governance.

Technological Aversion to Change.

Technological dislocation is often a source of concern and fear by workers. The opposition to the use of AI can be caused by

the presence of the programmes regarding the job security, less mortal control and lack of knowledge regarding the digital systems. This intellectual and creative barrier would require organizational leaders to deal with it by the way of clear communication and training schemes.

We must struggle to handle such issues. This implies that businesses and governments and schools must come together. They must ensure that the difference, between poor people is not further widened by new technology. The thing is, technological progress is not supposed to benefit a small number of people only. This is the reason why governments and businesses and schools are forced to strive to ensure that technological development does not contribute to the worsening of social and economic inequalities.

IX. POLICY & STRATEGIC ADVICE

In order to make sure that AI adds values to employee trends in India, synchronous sweats are required in several scenarios.

Government Programmes at the Government Level.

The government also has a very critical role in influencing an inclusive AI ecosystem.

Growth of Digital Education framework.

There should be an intensification of digital connectivity in the pastoral and semi-urban areas. Broadband structure, digital knowledge programs and community training centres investment can alleviate indigenous difference.

Skill Development Programs that are subsidized.

AI training places The intimately funded programmes can assist workers in going into places that are technology enabled. The modules on data analytics, automation, and emerging technologies should be incorporated into programs of the operations of the public skill development.

Public-Private AI hookups

Government organizations, technology programmes, and learning institutions can work together to enhance the transfer of knowledge and practical skills faster, common programmes will facilitate invention and ensure sustainability of employment.

Corporate- Level Strategies

Associations have to be active in dealing with workforce change.

Workforce Upskilling

Instead of laying off workers, programmes need to invest in retraining programs that can assist workers to adapt to AI-incorporated places. The arising technological requirements should be matched with the training programs by learning and development departments.

AI - mortal Collaboration Models.

Instead of a cover of mortal labour, AI must be designed so that it enhances mortal powers by the companies. The productivity can be fully exploited by merging machine efficacy and mortal creative capabilities with emotional intelligence.

AI Governance fabrics: Ethics.

pots are supposed to develop transparent AI operation programs, which would guarantee fairness, responsibility, and data safety. Ethics enhance citizenship confidence and company personality.

Academic- Level Reforms

Learning institutions should incorporate courses in order to demonstrate industry elaboration.

AI- Integrated MBA Class

Similar subjects should be included in business education like data-driven decision- timber, AI strategy, and digital change operation. This preconditions unborn directors to AI- enabled business environments.

Internships within the industry.

When you finally come to know how Artificial Intelligence is working in the world in the internships you actually learn what it is all, about and it aids you to get a job. The difference is in the artificial Intelligence operations. When you know how Artificial Intelligence is applied in everyday life, you get the idea of what Artificial Intelligence is and can utilize it to secure a job.

Innovation and Research Collaboration.

Colleges ought to pair with business to make practical inquiry in AI and manpower transformation to promote invention and entrepreneurship.

X.FINDINGS

The research unveils some valuable perceptivity's of AI-motivated employment transformation in India.

1. The use of AI is fast-growing in key sectors, especially in the IT, finance, and retail sectors.
2. Monotonous and repetitive work locations are undergoing high-tech traps of automation.
3. High- professed specialized and logical locations are undergoing a substantial growth.
4. Development of skills comes out as the most important condition of the sustainability of employment.

With the right approach, AI can implicitly be used to enhance inclusive profitable growth as opposed to large-scale severance. These results show that the effect of AI implementation is neither necessarily negative or positive; instead, the effects of this technology are determined by the design of policies, organizational strategy, and workforce inflexibility.

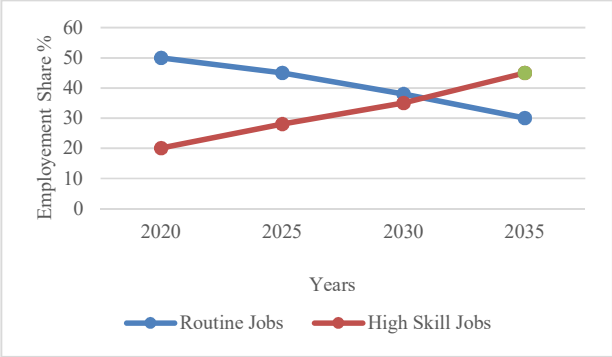

Fig. 3 : Projected employment shift due to AI in India (2020-2035)

XI. CONCLUSION

Artificial Intelligence is more than a technological breakthrough it is a structural transformation of lucrative systems and labour demands. Within the Indian ecosystem, AI is modifying the workforce distribution in a gradual fashion as it will automate the routine jobs and, at the same time, provide new opportunities in highly skilled fields.

The future effect of AI on jobs will be determined by the extent to which the stakeholders adapt to the change. The governments should focus on the inclusive digital programmes, associations in the business sector should invest in the development of mortal capital and educational institutions should modernize their classes in accordance with the reality of technologies.

The future researchers of the people must consider what is actually going on in the companies in order to observe how Artificial Intelligence is transforming the manner in which people are working. They are supposed to gather their information in organizations to have a clearer picture of what is happening to the workforce and the impact Artificial Intelligence has on it. This will assist us in knowing the transformations that Artificial Intelligence is introducing in the workforce.

XII. REFERENCES

[1] NITI Aayog, *National Strategy for Artificial Intelligence*, Government of India, New Delhi, 2018. [Online]. Available: https://www.niti.gov.in/sites/default/files/2019-01/National_AI_Strategy_Discussion_Paper.pdf

[2] K. Pandey, "Policy proposals in action: Evaluating MeitY & NITI Aayog's strategies for addressing AI governance challenges in India," *SSRN*, Apr. 10, 2024. [Online]. Available: https://papers.ssrn.com/abstract=4964421

[3] A. Di Battista et al., *The Future of Jobs Report 2023*, Geneva, Switzerland: World Economic Forum, 2023.

[4] A. Hammer and S. Karmakar, "Automation, AI and the future of work in India," Employee Relations: The International Journal, vol. 43, no. 6, pp. 1327–1341, Oct. 2021.

[5] S. S. Bhattacharyya and S. Nair, "Explicating the future of work: Insights from India," Journal of Management Development, vol. 38, no. 3, pp. 175–194, May 2019.

[6] McKinsey Global Institute, *The future of work in India: Digitization and automation*, McKinsey & Company, 2019. [Online]. Available: https://www.mckinsey.com

[7] PwC India, *Artificial intelligence in India: Hype or reality?*, PwC, 2023. [Online]. Available: https://www.pwc.in

[8] Deloitte India, *AI adoption in India: Transforming industries*, Deloitte Insights, 2024. [Online]. Available: https://www2.deloitte.com

[9] H. Aly, "Digital transformation, development and productivity in developing countries: Is artificial intelligence a curse or a blessing," Review of Economics and Political Science, vol. 7, no. 4, pp. 238–256, Oct. 2022.

[10] A. Georgieff and R. Hyee, "Artificial intelligence and employment: New cross-country evidence," Frontiers in Artificial Intelligence, vol. 5, Art. no. 832736, May 2022.

[11] L. R. Díaz Pavez and I. Martínez-Zarzoso, "The impact of automation on labour market outcomes in emerging countries," The World Economy, vol. 47, no. 1, pp. 298–331, Jan. 2024.

[12] D. Acemoglu and P. Restrepo, "Artificial intelligence, automation and work," NBER Working Paper No. 24196, National Bureau of Economic Research, 2018.

[13] E. Brynjolfsson, D. Rock, and C. Syverson, "Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics," NBER Working Paper No. 24001, 2017.

[14] D. H. Autor, "Why are there still so many jobs? The history and future of workplace automation," Journal of Economic Perspectives, vol. 29, no. 3, pp. 3–30, 2015.