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AI and Work: Influence of Automation on the Indian Labour Market

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ABSTRACT

Artificial Intelligence has always inspired awe, akin to a fantasy that might transform reality as we know it, but that feeling of mystery has changed with the recent advancements in technology. Now Artificial Intelligence is no more a dream from the future; it is almost a prophetic vision come to life. The ability of the scientific imagination to provide anyone with an electronic device and an internet connection access to the vast computational arena that is powered by machine learning has brought about a current of excitement: What can we do with AI? How can we change the world? Can we make our living easier and our work faster with AI? What is next? But in accompaniment is a sense of apprehension: What else can AI do? If AI has the potential to work faster and better than us, then what is our role in an organisation? Will AI replace us? What is next? This article attempts to understand the consequences of AI adoption in order to judge the positive and negative impact that AI would have on employment in India.

Keywords*: artificial intelligence, labour, employment.*

I. INTRODUCTION

Artificial Intelligence has always inspired awe, akin to a fantasy that might transform reality as we know it, but that feeling of mystery has changed with the recent advancements in technology. Now Artificial Intelligence is no more a dream from the future; it is almost a prophetic vision come to life. The ability of the scientific imagination to provide anyone with an electronic device and an internet connection access to the vast computational arena that is powered by machine learning has brought about a current of excitement: What can we do with AI? How can we change the world? Can we make our living easier and our work faster with AI? What is next? But in accompaniment is a sense of apprehension: What else can AI do? If AI has the potential to work faster and better than us, then what is our role in an organisation? Will AI replace us? What is next?

Technology is a siren's call to capitalists. Machines don't make demands for fair wages, paid leaves, job security, reasonable work hours or nonmaterial incentives. Recent years have seen

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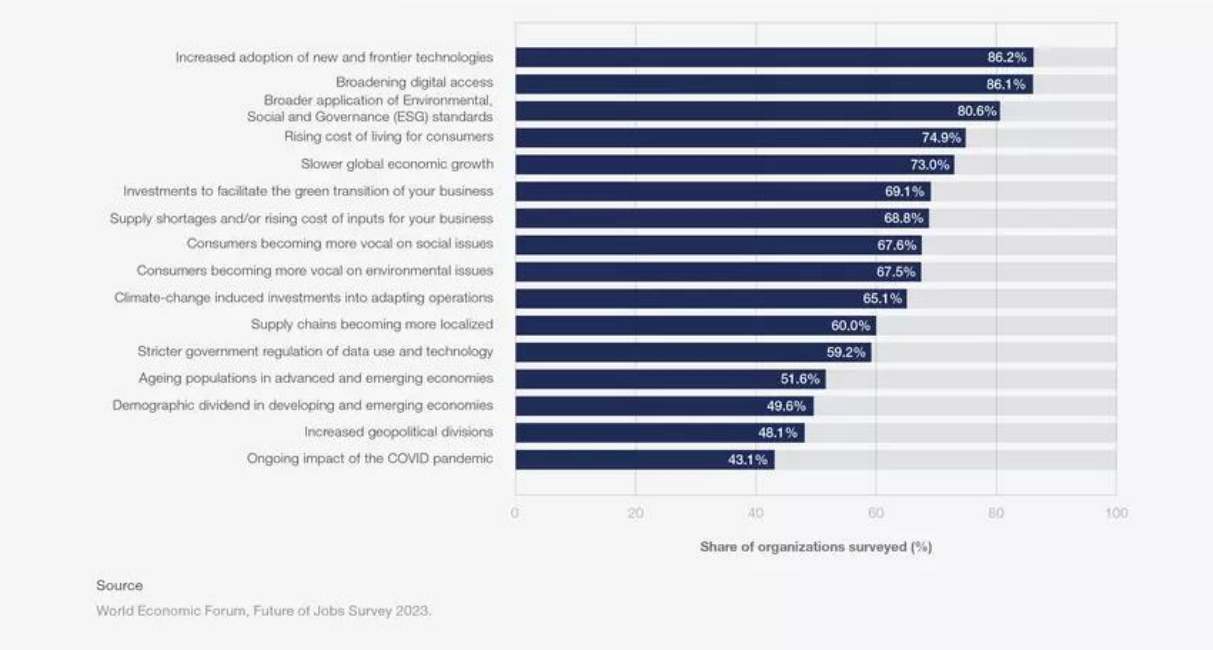
an unprecedented increase in the prospects of Artificial Intelligence in real-world applications. At least 70% of the companies might incorporate AI into their operations in the course of business by 2030 (*Notes From the AI Frontier: Modeling the Impact of AI on the World Economy*, 2018), and 86% of the organisations consider AI to be the most impactful trend in ushering change in businesses (*The Future of Jobs Report 2023*). This inspires a collective fear among populations about the security of their jobs and the demand for their labour. News headlines play into the trope of alarmism and create anxiety among the masses with polarising narratives about the job-threatening nature of AI.

This article attempts to understand the consequences of AI adoption in order to judge the positive and negative impact that AI would have on employment. It discusses the general ramifications of AI on the job market. It delves into the automation of skills, and subsequently the automation of jobs on the basis of the nature of the core skills of the occupational role. It then shifts its emphasis to the employment space of India, and predicts the influence of AI on the labour market. Lastly, it provides recommendations to aid in the development of workers into technologically skilled labour whose work will be augmented by AI and not replaced.



1.1: Macrotrends driving business transformation

Source: *The Future of Jobs Report 2023.*

II. AUTOMATION OF SKILLS

The consequences of AI-adoption can be of 3 types, namely, the displacement effect, the productivity effect and the reinstatement effect. The displacement effect corresponds to the fall in demand for labour in automated tasks, the productivity effect entails the increase in demand

for labour in non-automated tasks, and the reinstatement effect opens up the potentiality of creation of new jobs (Tyson & Zysman, 2022). Thus the framework of occupations can be categorised into tasks that are susceptible to automation, and tasks that are not. Routine tasks that are data-intensive and asocial, and that do not require the exercise of judgement, especially of the normative kind, are more disposed to having greater involvement of AI (Goldfarb & Lindsay, 2022).

To estimate the extent of technical feasibility of AI, it is necessary to appraise the capabilities of AI. At the time of writing, AI's possession of advanced and developed skills is limited mostly to the domain of prediction and automation. The implications of AI-adoption therefore is likely to be greater for occupations that are more directly related to prediction. Prediction, however, only has utility in the context of using the predicted data in the process of decision-making. Thus every prediction task is a precedent to a corresponding decision task (Agrawal et al., 2019). And decision tasks require human judgement, which can only be augmented and not replaced by AI (Fugamma, 2021). Agrawal, Gans, Goldfarb 2019 forecast the direct effects advancement of AI would pilot in the arena of prediction and decision-oriented jobs, these being firstly, the substitution of labour with capital in prediction tasks, secondly, the automation of a subsequent decision task, thirdly, the augmentation of productivity of labour in a corresponding decision task, and fourthly, the creation of new decision tasks due to the advancement of accuracy in prediction tasks (Agrawal et al., 2019).

Therefore occupations in which the core skill is prediction are liable to experience a greater displacement effect than productivity or reinstatement effects. Jobs that are tangentially related to predictive taks, that is, jobs that involve the utilisation of predictions in order to make decisions, are more likely to encounter enhancement of productivity of labourers, and invention of newer types of tasks and jobs. As the value of human prediction decreases, the value of human judgement inevitably increases (Ziomecki, 2022).

Businesses are also prioritising creative thinking over fundamental or basic skills like writing, reading and mathematics (*The Future of Jobs Report 2023*). There is also an increasing focus on soft skills rather than hard skills. This is indicative of the fact that automation of tasks leads to changing needs of businesses. Companies might automate jobs that require hard skills, and therefore prioritise hiring or retaining employees who possess soft skills, something that AI is unable to do as of now. Thus it can be inferred that jobs which are primarily based on soft skills would face less displacement compared to jobs that are predominantly reliant on hard skills.

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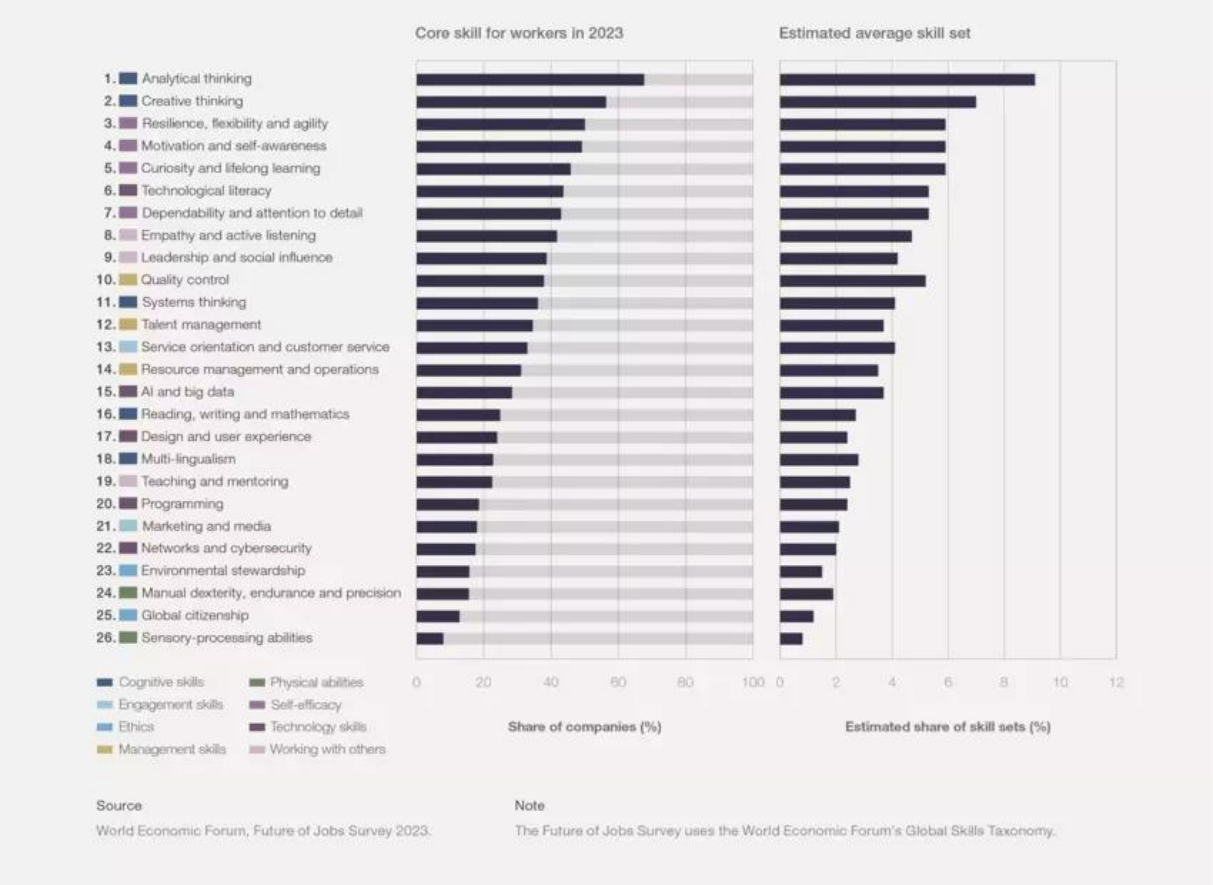

1.2: Core skills in 2023.

Source: *The Future of Jobs Report 2023.*

III. AUTOMATION OF JOBS

The automation of jobs depends on several important factors, namely, technical feasibility, costs to automate, costs of labour to perform that task, benefits of automation, and regulatory considerations (M, n.d.). The apprehension of the impact of AI on the job market then mandates an analysis of the jobs that are automatable in nature, and the demographics of the workforce in these jobs. Organisations forecast that adoption of AI would drive job growth, but this would be offset by the displacement effects of AI (*The Future of Jobs Report 2023*). Thus, while the net impact of AI is ascertained to be positive or neutral, there are incredibly real possibilities that AI might be more detrimental than beneficial to some workers. As with advancement in any technology, there are bound to be wins and losses, but the distribution of such gains and damages needs to be assessed more carefully.

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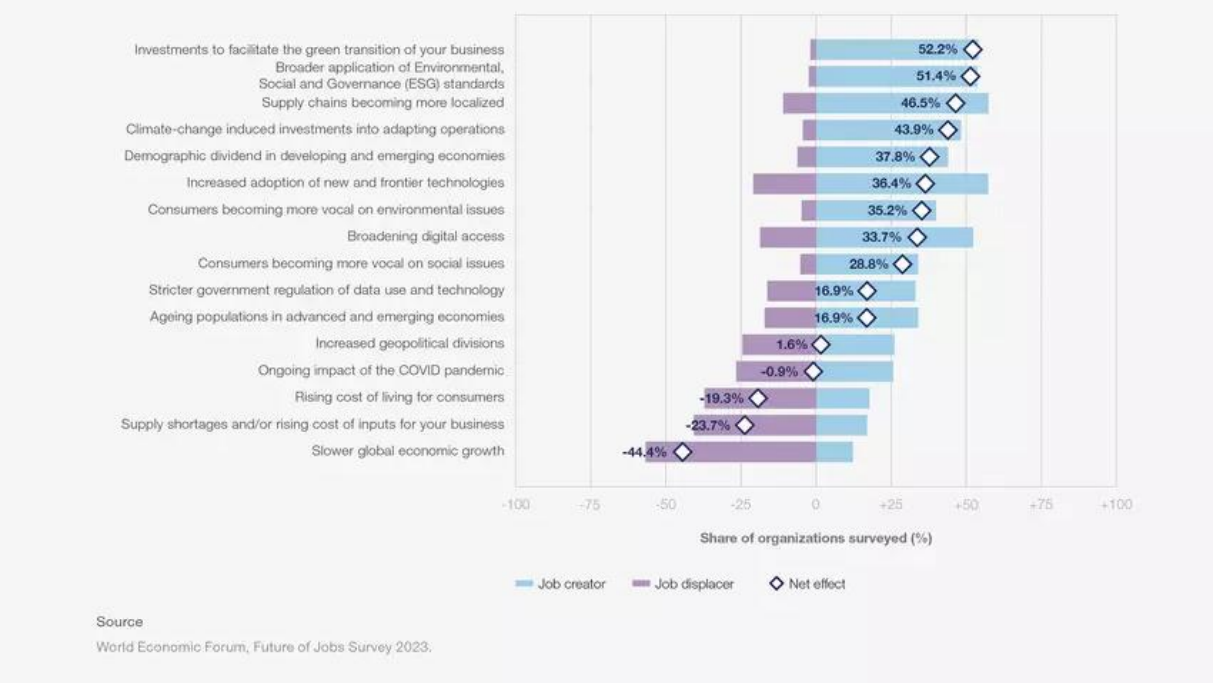
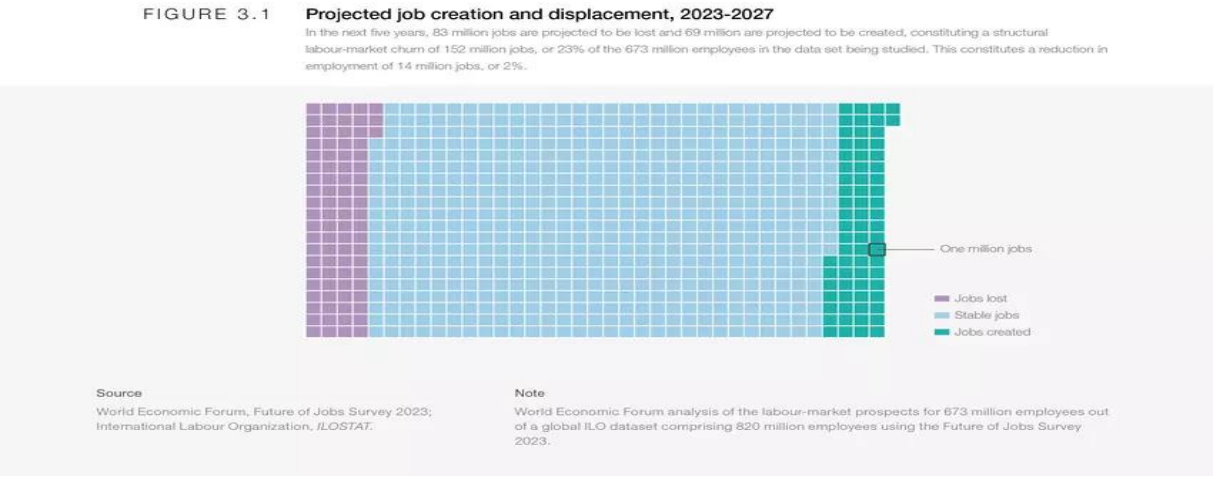


1.3: Expected impact of macrotrends on jobs, 2023-2027.

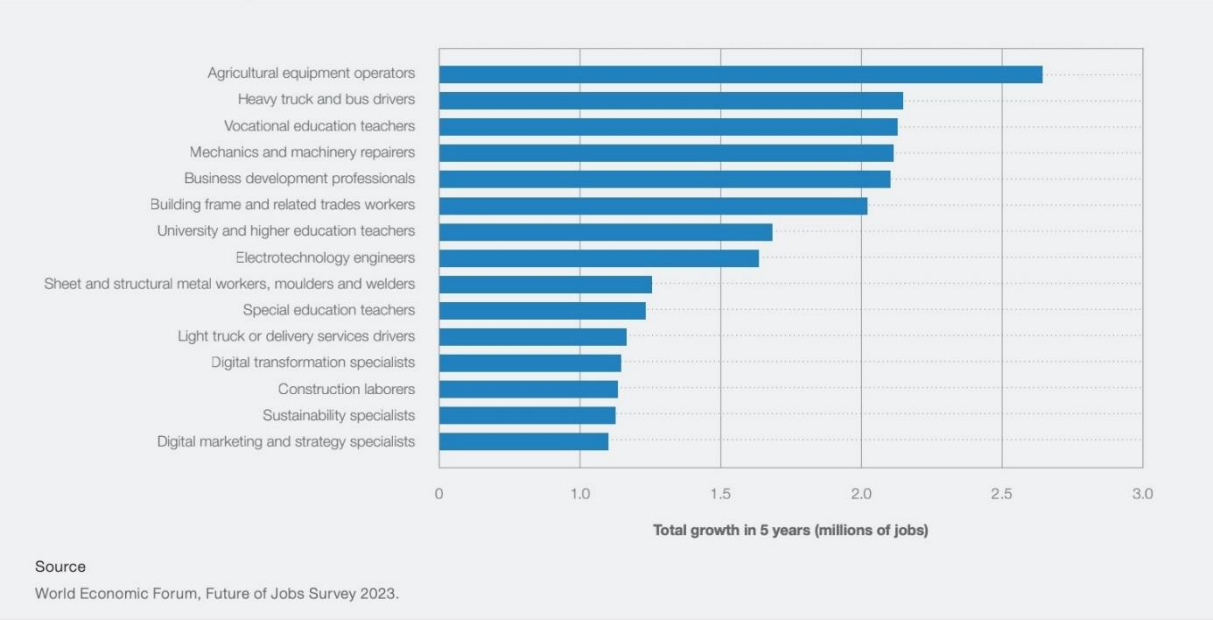
Source: *The Future of Jobs Report 2023.*

One of the concepts to help elucidate and quantify the effects of AI-adoption is labour market churn, which is the pace of reallocation of workers and jobs, or the magnitude of job creation and job destruction flows (*High Labor Market Churn During the 2020 Recession*). The higher the labour market churn, the faster employees migrate between jobs and employment and unemployment. The Future of Jobs 2023 Report by the World Economic Forum evaluates the structural labour market churn for the next 5 years to be 23%.with a reduction of 2% in the existing employment opportunities (*The Future of Jobs Report 2023*). But the advent of AI also leads to creation of new job roles such as AI specialists, AI data analysts, AI applications managers etc which increases the opportunities for workers to fill these new employment demands.



1.4: Projected job creation and displacement, 2023-2027.

Source: *The Future of Jobs Report 2023.*



1.5: Largest job growth in millions.

Source: *The Future of Jobs Report 2023.*

1.6: Fastest growing and fastest declining jobs.

Source: *The Future of Jobs Report 2023.*

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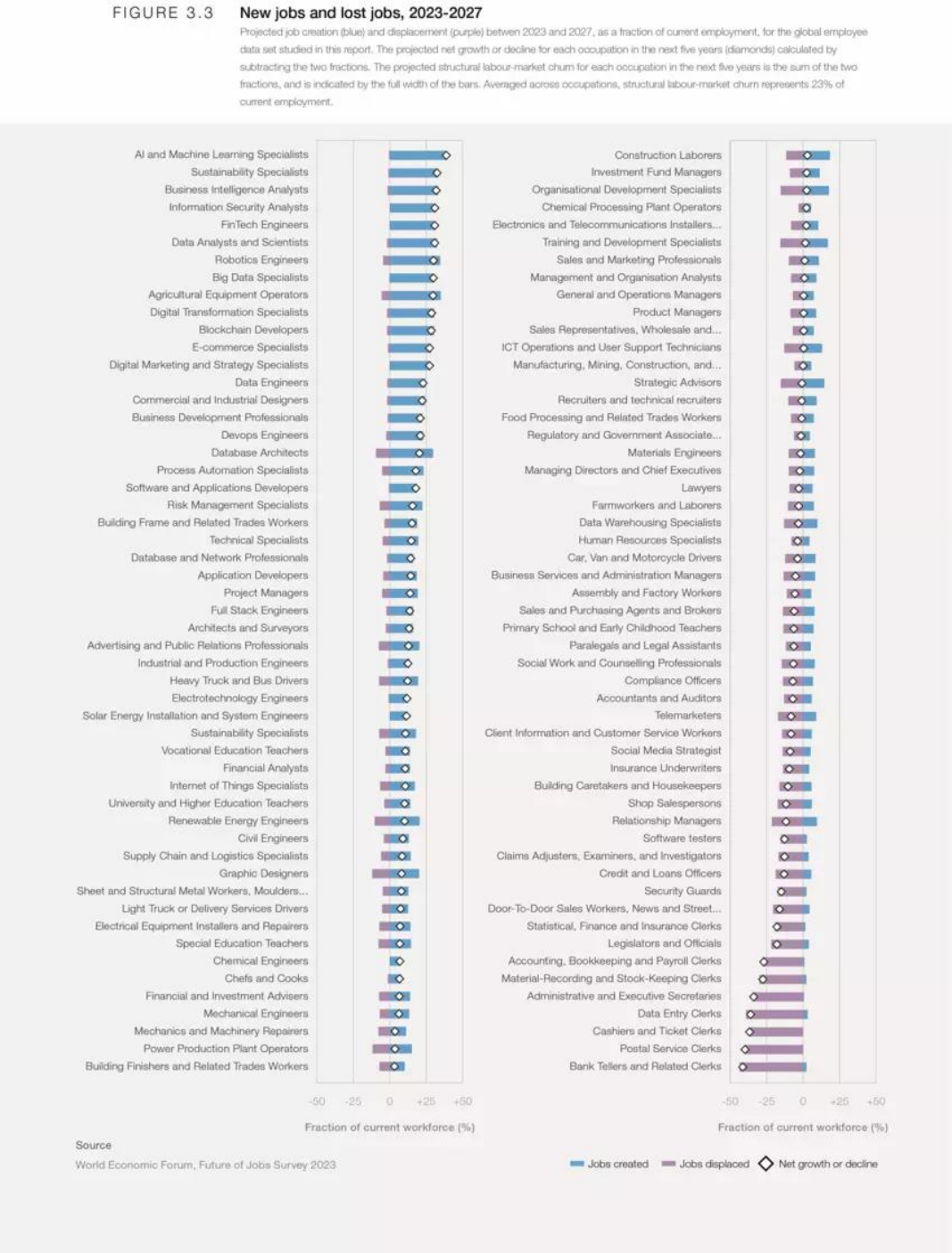


1.7: New jobs and lost jobs, 2023-2027.

Source: *The Future of Jobs Report 2023.*

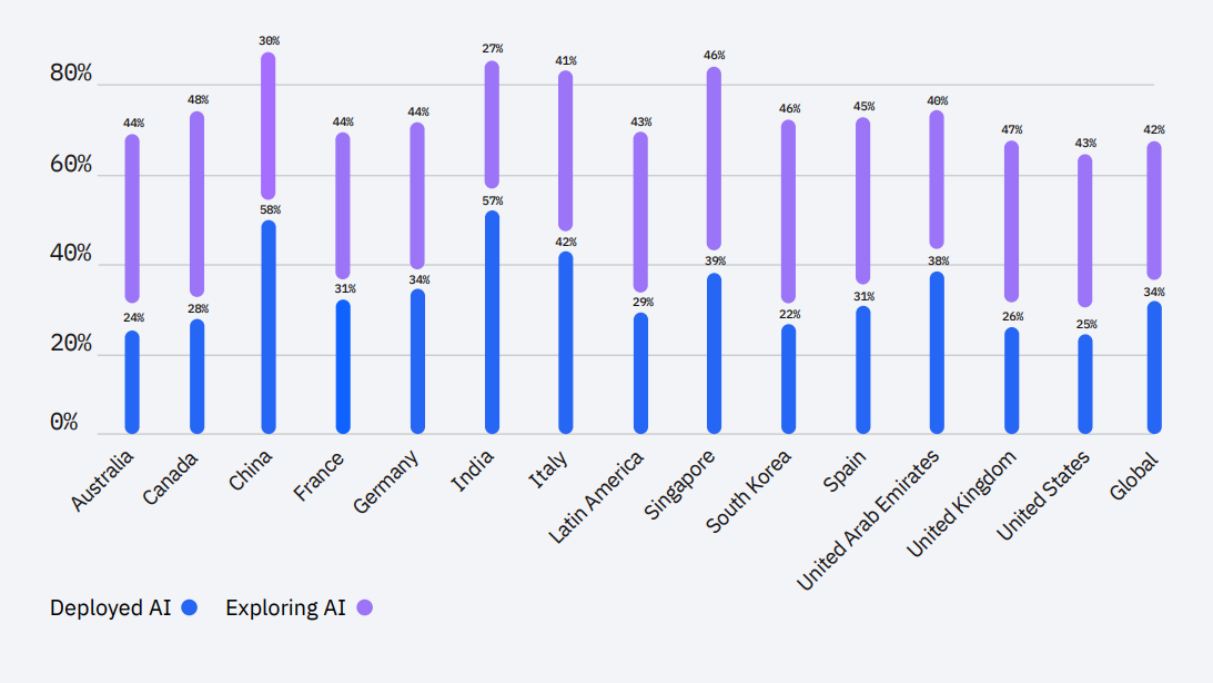
Customer service, data entry, banking services, retail checkout, software development, inventory management, accounting, marketing, recruitment, executive assistance, manufacturing, quality control, content writing, proofreading etc are the most automatable jobs with the given technological advancements (Panel, 2022). This is because the core skills required for these jobs are in the domain of data recording and analysis or routine tasks that do not entail the application of mind or creativity. Alternatively, the jobs that are safest from

automation, and therefore warrant less penetration of AI, are jobs that involve the use of human judgement, creativity, and social and emotional intelligence (*These Are the Jobs That AI Can't Replace*, 2023). In addition to that, jobs that mandate physical dexterity and movement are also less susceptible to being replaced by AI (Stevens, 2016). Most of the occupations that cite skills that can be automated are middle-wage jobs (Böhm, n.d.). Thus jobs with high-skills and low-skills are relatively safe from the displacement effects of AI, and middle-skills occupations are most at risk. This phenomenon is called job-polarisation (Stevens, 2016).

Workers who are at a risk for losing their jobs or having the nature of their jobs changed need to be reskilled or upskilled in order to ensure their continued sustenance in the workforce, but the extent to which such an option is accessible to these workers is questionable.

IV. INSIGHTS ON INDIAN LABOUR MARKET

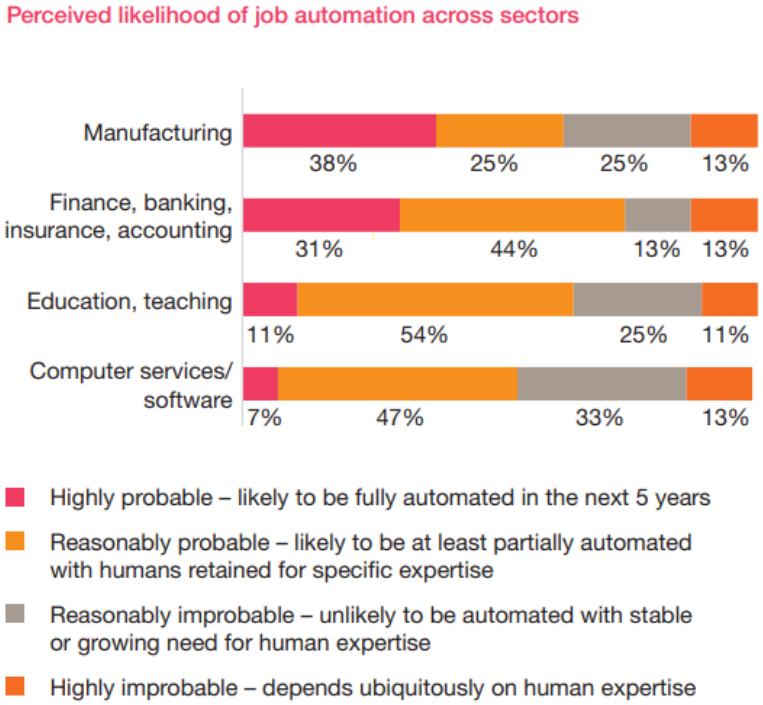
According to the IBM Global AI Adoption Index 2022, India is one of the first movers in the deployment and exploration of AI (*IBM Global AI Adoption Index 2022*, 2021). Thus the Indian economy and job market is susceptible to the uncertainties that accompany advancements in technology. As per the NASSCOM-FICCI-EY report, 9% of the workforce will be employed in newly created job roles, 37% will be employed in jobs with extremely different skill sets, and 54% will remain in unchanged job roles (Kumar, 2021). This demonstrates that the labour market churn is likely to be quite high in the Indian workforce.



1.8: AI adoption rates around the world.

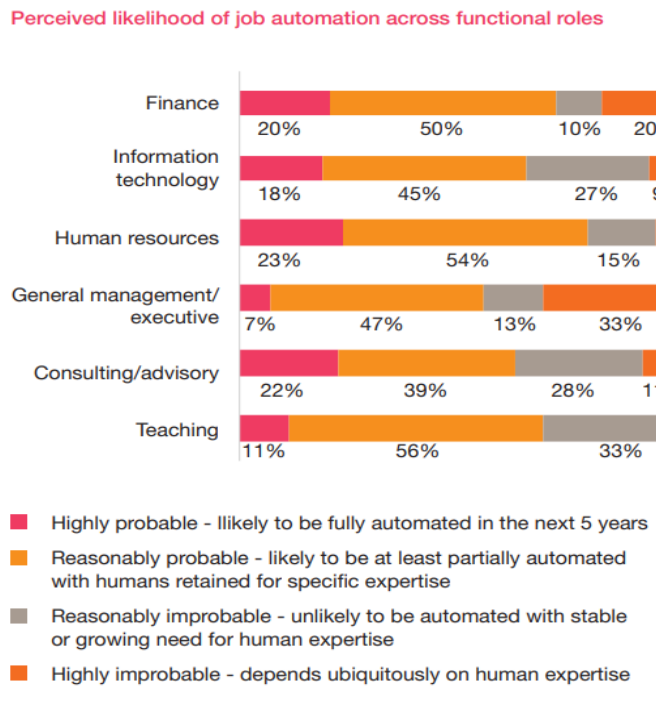
Source: *IBM Global AI Adoption Index 2022*, 2021

The effects of AI are likely to be more prominently visible in sectors where automation is more probable and possible. Automation, however, does not always equate to job displacement. It might bring about productivity and reinstatement effects with the existence of the necessary infrastructure to fully utilise the benefits of AI without increasing the social and economic inequality in the labour market.



1.9: Perceived likelihood of job automation across sectors.

Source: *How AI is reshaping jobs in India*. (2017). All India Management Association.



1.10: Perceived likelihood of job automation across functional roles.

Source: *How AI is reshaping jobs in India*. (2017). All India Management Association.

As per ILO data, around 60% of Indian workers are employed in occupations that require middle-skills (Team, 2018). As middle-skill workers are most likely to be affected by AI incorporation into the industry, 60% of the Indian workforce is in urgent need of reskilling. Thus most of the displacement effects of AI will be wrought upon the middle class population, forcing them into a do-or-die situation where they must either adapt to the new changes or fade into obsolescence. Adaptation includes the development of new skills and learning to work as complements of AI. It is imperative that the government and companies initiate upskilling programs, as it is not accessible to most workers solely through individual effort.

V. RECOMMENDATIONS

1. Revamping Programs and Schemes with AI Consideration

In addition to the introduction of new schemes that spread awareness and knowledge about AI and its applications, the government could rework existing programs such as Skill India, Digital India and Make in India by incorporating AI elements into these schemes (Vempati, 2016). Skill India should focus on inculcating soft skills in workers as well as technical finesse which would allow them to handle the updated technology. Digital India should emphasise the significance of AI and Machine learning by improving access to these technologies. Make in India should develop infrastructure in India for the optimal utilisation of AI resources.

2. Incentivising AI Research and Social Applications

AI research and development is disproportionately concentrated in the private sector, which precludes diversification of research and tends to accentuate commercialisation perspectives. Thus the social and welfare benefits of technological innovation are neglected. Funding and incentivising AI research in these domains would engage with all the facets of AI.

3. Reworking Education

The Ministry of Education and the educational institutions working together must change the traditional curriculum to include technologically updated syllabus and learning methods. This would bridge the skill-demand gap in the future Indian workforce, and ensure that students develop employability talent.

4. Implementing ‘Job-Mortgage’

Vempati (2016) suggests the execution of a Kaplan proposal, ‘job-mortgage’ in the Indian context. It entails a lucrative partnership between educational institutions, companies and

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workers where companies promise to employ workers if the workers promise to develop certain skills in a given time as per the standards established by the companies. This would be mutually beneficial to all entities involved and would also have the effect of augmenting the financial and social benefits for the Indian economy.

Therefore the adoption and deployment of Artificial Intelligence in the workspace may prove to be incredibly advantageous to companies, workers and the economy, but only if such an exploration is guided by government regulations and policy interventions to streamline the gains and losses to all sections of the society, and ensure equitable distribution of profits and losses.

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