T20 Policy Brief

G20 BRASIL 2024

T20 Brasil 2024 Let's rethink the world

Task Force 05

INCLUSIVE DIGITAL TRANSFORMATION

Artificial Intelligence Spring: Implications on Labour Market

Prof. Santosh Mehrotra, Research Fellow, IZA-Institute of Labour Economics (Germany)

Ms. Sanjna Agarwal, Research Analyst, Centre for Social and Economic Progress (India)

Mr. Arpit Barman, Research Assistant, Research and Information System for Developing Countries (India)

Dr. Tuhinsubhra Giri, Consultant, Research and Information System for Developing Countries (India)

TF05

Abstract

The global surge in Artificial Intelligence (AI) development is poised to revolutionise the world economy, with implications for the labour market. The rapid progress, cost reduction, and ease of AI adoption suggest an imminent transformation that could reshape the future of work. This surge in AI raises concerns about job displacement across various sectors like finance, healthcare, and Information Technology (IT) due to its ability to automate routine and even non-routine tasks. AI can train machines to learn from experiences and adapt to new inputs, which empowers them to perform highly skilled, human-centric tasks that may displace jobs involving cognitive and critical thinking skills to some extent.

While AI holds the potential to enhance productivity and foster long-term growth (productivity effect), there are immediate risks of unemployment (displacement effect). Limited studies on the impact of AI, particularly in developing and least-developed countries, highlight the need for comprehensive policy action, specifically in promoting new skills. Recognising the varying levels of AI adaptation globally, the G20 forum is crucial for initiating preparedness, and regulating AI with appropriate technological infrastructure and financial support.

The preceding G20 New Delhi Leader's Declaration reiterates commitment to the G20 AI principles (2019), urging leaders to pursue a pro-innovation governance approach that maximises benefits while addressing associated risks. In this light, this policy brief will delve into understanding the potential effects of AI globally on labour market displacement and subsequent socio-economic inequalities arising from its widespread adoption. We recommend G20 to establish a Global Centre on Artificial Intelligence and Governance (GCAIG). The GCAIG would assess and provide governance solutions to

risks associated with AI advancement, particularly employment, wages, skill development and socio-economic inequality on a global scale.

Keywords: Artificial Intelligence, Labour Market, Governance, Reskilling, Workforce Transition

Diagnosis

The advent of Artificial Intelligence (AI) promises a profound impact on productivity and economic growth, yet its ramifications on economies and societies remain uncertain, presenting divergent effects across job sectors and roles, potentially exacerbating pre-existing inequalities. According to Forbes, the global AI market size was valued at USD 136.55 billion in 2022. The market size is projected to grow at a compound annual growth rate of 37.3% from 2023 to 2030 with a market size of USD 1.8 trillion by 2030 (Forbes Advisor 2024).

This rapid expansion of AI has sparked extensive discourse surrounding its implications for the labour market. While earlier waves of technological advancements primarily affected blue-collar workers, the evolution of AI, including Machine Learning (ML), Generative AI (GenAI) and Large Language Models (LLMs) can potentially impact white-collar jobs and non-routine cognitive tasks. According to the World Economic Forum, bank tellers and related clerks, data entry clerks, administrative and executive secretaries have the highest potential for automation. Meanwhile, jobs with high potential for augmentation are expected to grow, such as AI and ML Specialists, Data Analysts and Scientists, and Database and Network Professionals (World Economic Forum 2023). The introduction of ChatGPT in November 2022 enabled users to interact with AI via chatbot functionalities, unlocking numerous opportunities across various industries.

With these advancements comes a concern about the potential increase in unemployment. It is estimated that nearly 400 million workers or 15% of the global workforce may be displaced by AI by 2030 (Mckinsey & Company 2017). The impact of AI on unemployment rates will vary by industry and region as well. However, AI holds

the potential of enhancing productivity, fostering growth and expanding economies' production capabilities. By 2035, AI-based technologies globally may increase labour productivity by 40% across 16 industries including manufacturing and an additional USD 3.8 trillion GVA in 2035 in the manufacturing sector (Accenture 2022). Projections suggest that by 2030, AI is expected to create 20-50 million new jobs globally, spanning industries like healthcare, manufacturing, and finance. The emergence of new job opportunities requiring skills like critical thinking and problem-solving highlights the evolving nature of work in an AI-driven economy (World Economic Forum 2023).

Thus, exploring the implications of AI on the labour market alongside its ethical considerations surrounding AI adoption is of paramount importance in the context of G20 countries for ensuring the responsible development and deployment of AI technologies. Though the advancement is revolutionising various sectors, technological progress also has an impact on the workforce, particularly in terms of job displacement and changes in skill requirements. Furthermore, issues such as bias, discrimination, job displacement, and privacy must be addressed to establish trust in AI systems.

Another critical challenge stemming from AI's integration into the labour market is the potential exacerbation of income inequality and job polarisation. While AI holds the potential to engender new high-skilled, high-paying roles, particularly in sectors like technology and data science, it also risks eliminating lower-skilled positions, leading to a divergence in the labour market. Research by the International Monetary Fund (IMF) indicates substantial variations in AI exposure across countries, with Advanced Economies (AEs) facing heightened exposure due to a greater employment share in professional and managerial occupations (Gmyrek, Berg and Bescond 2023).

In this fast-evolving landscape of AI development, it is unclear how these technologies might serve as i) substitutes and complements human labour in specific tasks and

occupations as ambiguity exists around net gainers in the job market (Autor, et al. 2024); ii) understanding implications of augmenting and difference in adaptation of AI among AEs and Emerging Market and Developed Economies (EMs) with subsequent labour policy implication and iii) how the skill gap and AI diffusion among various demographics affect within country-policies on AI.

Addressing these challenges posed by AI integration into the labour market is of great importance among policymakers, Civil Society groups and academics, especially among the members of G20. The Ministerial Statement on Trade and Digital Economy in Osaka Summit (2019) (G20 Osaka 2019) took note of the national policies to build human capacity and prepare for labour market transformation. The statement not only called for long-term public investment and encouraged private investment in R&D for trustworthy AI but they should work closely to take steps such as having social dialogue among various stakeholders to empower people to effectively use and interact with AI systems, equipping them with necessary skills; ensure fair transition of workers when AI is deployed, support for those affected by displacement by providing access to new opportunities in the labour market. The (G20 New Delhi 2023) Leader's Declaration also reiterated the G20 AI principles of 2019, urging leaders to pursue a pro-innovation governance approach that maximizes benefits while addressing associated risks. Amidst this background, there is a need to address various challenges to build a resilient workforce and for optimal penetration of AI into the workforce. The G20 forum should provide means to address various facets of AI in the labour force and subsequently provide recommendations for a sustainable future for AI transition.

Recommendation

As discussed in the previous section, the rapid development of AI technology poses both threats and opportunities for the labour market. The principle for any regulatory framework on AI penetration, particularly the “right type of AI " into the workforce, should not only address various approaches to enhancing productivity but also generate new tasks/ employment opportunities, to avoid mass unemployment amidst the increasing size of the workforce globally. With this, we propose various recommendations that align with Brazil's G20 Presidency priorities of sustainable economic policies that prioritise job creation, innovation and investment while reducing inequality along with a subsequent push towards reaching SDGs:

1. Skill Development and Training Programmes (SDG 3,4,8,9)

- The impact of AI on tasks and jobs will engender changing skills needs. When considering the global perspective, it is crucial to acknowledge that the skills gap and training needs vary between developed and developing countries. In the latter, where access to technology and digital education may be limited, efforts to bridge this gap and provide training tailored to the region's specific needs are essential. Conversely, in the developed countries, where technological advancements are more prevalent, the focus may shift towards upskilling the workforce to adapt to the rapidly evolving AI landscape and ensuring that workers are prepared for the future of work in an AI-driven world.
- Skill development and training for AI should be provided not only to vulnerable (low-skilled and older workers in particular) and social groups (based on income, caste, race and religion, etc) to help them adapt to the changes in AI but also to higher-skilled workers and managers, to foster AI development and adoption. For instance, to train the

workforce in AI and other emerging technologies, Singapore has introduced the Skills Future Level-Up Programme (SFLP) in collaboration with the Ministry of Education (MOE) (Tan 2024). This acknowledges training those in high-skilled occupations that may not be better positioned to adapt to AI-related changes, potentially exacerbating existing inequalities.

- The G20 member's ministries pertaining to Human Resources, Skill Development and various industry associations should lead the efforts of capacity building through skill development of the workforce. With further development of AI, the developing countries need to leverage its young talent pool with apropriaste training and capacity building to secure upcoming higher future value employment opportunities such as AI and ML Specialist, Database Analyst and Scientist, Mathematicians, Actuaries, Graphic Designer, etc.
- Basic AI knowledge or 'AI literacy' should be taught at different levels of formal education including schools. National Governments and Industry experts (specifically from IT/ITES companies) should play an active role in developing curriculum which should encompass several key components such as Technical Understanding, Practical Understanding, and ethics in AI.
- Specialised training for AI Ethics is essential to build a global network which will require training programs focused on AI ethics and responsible AI development. This can help professionals understand the ethical implications of AI technologies and develop strategies to ensure fairness, transparency, and accountability in AI systems.

2. ***Inequality Mitigation to Reduce the Potential of 'AI Divide' (SDG 5,8,9,10)***

- Design policies to address income inequality by creating pathways for upskilling lower-skilled workers and promoting fair distribution of economic benefits from AI advancements.
- AEs should provide necessary support, through development cooperation, technology transfer and requisite financial assistance to EMs to build necessary corpus to invest in needed infrastructure that can allow these countries to benefit from the productivity-enhancing potential of AI.
- Given the availability of a low safety net of vulnerable workers especially in developing countries, a social policy needs to be devised for displaced workers, particularly in informal sectors. Policy such as Livelihood insurance and unemployment benefits packages with skill training programming should be prepared with help of academics, policymakers and other stakeholders. Subsequently, the local and national government should invest in necessary infrastructure to distribute such packages in a timely manner.
- Studies by the IMF, World Economic Forum and OECD indicate that potential exposure of AI disproportionately affects the share of women's employment (World Economic Forum 2023) (OECD 2023). Policymakers and government should play an active role to devise various mitigation strategies which can include early investments of Women in STEM fields, establish mentorship and training programs to promote women into managerial positions, and programmes on bridging the digital gender divide.
- According to ILO 19.3% of women's employment globally is in paid care workers. Investment and formalisation of the care economy, particularly provision of decent care jobs in education and health can reduce the impact of AI on women's

employment due to its lower potential of automation and requires a high degree of human involvement.

3. Labour Market Adaptation Strategies (SDG 8, 9,16,17)

- Policies should be framed in such a manner that creates incentives in employment opportunities in domains such as Education, healthcare, tourism etc., that have low potential of automation as it requires a certain degree of human engagement.
- Inclusive policies that safeguards workers from displacement, wage depression, and ensure a fair transition for those affected by AI-induced changes in the labour market should be appropriately designed by policy makers. For this, various institutions and organisations should promote social dialogue platforms between the employee and the stakeholders to facilitate smooth transition of workers to foster a better AI enabled ecosystem.
- The adoption of AI is likely to lead to the reorganisation of tasks within occupations, with the emergence of new tasks and occupations that only humans can perform. This reorganisation requires institutional support at various levels where G20 members can provide assistance in collaboration and organising training programmes.
- Encourage international collaboration among policymakers to share best practices, research findings, and policy approaches related to AI's impact on the labour market.

4. Establishment of Global Centre on Artificial Intelligence and Governance (SDG 16,17)

An apex body is essential to monitor, evaluate the impact and assess the risk of AI on various socio-economic aspects. We further propose G20 forum to initiate the establishment of the Global Centre on Artificial Intelligence and Governance (GCAIG) which will play a crucial role in the following aspects:

- **Risk Assessment and Governance Solutions**: The centre will assess risks associated with the advancement of AI, focusing on areas such as employment, wages, and socio-economic inequality. It will work towards providing governance solutions to mitigate these risks on a global scale.
- **Policy Development and Implementation**: The Centre will develop and implement policies that address the challenges posed by AI advancement, ensuring that governance frameworks are in place to regulate AI technologies effectively.
- **Research & Innovation and Policy Formulation**: The Centre will engage in policy formulation by reviewing existing frameworks, developing new standards as further AI advancement occurs and adapting them to encourage innovation and competition in AI, encouraging interdisciplinary efforts to tackle technical challenges and ethical implications related to its development.
- **Capacity Building**: The centre aims to build human capacity by equipping individuals with the necessary skills to interact with AI systems effectively. This includes preparing the workforce for the transformation brought by AI deployment and ensuring a fair transition of workers.
- **International Collaboration**: The centre will work with governments, stakeholders, and global forums to advance responsible stewardship of trustworthy AI,

foster knowledge sharing, and encourage the development of consensus-driven global technical standards for AI.

Scenario Outcome

1. Job Creation Aligned with AI Development

- AI is not merely a tool for automating tasks but also plays a crucial role in generating new jobs that complement its growth. This advancement will include roles in data science, IT, and AI research, highlighting a demand for professionals who can develop, implement, and manage these technologies. It reflects a shift towards roles that not only utilize AI but also contribute to its evolution and application across various sectors.

2. Emergence of Spin-off Jobs

- The advent of AI has led to the creation of new markets and fields, creating a ripple effect that generates demand for ancillary services and specialised roles. For instance, the adoption of AI in sectors such as healthcare, finance, and transportation necessitates roles in equipment procurement, software customization, risk assessment for AI-driven systems, and consultancy services for businesses to integrate AI solutions.

3. Shift Towards Inimitable Jobs

- AI's growth has prompted a movement towards jobs that emphasise 'cognitive' skills, such as creativity, problem-solving, critical thinking and flexibility, which are difficult for AI to replicate. These 'inimitable' jobs capitalise on human strengths in areas where AI struggles to replicate human-like judgement and intuition. This promotes

inclusivity across various job sectors and encourages the cultivation of a more versatile and resilient workforce capable of navigating the complexities of an AI-driven economy.

- The integration of AI necessitates a workforce that not only has technical skills but also excels in critical and systemic thinking. Professionals have adapted to the changing landscape by developing new ideas and concepts ('ideation') and engaging in expert thinking and complex communication.

4. Augmentation of the Workforce

- AI's role in the skilled professions has fostered new advancements, leading to an 'augmented workforce' where humans and AI collaborate to achieve superior outcomes.
- In this paradigm, AI complements human capabilities, offering insights, automating routine tasks, and enhancing decision-making processes. This collaboration amplifies productivity and efficiency as well as fosters innovation by allowing humans to focus on tasks that require creativity, strategic thinking, and nuanced judgment.
- As a result, organisations are increasingly investing in initiatives aimed at upskilling employees to effectively collaborate with AI technologies, thereby optimising performance and driving sustainable growth.

5. Evolution of Work and Worker Roles

- The outcomes of AI integration along with the appropriate assessment from GCAIG can reevaluate the labour market, worker expectations, and the educational system to equity. This can play an important role in determining the nature of work and the roles workers play.
- This transformative potential of AI and the proactive nature of addressing its socio-economic implications, workers can harness its benefits while mitigating potential

risks, creating a future of work that is both prosperous and inclusive, ensuring alignment with the future of work.

References

Accenture. 2022. “The art of AI maturity: Advancing from practice to performance.” https://www.accenture.com/us-en/insights/artificial-intelligence/ai-maturity-and-transformation.

Autor, David, Caroline Chin, Anna Salomons, and Bryan Seegmiller. 2024. “New frontiers: The origins and content of new work, 1940--2018.” *The Quarterly Journal of Economics* (Oxford University Press).

Forbes Advisor. 2024. *forbes.* 6 February. https://www.forbes.com/advisor/in/business/ai-statistics/.

G20 New Delhi. 2023. “G20 New Delhi Leaders’ Declaration.” https://www.mea.gov.in/Images/CPV/G20-New-Delhi-Leaders-Declaration.pdf.

G20 Osaka. 2019. “G20 AI Principle.” https://www.mofa.go.jp/policy/economy/g20_summit/osaka19/pdf/documents/en/annex_08.pdf.

Gmyrek, Pawel, Janine Berg, and David Bescond. 2023. “Generative AI and Jobs: A global analysis of potential effects on job quantity and quality.” *ILO Working Paper* 96.

Mckinsey & Company. 2017. *A Future that Works: Automation, Employment, and Productivity.* Mckinsey Global Institute.

OECD. 2023. *OECD Employment Outlook 2023: Artificial Intelligence and the Labour Market.* Paris: OECD Publishing. doi:https://doi.org/10.1787/08785bba-en.

Tan, Sue Ann. 2024. “Mid-career training should prepare workers for growth industries: ST-UOB panel.” *The Straits Times.* https://www.straitstimes.com/business/mid-career-training-should-prepare-workers-for-growth-industries-st-uob-panel.

World Economic Forum. 2023. *Future of Jobs Report.* Geneva: WEF. —. 2023. “We often hear that AI will take our jobs. But what jobs will it create?” 18 September. https://www.weforum.org/agenda/2023/09/jobs-ai-will-create/.

G20 BRASIL 2024
BUILDING A JUST WORLD AND A SUSTAINABLE PLANET

T20 Brasil 2024
Let's rethink the world

Let's rethink the world

CEBRI Rethink Tank

FUNDAÇÃO ALEXANDRE DE GUSMÃO

ipea
Instituto de Pesquisa Econômica Aplicada