



CHANGING NATURE OF WORK

INTRODUCTION

Over the centuries, technological, social and political transformations in the form of Industrial Revolutions, Demographic changes or Globalization have shaped economies and the nature of work and employment across the globe. This changing nature of work (an activity performed by persons to produce goods and services for own or others' use) and employment (terms and condition under which work is undertaken for the employer) is intricately related with all spheres of life primarily with individual's income, living standards and country's economic growth. But, it also has wide ranging impacts on societal issues such as inequalities, social mobility, mental health, and social cohesion and is also considered crucial for moving towards sustainable growth.

In this context, it becomes critical to understand which factors are going to disrupt the present nature of work and how? What will be the impact of these changes on the future employment landscape and what opportunities do they present? What challenges does India face in tackling upcoming changes in the jobs and what steps have been taken in India to keep up with the changing nature of work? Further, what is the way ahead in the changing employment scenario? In this edition, we attempt to answer these questions.



WHICH FACTORS ARE GOING TO DISRUPT THE PRESENT NATURE OF WORK AND HOW?

The following trends and changes are expected to cause disruption in the present nature of work through creation and destruction of jobs; changing the skills profiles of existing jobs; affecting employer-employee relationships and modes of recruitment etc.:

- **Technological shifts:** Exponential growth in new technologies such as Artificial Intelligence (AI), machine learning, Internet of things (IoT) and big data, as well as technologies such as 3D printing and advanced robotics are reshaping the quantity, nature and organization of work; skill demands; business and production models; consumption patterns; and global value chains.
- **Demographic changes:** Demographic trends such as aging population, rising middle class, millennial dominated workforces, increasing urbanization etc. will determine labour demand and supply, and consumption patterns; and set expectations and aspirations of the workforce.
- **Structural Changes in the labour market:** The recent times have seen a substantial rise in new forms of employment such as Platform work, gig work, own-account work and other forms of employment outside the scope of the traditional employer-employee arrangement. On the other hand, the incidence of wage and salaried employment has been on a downward trend.

HOW THE TECHNOLOGY HAS BEEN RESHAPING WORK SINCE THE FIRST INDUSTRIAL REVOLUTION?

- **First IR** can be traced back to the 1700's when Mechanical Technology was introduced in the factories. This replaced guilds and artisanal craftsmanship with assembly line production.
- **During the second IR in the 1800's**, with the discovery of electricity, the electrical impetus made possible the division of labour and mass production.
- **The third IR of the 1900's** brought with it automated, IT enabled solutions which streamlined the programmatic work and limited the reliance on manual labour.
- **Presently, the fourth IR** has augmented connectivity between cyber-physical systems, through technologies like AI, Robotics, Blockchain etc. that is blurring the lines between the physical, digital, and biological spheres.
 - The 4th IR has already given birth to **5th IR, where the focus has shifted to embracing humanity**. It's about robots helping humans work better and faster by leveraging advanced technologies like the Internet of Things (IoT) and big data.

- **Gig work refers to short-term work engagements** with any organization.
- **Platform work is the work supported by companies operating on digital platforms** for individuals to hire out their skills and services to businesses or consumers.
- **Own-account workers are those workers who, working on their own account or with one or more partners**, hold the job as a self-employed job, and have not engaged on a continuous basis any employees to work for them during the reference period.
- **Reverse globalization and rising protectionism:** Globalization's manifestation can be seen in changes in production, finance and trade. Thus, increasing protectionism in countries can impact the nature of work by affecting global supply chains (GSCs), challenging the export-led growth models, and changing geography of production, distribution and value chains.
- **Disruptions caused by the COVID 19 pandemic:** The pandemic induced lockdowns, economic contraction, social distancing norms etc. have had an impact on the quality and quantity of jobs, workplace conditions etc. and has also accelerated radical shifts in digitalization.
- **Climate Change:** How the world collectively and individually tackles the issues of climate change is set to determine how nature of jobs, especially those related to green or low-carbon economy, ecosystem services etc., will evolve over the time. For instance, implementing the Paris Climate Agenda is estimated to lead to global job losses of around 6 million and job gains of 24 million.

WHAT WILL BE THE IMPACT OF THESE CHANGES ON THE FUTURE EMPLOYMENT LANDSCAPE?

While the exact effects of the above disruptive changes on the nature of future work and employment are hard to predict, several implications that these changes are expected to have on its various aspects have been stated below:



➤ **Job loss and displacement in some sectors:** Disruptive changes generally tend to make certain skills obsolete and lead to loss/displacement of jobs in specific sectors like-

- **Automation:** AI combined with the emergence of big data, the internet of things and ever-increasing computer power has the potential to unleash clever robots to increasingly undertake physical (manual) tasks and some cognitive (mental) tasks hitherto undertaken by humans.
- **Primary sector jobs:** Jobs which generally rely on the services that ecosystems provide, like fishing, agriculture etc., may be endangered by climate change and other forms of environmental degradation.
 - Also, a move towards cleaner sources of energy can potentially reduce jobs in fossil fuel and carbon-based energy sector.

WHAT KIND OF WORKS ARE RELATIVELY SECURE FROM AI AND AUTOMATION?

- Automation of work is generally feasible when work is organized in a discrete, standardized and predictable way (routine tasks).
- However, the aspects of work that require key attributes of human labour, are beyond the current capabilities of advanced AI. This includes-
 - **Creative and Manipulative tasks:** Human intelligence of using one's imagination and coming up with new and meaningful ideas, approaches and products followed by identification of mistakes and course correction is yet to be convincingly codified in the algorithms used to run computers and robots.
 - **Social intelligence:** While robots are getting better in producing some aspects of human social interaction, they fail to grasp its subtleties. For successful social interaction, humans analyze and navigate each other's emotions in real time.

- **Growing skills instability:** Rapid changes in the nature of work have made lifespan of technological skills shorter and skill demands of the labour market unpredictable, leading to skill gaps and skill mismatches.
 - In this regard, the demand for skills associated with "adaptability" and "transferability" such as **advanced cognitive skills** (critical thinking and problem-solving) and **socio behavioral skills** (creativity and curiosity) is increasing, whereas the demand for narrow job-specific skills is waning.
- **Growing inequities:** Disruptive changes are likely to further entrench labour market inequities along gender, disability, caste, class, and religious lines.
 - The marginalization of certain communities is likely to become more entrenched due to **technological skill-bias** and **digital divides** as digital access and fluency are rapidly becoming essential for finding suitable work opportunities.



- Digital platforms and work from home facilities will enable women to avail new employment opportunities, circumventing barriers of physical mobility and domestic commitments. But social issues such as domestic violence and disproportionate burden of domestic and care work on women can affect their labour participation.
- The unprecedented changes brought about by COVID-19 are likely to affect employment prospects of those who were already most disadvantaged—living in neighborhoods with poor infrastructure, and whose income does not equip them with a comfortable living standard, healthcare coverage or savings.
- **Heightened job polarization:** Shift in occupational structures, often leads to polarization in employment and wages. For example—Technological advancements tend to widen the gap between the highly skilled, high-wage and lower skilled, low-wage workers.
- **Changes in employer-employee relationships:** With rise in platform and gig economy and unpredictable and variable skill demands, the work that would previously have been done by an employee will be outsourced to an on-demand worker, contractual or part time labour. Thus the standard and stable employment relationship could disappear in the future.
- Platform workers, temporary workers, part-time workers are at a particularly high risk of **having unclear employment status and lack rights and protections that come with normal employment contracts.**
- Also, the dispersed nature of the work on digital labour platforms across international jurisdictions makes it **difficult to monitor compliance with applicable labour laws.**

Opportunities presented by the disruptions that can transform the future work for the better

- **Job creation:** There are different channels through which disruptions can generate jobs/tasks-
 - Technological developments, digital platforms, economic aspirations and innovative spirit of youth can catalyze creation of **new forms of entrepreneurship.**
 - New machines and the rise in knowledge-based capital may directly require new tasks (such as producing, operating, maintaining and upgrading the new technologies /machine).
 - **Rise in green jobs** related to low greenhouse gas economy and climate change mitigation measures.
 - Aging populations across the world are set to create jobs in **care economy.**
- **Enhancement in job quality:** Technological advancements can enhance job quality by freeing workers from arduous and repetitive labour; from dirt, drudgery, danger and deprivation. This can reduce work-related stress and potential injuries and free up time of workers for more interesting and innovative work.
 - Also platform and gig work and COVID-19 induced push to work from home can provide flexibility in working hours, the ability to work remotely, and the autonomy and control that self-employment enables. This also greatly improves **environmental sustainability** of work.



- ▶ **Geographic diversity and Inclusivity:** Platform work could potentially be beneficial for migrant workers by allowing them to work remotely and for marginalized communities by providing a level playing field and opportunities for social mobility.
- ▶ **Rise in productivity and efficiency in labour markets:** Digital platforms offer access to online career counselling, skill assessment tools, and opportunities for short-term, paid projects and internships. This can assist in addressing information gaps, assessing and matching skills, and increasing work experience among youth.

WHAT CHALLENGES DOES INDIA FACE IN TACKLING UPCOMING CHANGES IN THE JOBS?

India has not been immune to ongoing disruptions in the field of employment. The World Bank data has estimated that 69% of jobs in India will be threatened by automation in upcoming years. Some specific challenges India faces are-

▶ **Industry-academia disconnect:** This linkage is needed for students to learn and engage in real-world problem-solving and for providing industry with more 'job ready' students. With continuous evolution in the nature of work, these linkages have become even more important.

- Poor industry academia linkages in India get manifested in low number of industrial projects coming to institutes, lack of awareness among students vis-à-vis the practical problems and high dependence on Government support for research funding. A direct corollary of this issue is less patent filing (India filed only 2,053 patents applications in 2019, accounting for fewer than 1% of the global filings) and consequently lesser innovation.

▶ **Outdated curriculum and stagnant learning patterns:** Curriculums in Indian schools and higher education institutions have failed to keep up with changing demands of the labour market. Government frameworks and policies in this regards have also been sluggish to keep up with changes. For instance, the Education policy was recently updated after a gap of more than 3 decades.

- UNICEF had warned that **over half of Indian students will not have the competencies required for 21st century jobs**, primary reason being that the system has been output centric (test performances) and not outcome centric (learning outcomes). Also, around 53% of students are estimated to leave secondary school without getting skills needed for decent jobs by 2030.

▶ **Issues with Skill-Ecosystem:** India's flagship skill development schemes like National Skill Development Mission and Pradhan Mantri Kaushal Vikas Yojana focus primarily on the skills that are required to fulfill the job roles that are prevalent now, but the policies do not provide for a long-term plan that can prepare today's workforce for the future jobs. This approach may create a scenario where Skill development initiatives will always be playing catch-up to the changing nature of work.



- In 2017-18 alone, around 33% of the formally trained youth - both men and women - remained jobless mainly because the skills that employers are looking for are lacking in most college graduates.

➤ **Issues with India's regulatory frameworks:** It is muddled with problems such as-

- **Sticky nature:** Regulatory frameworks in India are generally not subject to regular updation. For instance, India's Industrial Policy has not been comprehensively updated since 1991. This may give rise to a scenario where new-age employment and businesses are indirectly discouraged from growing.

- **Unreliability:** The regulatory landscape of India tends to be unpredictable, especially for new technologies, which hinders development of entrepreneurial and innovation culture. For example, many crypto-currency based start-ups which sprang up in India had to stay in limbo due to ambiguity on its stand. This discourages entrepreneurs trying to explore this technology.

➤ **Informalization:** Predominance of informality in the Indian Economy (employing more than 90% of workforce) increases uncertainty associated with the changing nature of work, due to limited reach of social protection measures, prevalence of low-productivity jobs, poor opportunities for on work training etc. Moreover, **platform economy can be seen as reproducing informality** in India.

- As many as 41 lakh youth mostly employed in the informal sector in the country lost jobs due to the COVID-19 pandemic according to a joint report by the International Labour Organization (ILO) and the Asian Development Bank (ADB).

➤ **Low investment in R&D:** Research and Development is the key to transform capabilities of Indian firms as well as workers to keep up with technological advancements. However, India's National Gross Expenditure on Research and Development (GERD) in science and technology as percentage share of the GDP hovers around 0.7 per cent which is far lower compared to countries such as South Korea (4.5 per cent), USA (2.8 per cent), China (2.1 per cent) and Brazil (1. per cent).

➤ **Conservative approach of society:** The inherent resistance towards new era jobs and preference towards traditional jobs, that are well paid and secure, acts as a discouragement for youth in exploring careers in non-traditional sectors which will be pertinent to future jobs.

➤ **Prevalent digital divide may aggravate inequality:** Adoption of technology is at the forefront of the changing nature of work, this makes access to and familiarity with technology a pre-requisite to tap these opportunities. The prevalent Digital Divide in India at Urban-Rural level, regional level and at the level of gender may create a new dimension of deprivation and inequality.

- For instance, according to NSSO (2017-18) just 4.4 rural households have a computer, against 14.4 per cent in an urban area. Without access to a computer, it would be extremely difficult to participate in a system enmeshed with Internet of Things and Artificial Intelligence.



WHAT STEPS HAVE BEEN TAKEN IN INDIA TO KEEP UP WITH THE CHANGING NATURE OF WORK?



While challenges do exist in transitioning to changing nature of jobs, India also has opportunities which can make this transition smoother. These include - largest working-age population (20–64 years) in the world by 2100, rising ambition, aspirations and capabilities of the middle-class population and considerable improvement in ease of doing business in India etc. Keeping this in mind, government has also been taking some steps-

➤ Efforts to increase Industry-academia partnership:

- **National Apprenticeship Promotion Scheme:** The apprenticeship program directly increases the exposure of students and provides an opportunity to industry to highlight their needs via these students. The aim of the scheme is to **increase the engagement of apprentices from present 2.3 lakh to 50 lakh cumulatively.**
- **National Initiative for Development and Harnessing Innovations (NIDHI):** It establishes a network between academia, financial institutions, industries and other institutions to bring the best of ideas to the forefront which is not only relevant to the contemporary times but can also help in the creation of relevant jobs in various fields.

➤ **Preparing youth for the evolving job landscape: India's National Education Policy, 2020** covers important issues such as integrated learning, adult learning, early childhood care and promotes critical thinking, creativity and curiosity to make sure Indian youth can compete in the evolving job landscape.

➤ **Addressing skill shortages:** This involves three-pronged strategy of skilling, reskilling (continuous training) and upskilling (developing new skills over a long term). India has several programmes and schemes in place to facilitate this. such as:

- **National Skill Development Mission:** It focuses on ensuring sufficient, high-quality options for long-term skilling which is benchmarked to internationally acceptable qualification standards for the ultimate goal of creation of a highly skilled workforce.

INTERNATIONAL INITIATIVES

- **World Economic Forum:** WEF launched Reskilling Revolution in January 2020 as an initiative to provide one billion people with better education, skills and jobs by 2030.
 - The scheme aims to future-proof workers from technological change and help economies by providing new skills for the Fourth Industrial Revolution.
 - Founding governments include Brazil, France, India, Pakistan, the Russian Federation, UAE and the US. Business partners include PwC, Salesforce, ManpowerGroup, Infosys, LinkedIn, Coursera Inc. and The Adecco Group.
- **Organisation for Economic Co-operation and Development:** It launched its Future of Work initiative to track changes in the labour markets of member states and understand the implications for skills and social policies.
- **International Labour Organisation:** Future of Work initiative was proposed by the ILO Director-General in 2013 and the ILO Centenary Declaration for the Future of Work was adopted in 2019 which marked the 100th anniversary of the ILO.
 - The Declaration calls upon all Members, taking into account national circumstances, to work individually and collectively, on the basis of tripartism and social dialogue, and with the support of the ILO, to further develop its human-centred approach to the future of work.



- **Core skill development schemes:** Schemes such as **Apprenticeship training, DeenDayal Upadhyaya Grameen Kaushalya Yojana, Pradhan Mantri Kaushal Vikas Yojana etc.**, aim to bridge the skill gap to match global standards. This connection with the global standards will help continually update the skill demand needed for evolving demands of the work.
- **Aatmanirbhar Skilled Employee Employer Mapping (ASEEM) portal:** It envisages the rapidly changing nature of work and its impacts on the workforce to restructure the skilling ecosystem with the new normal settling post-pandemic to provide employers with a platform to assess the availability of a skilled workforce and formulate their hiring plans.
- **Promoting innovation and entrepreneurship for job creation:**
 - **Startup India:** It intends to build a strong eco-system for nurturing innovation and Startups in the country that will drive sustainable economic growth and generate large scale employment opportunities.
 - **Atal innovation mission:** Its objectives are to create and promote an **ecosystem of innovation and entrepreneurship** across the country at school, university, research institutions, MSME and industry levels through Atal Incubation centres, Atal Tinkering Labs etc.
- **Social protection for all:** The recent codification of India's labour laws will ensure social security benefits to the emerging nature of workers in order to address their vulnerabilities.
 - For example, **the codes on social security** enable the government to formulate schemes for the benefit of unorganized workers, and gig and platform workers.
 - The Industrial Relations Code, 2020, has a provision of Re-skilling Fund with the objective of increasing the chances of employment again for workers affected by retrenchment or closure of units.
- **Digital empowerment of citizens: Digital India Programme focusses on** Universal digital literacy and universally accessible digital resources to prepare India for a knowledge future.
- **Addressing inequalities in workforce participation:**
 - **Skill development for minorities:** With schemes such as SeekhoaurKamao, Upgrading the Skills and Training in Traditional Arts/ Crafts for Development (USTTAD), Nai Manzil etc, the government is trying to bridge the skill gap and modernize education of youth belonging to minority communities.
 - **Standup India:** The Standup India scheme aims at promoting entrepreneurship among women and scheduled castes and tribes.

WHAT IS THE WAY AHEAD IN THE EMERGING UNCERTAIN SCENARIO WITH REGARD TO WORK AND EMPLOYMENT?

- **Constant implementation, monitoring and updation of government's policies and programmes** to ensure achievement of the desired outcomes and evolve and adjust the regulatory frameworks as per the changing demands and future disruptions. For example, regular revision of skill development framework in consultation with other stakeholders like industries, keeping in mind the potential skills required for the future.

- **Attaining self-reliance in the emerging technologies and products** to reduce country's dependency on others and boost employment generation at the same time. Recently launched AtmaNirbhar Bharat abhiyan is a step in the right direction. The self-reliance will also enable innovation and research in the country which indirectly provides a fillip to entrepreneurship.
- **Focusing on labour intensive sectors to offset the limitations of technological and capital-intensive sectors** in absorbing the burgeoning workforce. This step will ensure that the changing nature of work does not drastically alter the current employment distribution. For example, focusing on Construction sector could help absorb manual workers who may get replaced by introduction of automation in industries.
- **Increasing budgetary allocations and incentivizing public and private investments in research and development of emerging technologies and ideas.** Increased public investment in research and development accompanied with an encouraging framework could crowd in private investments at both level of university and industry. For example, investment in creating research labs at university level encourages private sector to bring funds as well as projects into this ecosystem.
- **Adopting a human-centered approach to the future of work** which puts workers' rights and the needs, aspirations and rights of all people at the heart of economic, social and environmental policies. For example, there is a need of moving towards an employment landscape that encourages social dialogue with workers, provides meaningful work and promotes sustainable enterprises that act as generators of employment and promoters of innovation and decent work.



Conclusion

Despite the many opportunities, much anxiety surrounds the future of work. But the future of work will largely depend on the policy decisions countries make. With the right policies and institutions in place, the opportunities presented by

disruptive changes can be seized, and the risks mitigated. It is imperative to act with urgency to do so if we are to shape a fair, inclusive and secure future of work, with full, productive and freely chosen employment and decent work for all.





TOPIC AT A GLANCE

WHICH FACTORS ARE GOING TO DISRUPT THE PRESENT NATURE OF WORK AND HOW?

- ↳ **Technological Shifts:** Exponential growth in new technologies such as AI, IoT and big data etc. are reshaping the quantity, nature, skills, organization of work and global value chains.
- ↳ **Demographic changes:** Demographic trends will determine labour demand and supply, consumption patterns and aspirations of the workforce.
- ↳ **Structural changes in the labour market:** New type of work patterns and workforce has been emerging like gig workers, platform workers and own-account workers.
- ↳ **Reverse globalization and rising protectionism:** Increasing protectionism in countries is challenging the export-led models and reorienting the Global Supply Chains (GSCs).
- ↳ **Disruptions caused by COVID-19 pandemic:** Lockdowns, economic contraction, social distancing norms etc. have had an impact on the quality and quantity of jobs.
- ↳ **Climate Change:** Jobs generated to counter climate change like green or low carbon economy jobs will also significantly alter the nature of jobs.



WHAT WILL BE THE IMPACT OF THESE CHANGES ON THE FUTURE EMPLOYMENT LANDSCAPE?

- ↳ **Job losses and displacement** in areas like **primary sector and sectors driven by automation.**
- ↳ Rapid changes in the nature of work have led **creation of skill gaps and skill mismatches.**
- ↳ Disruptive changes are likely to **further entrench labour market inequities** along gender, disability, caste, class, and religious lines due **unequal technological and prevalent digital divide.**
- ↳ Heightened polarization in employment and wages due to **change in occupational structure.**
- ↳ **Changes in employer-employee relationships** due to emergence of new forms of employment.



WHAT CHALLENGES DOES INDIA FACE IN TACKLING UPCOMING CHANGES IN THE JOBS?

- ↳ **Poor industry academia linkage** deters students from staying updated with the changes in the nature of work.
- ↳ **Outdated curriculum and stagnant learning patterns** have failed to keep up with changing demands of the labour market.
- ↳ **The skill ecosystem in India lacks futuristic outlook** affecting future employability of workforce.
- ↳ **India's regulatory frameworks are not regularly updated and tend to be unpredictable** in nature.
- ↳ Predominance of informality in the Indian Economy (employing more than 90% of workforce).
- ↳ Indian workers and businesses, not able to keep up with technology due to **low investment in R&D.**
- ↳ **Conservative approach** of society creates reluctance towards new job roles that are evolving.



WHAT STEPS HAVE BEEN TAKEN IN INDIA TO KEEP UP WITH THE CHANGING NATURE OF WORK?

- ↳ **Efforts to increase Industry-academia partnership** through initiatives like **National Apprenticeship Promotion Scheme** and **National Initiative for developing and harnessing innovations (NIDHI).**
- ↳ Efforts to prepare youth for evolving nature of jobs through **New Education Policy, 2020.**
- ↳ Addressing the issue of skill development through initiatives like **National Skill Development Mission, Pradhan Mantri Kaushal Vikas Yojana** and **ASEEM Portal.**
- ↳ Promoting innovation and entrepreneurship for job creation through **Start-up India** and **Atal Innovation Mission.**
- ↳ **Improving Social Protection** for all through measures like **Codes on Social Security.**



WHAT IS THE WAY AHEAD IN THE EMERGING UNCERTAIN SCENARIO WITH REGARD TO WORK AND EMPLOYMENT?

- ↳ **Constant implementation, monitoring and updation** of government's policies and programmes.
- ↳ Attaining **self-reliance in the emerging technologies** and products.
- ↳ **Focusing on labour intensive sectors** to offset the limitations of technological and capital-intensive sectors.
- ↳ **Increasing budgetary allocations and incentivizing public and private investments** in research and development.
- ↳ **Adopting a human-centered approach** to the future of work.