Workforce Transitions for a Green & Digital Economy

Strategic Pathways to adapt to a rapidly changing world

India stands at a pivotal juncture in its economic evolution. The convergence of environmental sustainability and digital innovation is reshaping the workforce landscape at an unprecedented pace. As the nation strives to meet its ambitious climate goals under the Paris Agreement and simultaneously position itself as a global digital leader, understanding and facilitating workforce transitions has become a central policy and developmental imperative. This article explores how India is navigating these dual transformations—green and digital—by strategically investing in education, skills, infrastructure, and inclusive policy frameworks to build a resilient, future-ready workforce.

Green Economy Careers & Sectoral Shifts

India's green economy has emerged as a powerful catalyst for employment growth. Central to this transformation is the renewable energy sector, which employed approximately 1.02 million people by the end of 2023, according to the 2024 Annual Review by the International Renewable Energy Agency (IRENA). Notably, Hydropower is the largest employer in India's renewable sector, providing around 435,000 jobs (accounting for 20% of the global total). The solar photovoltaic (PV) segment accounted for about 318,600 jobs—an 18% year-on-year increase, along with other segments Solid Biomass with 58,000, Wind Power with 52,000, Liquid Biofuels with 35,000 and Solar Heating and Cooling with 17,000 jobs, underscoring its role as a key employment driver within the clean energy landscape. This surge is the result of aggressive government targets and investments aimed at expanding India's renewable capacity to 500 GW by 2030. India added 9.7 GW of solar PV capacity in 2023 and ranked fifth globally for new installations and cumulative capacity, which reached 72.7 GW by the end of the year.

Large-scale infrastructure projects are reinforcing this momentum. Flagship developments like the Bhadla Solar Park in Rajasthan—one of the world's largest solar farms—and the Gujarat Hybrid Renewable Energy Park are not only contributing to national energy security but also generating significant regional employment. These projects are catalysing job creation across various stages of the value chain, from manufacturing and installation to operations and maintenance.

Policy instruments are further amplifying the green employment narrative. The Pradhan Mantri Surya Ghar Muft Bijli Yojana, launched in 2024, targets the installation of rooftop

solar systems in one crore households. This decentralised approach not only accelerates energy access but also spurs local job creation in installation, maintenance, and awareness campaigns, especially in semi-urban and rural areas.

Digital Transformation & the Future of Work

India’s digital economy is witnessing exponential growth, reshaping employment paradigms across industries. Sectors such as fintech, e-commerce, and IT services are at the forefront of this transformation, contributing significantly to GDP while also generating new employment avenues. The Digital India initiative continues to play a crucial role by enhancing digital infrastructure, promoting e-governance, and expanding access to high-speed internet, particularly in rural and semi-urban areas.

A cornerstone of this transition is the focus on skills development. Under the umbrella of the Skill India Mission, over 14 million individuals have been trained, many of whom have received foundational and advanced digital skills. Collaborations with industry bodies such as NASSCOM are equipping students, faculty, and job seekers with competencies in emerging sectors such as artificial intelligence, data science, machine learning, and cybersecurity. These partnerships ensure that India's talent pool remains relevant and competitive in the global digital economy.

Efforts to ensure inclusive access are also gaining traction. Programs aimed at bridging the digital divide—through community digital literacy initiatives and public Wi-Fi networks—are being scaled up. These efforts are critical for enabling participation from marginalised communities and ensuring that digital transformation leads to widespread, equitable job growth.

Public Policy & Workforce Innovation

India’s policy ecosystem is increasingly responsive to the demands of a green and digital future. The National Policy for Skill Development and Entrepreneurship serves as the overarching framework guiding workforce strategies. It emphasises industry-linked training, innovation-driven skills, and environmental sustainability.

India's green transition is being actively supported through a mix of national and state-level policies aimed at fostering sustainable industries and climate-resilient employment. The *National Policy for Skill Development and Entrepreneurship* incorporates environmental sustainability as a core principle, linking green industrial growth with workforce readiness. Major national initiatives like the *Green Hydrogen Mission* and *Production-Linked Incentive (PLI) Schemes* are promoting the development of clean energy sectors such as solar PV, advanced battery storage, and green

hydrogen, while also creating skilled employment. States are complementing these efforts with region-specific strategies—Odisha is focusing on green hydrogen manufacturing, Uttar Pradesh on sustainable aviation fuel, and Tamil Nadu through its Green Industrial Policy, supporting electric vehicle and renewable energy industries. These sector-specific approaches are facilitating regionally balanced industrial growth and employment generation. To ensure a just transition, early pilots around portable social security, retraining allowances, and green job guarantees are being introduced to support workers from carbon-intensive sectors.

India's digital transformation is being advanced through the *Digital India* program and related policies that prioritise digital literacy, skill-building in emerging technologies, and access to infrastructure, particularly in rural and underserved areas. The National Skill Development framework integrates industry-driven training in areas like AI, IoT, and data analytics, with growing emphasis on entrepreneurship and innovation. State governments are rolling out tailored programs to support digital entrepreneurship and workforce development, such as smart classrooms, coding bootcamps, and tech hubs in tier-2 and tier-3 cities. Initiatives like the Uttarakhand Workforce Development Project (UKWDP) and Kerala Startup Mission exemplify state-led efforts to expand digital access and equip young people and women with relevant skills. Together, these efforts are helping build a digitally empowered workforce capable of contributing to and benefiting from the expanding digital economy. Public-private partnerships are at the heart of workforce innovation. Collaborations between industry leaders, academic institutions, and government bodies are enabling rapid curriculum updates, internship placements, and research on future skill needs. Such alliances are necessary to ensure India’s workforce remains agile and globally competitive.

Youth Employment & Entry-Level Pathways

With more than 50% of its population under the age of 25, India’s demographic dividend offers both a challenge and an opportunity. Mobilising this vast youth cohort into productive employment, particularly within the green and digital sectors, is essential for sustaining long-term economic growth.

Educational institutions are beginning to align curricula with emerging workforce demands. Green technologies, climate literacy, and digital competencies are being integrated into school and university syllabi, thanks to reforms under the National Education Policy (NEP) 2020. These reforms aim to foster higher-order problem-solving, innovation, and industry-oriented skills among students.

Hands-on training and early career exposure are being provided through initiatives such as the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), which offers short-term skill

courses and apprenticeship programs tailored to high-growth sectors. These initiatives are helping bridge the gap between education and employment by enabling youth to gain industry-relevant experience.

Entrepreneurial support for young innovators is also on the rise. Initiatives like 1M1B (One Million for One Billion) are nurturing young changemakers, especially in domains such as AI, sustainability, and digital citizenship. These programs encourage problem-solving and social entrepreneurship, creating a new generation of leaders equipped to thrive in a green and digital economy.

Midlife & Second-Career Transitions

While India's skill development ecosystem has traditionally focused on youth skilling, particularly through schemes like PMKVY and Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY), which cater primarily to individuals aged 15–35, there are important provisions within this ecosystem that support midlife and second-career transitions. For instance, the Recognition of Prior Learning (RPL) component under PMKVY is specifically designed for individuals who already possess informal or on-the-job skills—such as electricians, mechanics, or technicians—and seek formal certification or upskilling in adjacent fields like solar energy or electric vehicle maintenance. The National Apprenticeship Promotion Scheme (PM-NAPS), while open to freshers, also benefits experienced workers by providing on-the-job training with financial incentives, making it easier for mid-career professionals to pivot into high-demand sectors. Additionally, the Jan Shikshan Sansthan (JSS) scheme, though often associated with low-literacy or disadvantaged populations, offers community-based, flexible vocational training that is accessible to adults seeking new skills. Together, these provisions demonstrate a growing recognition of the need to support not just youth but also working professionals navigating career shifts in the green and digital economy.

State governments are introducing complementary policies to increase participation among underrepresented groups, especially women. Tamil Nadu, for example, has launched initiatives to boost female employment in non-traditional sectors like green manufacturing and digital logistics. As industries evolve, the need for mid-career professionals to adapt and reskill is becoming increasingly urgent. The green and digital revolutions offer unique opportunities for experienced workers to pivot into high-demand roles, provided adequate support structures are in place.

The Skill India Mission has expanded its offerings to include targeted reskilling programs for midlife professionals. These programs are designed to leverage existing competencies while equipping participants with new skills in solar technology, EV

maintenance, digital marketing, and software development. Importantly, these programs also address the psychological and financial challenges associated with career transitions later in life. In Uttar Pradesh, the Sustainable Aviation Fuel (SAF) policy reflects a forward-thinking approach to green job creation. By incentivising clean fuel production, the policy not only promotes environmental sustainability but also opens up new career pathways for professionals from conventional energy or aviation backgrounds seeking greener roles.

Inclusive Workforce Mobility & Just Transition

Equity and inclusion must be central to India's workforce transition. The concept of a "just transition" ensures that the move toward green and digital sectors does not exacerbate existing social and regional inequalities but instead uplifts all communities.

Gender inclusivity is being tackled through focused interventions. The WE-SAFE (Women Employment and Safety Programme) is a ₹1,185 crore initiative by the Tamil Nadu government, supported by the World Bank, aimed at enhancing women's participation in high-growth, non-agricultural sectors like clean energy and information technology over five years (2024–2029). The initiative was officially announced by Tamil Nadu's Special Programme Implementation Minister, Udhayanidhi Stalin, in June 2024. The program includes psychometric assessments for schoolgirls (classes 8–12) to guide career choices, introduces an 'earlypreneurship' curriculum to build entrepreneurial skills, and establishes a Women's Information Bank to centralise data on jobs, skills, and safety resources. It also supports women through industrial internships, employment camps, mentorship, and the provision of safe transport, all of which are designed to improve employment outcomes, promote workplace safety, and shift societal attitudes toward women in technical and leadership roles.

Similarly, the Uttarakhand Workforce Development Project (UKWDP) is a government initiative aimed at promoting regional equity by enhancing digital skills among students and teachers, particularly in remote areas. It supports the creation of smart classrooms, coding bootcamps, and digital entrepreneurship hubs in tier-2 and tier-3 cities through public-private partnerships to enable greater participation in the digital economy. Additionally, the project introduces social protection measures—including portable social security benefits, retraining allowances, and access to affordable credit—to help workers transition fairly and sustainably from carbon-intensive or informal sectors, thereby fostering an inclusive and resilient workforce in Uttarakhand.

Many Indian states have launched initiatives focusing on digital skill development, entrepreneurship, and social protection to foster inclusive economic growth. Kerala's Startup Mission supports innovation and women-led tech startups, while Karnataka's

Skill Development Mission enhances technical skills and provides safe transport for women workers. Maharashtra's State Skill Development Society offers digital literacy and vocational training alongside financial inclusion programs for informal workers. Rajasthan's Raj Kaushal Vikas Yojana emphasises capacity-building and social security for women and informal sector workers, and West Bengal's Digital Literacy Mission promotes digital skills and employment facilitation for rural and semi-urban populations. Collectively, these programs aim to empower youth and women through training, mentorship, entrepreneurship support, and social safeguards, ensuring fair and sustainable workforce transitions across diverse regions.

India's transition to a green and digital economy represents a generational opportunity to reshape its workforce architecture. By investing in education, reskilling, public policy, and inclusive growth, the country is building a labour force that is not only future-ready but also socially and geographically inclusive. The success of this transition will rest on India's ability to maintain momentum, adapt to evolving global trends, and uphold principles of fairness and justice for all workers, young or old, urban or rural, skilled or unskilled. *J*oseph Stiglitz, in his book *The Price of Inequality,* says, "The cost of inequality is not just borne by the poor; it undermines the fabric of society as a whole." Inclusive growth is the only meaningful way to ensure economic progress that benefits everyone, not just a privileged few. With the right strategies in place, India can demonstrate how economic transformation can be both sustainable and equitable, setting a powerful example for the world.