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ARTICLE

New Technologies, Transformation of Labour Process, and Future of Work in the Global South: An Overview

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Abstract

This article provides an overview of the multifaceted impact of digital technologies on the future of work, particularly in the Global South. It highlights the potential for technological advancements to enhance productivity and create new opportunities, as well as the concerns about job displacement, rising inequality, and the proliferation of precarious work through digital labour platforms. The analysis explores the convergence of technological advancements with broader economic forces, the rise of algorithmic management and its implications for worker well-being, and the specific challenges faced by developing economies in adapting to rapid technological change. By drawing on historical parallels and examining diverse case studies, the overview advocates for a human-centred approach to technological transformation, emphasising the importance of social dialogue, worker empowerment, and equitable distribution of the benefits of progress. It concludes that a nuanced understanding of technology's interaction with existing social and economic structures is crucial for shaping a just and sustainable future of work.

Keywords Structural transformation · Developing economies · Platform work · Digitalisation · Working conditions · Productivity · Skills · Gender

JEL Classification O14 · O4 · L16 · O1 · O33 · J81 · O47 · J24 · J16

The rapid advancement and diffusion of digital technologies are bringing about fundamental changes in every sphere of life and profoundly reshaping the world of work. Innovations in digital technology such as artificial intelligence (AI), machine

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learning (ML) and robotics, digital platforms, and cloud infrastructure have led to new ways of organising work processes. From the rise of AI and robotics to the proliferation of digital platforms and the ubiquitous presence of algorithmic management, the nature of work is undergoing a metamorphosis, prompting both excitement and anxiety about employment prospects and the future of work.

The narrative of technology and work is not a new one. Throughout history, technological innovations have disrupted existing industries, created new forms of employment, and redefined the relationship between humans and machines. From the industrial revolution's mechanisation of production to the information age's digitisation of information, each technological wave has left an indelible mark on the world of work. However, the current digital transformation differs from its predecessors in several crucial aspects. Its scope is unprecedented, encompassing virtually every sector of the economy and impacting workers across the skill spectrum. The new technologies are emerging and diffusing at an exponential rate, leaving little time for adaptation and adjustment. And its pervasiveness is unparalleled, blurring the lines between work and life, and extending the reach of technology into the most intimate spheres of human experience. Moreover, the current phase of digital transformation is occurring in a period associated with exceptionally high concentrations of economic power in business elites that are themselves key actors in shaping the trajectory and pace of new digital technologies.

While the literature on new technologies and the world of work has been rapidly expanding, there is still a very limited focus on developments in the Global South.[1] The focus of many of the papers in this special issue is on the diffusion, impact of, and policy issues related to new technologies and the world of work primarily in the Global South.

Innovations in digital technologies have led to an expansion of digital labour platforms, including in developing countries. Platforms promise to provide flexibility and autonomy, which is particularly beneficial for women who must balance the double burden of paid and unpaid work. Governments in developing countries have embraced digital technologies as a strategy to leapfrog to more technologically advanced levels of development, improve productivity and global competitiveness, and generate jobs. However, there are also fears about the possibility of massive job losses, growing labour insecurity, and rising inequality, in the wake of automation and other technological processes. The empirical evidence is both limited and inconclusive, as the potential impacts of new technologies on jobs depend on the organisation of work and production by sector and country, the nature of contending politics and worker power, and public policies.

[1] The term "Global South" was popularised by the Brandt Commission Report (Brandt 1980) and denotes countries (with some exceptions) in Asia, Africa, Central and South America, and Oceania, which have structural features which are still distinct from countries in the global North, have lower incomes, and share a common post-colonial history. The terms "developing" and "developed" are also used at some places in this volume. Although there is no standard benchmark, the former is used to refer to countries with lower per capita incomes, early stages of demographic transition, and structural features (such as higher share of the traditional sector) compared to countries that are regarded as "developed."

However, a growing body of evidence shows that digital labour platforms are leading to the proliferation of precarious and informal employment, due to the misclassification of platform workers as "self-employed" and deepening algorithmic control over the labour process. Issues which have attracted significant interest among scholars include changing work practices with algorithmic management, work intensification and instable incomes, occupational health and safety, social protection, data ownership, workers' rights and emerging forms of worker struggle, and the role of the state. While there is now a growing literature on the impacts of digital labour platforms in developed countries, the evidence on developing countries, which face significant levels of unemployment and informality, is still limited.

The collection of papers in this special issue explores this complex and multifaceted impacts of this digital transformation and examines how technological advancements interact with broader economic forces, reshaping income distribution, growth trajectories, and labour markets in both developed and developing countries. These papers explore the potential of digital labour platforms to exacerbate precarious and informal employment, focusing on the implications of classifying platform workers as "self-employed" and the intensification of algorithmic management of the labour process.

1 Macroeconomic and Developmental Impacts of Technology

The convergence of technological advancements with overarching economic trends, such as the rise and dominance of financial capitalism in pursuit of short-term profits, the concentration of wealth and economic power within technology-aligned elites, and the restructuring of welfare states, has profound implications for the structure and function of labour markets. Coupled with the concurrent reduction of the welfare state's role, this not only further reduces the economic power of workers but also creates a precarious environment for workers, particularly in the face of technological disruptions. As traditional safety nets erode and collective bargaining mechanisms weaken, workers become increasingly vulnerable to the vagaries of the market and the displacement effects of automation. This necessitates a re-evaluation of social safety nets and labour regulations to ensure that workers are not left behind in the transition to a technologically driven economy. Luigi Salvati and Pasquale Tridico in their article examine this shift in advanced economies to understand the full impact of the digital transformation on labour, within the broader context of global economic change. They explore the close relationship with labour market reforms that prioritise flexibility, often at the expense of worker security and bargaining power.

In addition to flexibility, there has been a rise in algorithmic management and the platformisation of work in Europe. While there are some potential benefits of algorithmic management in terms of increased efficiency and optimisation of work processes, at the same time, there are also concerns about the risks of increased monitoring, work intensification, stress, and the erosion of worker autonomy. The constant surveillance and pressure to meet algorithmically determined targets can have detrimental effects on worker well-being and create a climate of fear and

anxiety, which has been documented by Annarosa Pesole in this special issue in the context of Spain and Germany. This necessitates a careful balancing act between leveraging the potential of algorithmic management and safeguarding worker rights, ensuring fair labour practices, and promoting a healthy work–life balance. Developing ethical guidelines for the use of algorithmic management and establishing mechanisms for worker participation in the design and implementation of these systems are crucial steps towards mitigating the potential downsides and creating a more human-centred approach to managing work as digital technologies are adopted at workplaces.

This dynamic resonates in developing economies, albeit with distinct characteristics shaped by their specific developmental contexts. While acknowledging the potential for platforms to create new economic opportunities and drive structural transformation, Sarah Cook and Uma Rani in their paper also caution against the risks of precarious work, informalisation, and the exacerbation of existing inequalities. The allure of flexible work and access to global markets can mask the underlying realities of low wages, lack of work-related and social protection benefits, algorithmic control, and skills mismatch, making it difficult to bring about a meaningful structural transformation through digitalisation. They argue that realising the developmental potential of the platform economy requires a proactive approach to regulation, ensuring fair compensation, providing access to social protection, and empowering workers to negotiate better terms and conditions.

The impact of automation on work has been a long-standing debate, oscillating between optimistic and pessimistic viewpoints. Optimists argue automation frees humans from repetitive tasks, allowing for more complex and fulfilling work. However, advancements in computing power and data availability now enable automation of tasks previously requiring human cognition, leading to concerns about job displacement. This is particularly true for middle-skilled jobs, potentially leading to a polarised labour market with high demand for high and low-skilled workers, but fewer mid-skill jobs. While some believe automation ultimately benefits society, others worry about widespread unemployment and increased inequality. As Mokyr et al. (2015) suggest, the short-term effects of technology are often overestimated, while the long-term effects are underestimated.

Dinesh Awasthi and Jignasu Yagnik in their paper provide a comparative analysis of the employment impacts of automation across Brazil, Russia, India, and South Africa, and show that there are significant cross-country variations in risk levels. These they argue are linked to factors such as technological readiness, industrial structure, and the educational attainment of the workforce. India, with a large proportion of its workforce engaged in low-skill occupations and facing significant challenges in education and skills development, emerges as particularly vulnerable. Dev Nathan and Rahul S. in their paper argue that as Indian firms move up the value chain (technological upgrading), the need for specialised skills and higher education intensifies, creating both opportunities and challenges for workers.

Further, Deepa Iyer in her paper shows the phenomenon of job polarisation in online labour markets, revealing a growing concentration of employment at the high and low ends of the skill spectrum, while middle-skill jobs face increasing pressure from automation and offshoring. This trend has profound implications for education and skills

development strategies, as traditional educational pathways may no longer guarantee access to stable and well-paying jobs. Adapting education systems to meet the evolving demands of the global economy and providing access to lifelong learning opportunities are crucial for ensuring that Indian workers can thrive in a world where technology is rapidly evolving. In addition, education systems need to equip workers with the skills needed for the jobs of the future, including those requiring creativity, critical thinking, and adaptability. Simply put, investing in education and skills development is not just a social imperative; it is an economic necessity in the age of automation.

Sunil Mani focuses on the specific impact of robotics and automation on India's manufacturing sector. He advocates for a task-based approach to assess the impact of automation, arguing that traditional occupation-based analyses may overestimate job losses by failing to account for the changing nature of tasks within occupations. He argues that identifying the specific tasks that are most susceptible to automation, would help policymakers to develop more targeted reskilling and upskilling programmes to prepare workers for the jobs of the future. Furthermore, promoting human–machine collaboration, where humans and robots work together to enhance productivity and efficiency, can create new opportunities for workers in the manufacturing sector.

A crucial dimension to this discussion is made by Arup Mitra in this special issue by distinguishing between the impacts of domestically developed versus imported technologies. He argues that while importing technologies can boost productivity in the short term, it may not necessarily translate into sustainable long-term employment growth unless complemented by investments in domestic innovation and research and development. Building indigenous technological capabilities and fostering a supportive ecosystem for innovation are essential for maximising the developmental benefits of technological change and creating high-quality jobs.

Finally, the emergence of AI as a transformative force in the world of work raises fundamental questions about the future of human labour and the very definition of work itself. Understanding the characteristics of the workforce driving technological change is essential for shaping future labour market policies and promoting inclusivity in the tech sector. Andrew Green, in his paper in this special issue, provides insights about the skills and demographics of the AI workforce across OECD countries, revealing a stark lack of diversity in terms of gender and background. He argues that the AI workforce is currently dominated by highly educated, who are predominantly male. This homogeneity raises concerns about bias in the development and deployment of AI systems, as well as the equitable distribution of the benefits of AI. Addressing this lack of diversity requires targeted interventions to encourage greater participation of women and underrepresented groups in STEM education and careers, as well as promoting inclusive hiring practices within the AI industry.

2 Rise of Digital Labour Platforms and Future of Work

The rise of the platform economy, fuelled by the proliferation of digital technologies and the growing demand for on-demand services, has become a defining feature of the 21st-century labour market. Digital platforms, connecting workers and clients through online marketplaces, have created new opportunities for income generation,

flexible work arrangements, and entrepreneurial activity. However, this new paradigm of work also raises critical questions about worker rights, labour standards, and the future of employment. Balaji Parthasarthy and his co-authors examine the potential of platform work to empower workers in India, particularly by providing access to flexible income-earning opportunities and expanding market reach for micro-entrepreneurs. The ability to set one's own hours choose projects that align with one's skills and interests, and bypass traditional intermediaries hold undeniable appeal for many workers. However, they also caution against the romanticisation of gig work, highlighting the challenges of precarity, income volatility, lack of social protection, and the inherent power imbalances between platforms and workers. The absence of traditional employer–employee relationships leaves gig workers vulnerable to exploitation, algorithmic manipulation, and a lack of recourse in case of disputes.

This is also highlighted by Jacob Omolo in the context of e-hailing drivers in Kenya, where they are often classified as independent contractors rather than employees, leaving them without access to basic labour protections and social security benefits. These empirical evidences highlight the challenges of regulating this rapidly evolving sector and the need for innovative legal frameworks that recognise the unique characteristics of platform-based employment relationships and ensure that platform workers are afforded the same rights and protections as traditional employees. Furthermore, promoting social dialogue and collective bargaining mechanisms for platform workers is crucial for empowering them to negotiate better terms and conditions and has a voice in shaping the future of their work.

Yesim Elhan-Kayalar in her paper focuses on the gendered dimensions of the platform economy based on the evidence from Southeast Asia and shows how digital platforms can either reinforce or challenge existing gender inequalities in the labour market. While platforms can offer new opportunities for women entrepreneurs and workers, they can also replicate and amplify offline biases, limiting women's access to high-paying jobs and perpetuating occupational segregation. Algorithms designed without consideration for gender dynamics can inadvertently disadvantage women, for example, by prioritising speed and efficiency over flexibility and work–life balance, factors that are particularly important for women who often bear the brunt of unpaid care work. She argues that addressing these challenges requires proactive policies that promote digital and financial literacy among women, support women-owned businesses, and challenge the algorithmic biases that perpetuate gender inequality in the digital realm.

The pervasive presence of digital surveillance and algorithmic control in shaping work processes, monitoring worker performance, and enforcing discipline has also been documented in the context of e-commerce warehouse in India by Manikantha Nataraj, Philip Taylor, and Kendra Briken in this special issue based on in-depth interviews with warehouse workers. The constant tracking of movements, the pressure to meet algorithmically determined targets, and the lack of autonomy and control over one's work can lead to increased stress, burnout, and a sense of alienation among workers. This raises critical questions about the ethical implications of algorithmic management and the need for regulations that protect worker well-being and dignity in their workplace.

3 Broader Reflections on Technology and Future of Work

While concerns about technological unemployment and the displacement of human labour are not new, the current digital transformation differs in its scope, speed, and pervasiveness. Radhika Krishnan and Anirban Dasgupta provide a crucial historical lens through which to view the current wave of technological change impacting labour markets. By drawing parallels with previous technological revolutions, they highlight both the continuities and discontinuities in the relationship between technology and work. This historical perspective is crucial for avoiding simplistic narratives of technological determinism and developing nuanced policy responses that address the specific challenges of the digital age. It also reminds us that technological change is not a preordained process but rather a socially shaped phenomenon that can be steered towards more equitable and humane outcomes through conscious policy choices and democratic deliberation.

The rise of remote work, accelerated dramatically by the COVID-19 pandemic, adds another layer of complexity to the on-going technological transformations. While offering potential benefits like increased flexibility and reduced commutes, the widespread adoption of work-from-home (WFH) also presents unique challenges. On the one hand, digital platforms and communication tools enable remote collaboration and flexible work arrangements, potentially mitigating some of the negative impacts of automation and job displacement. On the other hand, WFH can exacerbate existing inequalities, with access to reliable internet and suitable workspaces becoming prerequisites for participation in the digital economy. Furthermore, the potential for increased surveillance and performance monitoring through digital technologies raises concerns about worker autonomy and privacy in the remote work context. The long-term impact of WFH on productivity and worker well-being remains to be fully understood.

Anuza Subramaniam's paper in this special issue examines the gendered implications of the rapid shift to WFH in India's IT sector during and after the COVID-19 pandemic. While initially viewed as potentially empowering for women, WFH's impact is complex, with pre-existing research suggesting both benefits and drawbacks for work–life balance. The Indian IT sector, already accustomed to flexible work arrangements due to its global client base, quickly transitioned to WFH. However, this shift presented challenges, particularly for women who disproportionately bore increased domestic burdens. Focussing on first-generation graduates in Chennai's IT industry, this paper explores how the home is transformed into a workspace, particularly for those lacking inherited socioeconomic advantages typically associated with IT professionals. Further, the paper reveals how the blurring of boundaries between work and home can intensify existing gender inequalities. Women, in particular, often face increased pressure to manage household responsibilities and childcare alongside their professional duties, leading to increased stress and burnout.

This highlights the need for policies that support work–life balance, address the unequal distribution of unpaid care work, and provide affordable access to childcare and other support services. Promoting truly flexible work arrangements that benefit both men and women requires a shift in cultural norms and

expectations regarding gender roles and responsibilities, as well as a recognition of the diverse needs and circumstances of workers. Finally, examining the intersection of remote work with broader trends in digital transformation is crucial for understanding the future of work and ensuring that technological advancements lead to a more inclusive and equitable labour market.

The utilisation of digital technologies extends beyond the private sector. Governments worldwide are increasingly deploying these technologies, including AI to administer public employment programmes and enhance the functioning of social security and social assistance programmes. Suguna Bheemarasetti, Anuradha De, and Rajendran Narayanan, in this volume, provide a critical perspective on the implementation of digital technologies in social programmes, using India's flagship rural employment guarantee scheme as a case study. Their paper reveals how well-intentioned digital interventions, if not carefully designed and implemented, can exacerbate existing inequalities and undermine the very goals they are intended to achieve. The case of caste-based wage segregation within MGNREGA demonstrates how technology can be used to reinforce existing social hierarchies and create new forms of discrimination. This underscores the critical importance of participatory design, community consultation, and rigorous impact assessments when implementing digital technologies in social programmes, especially those targeting vulnerable populations.

4 Conclusion

In conclusion, the digital transformation of work is not simply a technological phenomenon; it is a social, economic, and political transformation that demands a holistic and human-centred approach. This transformation of work presents both immense opportunities and complex challenges for labour markets globally. Developing economies, in particular, face the intricate task of harnessing the potential of technology for economic development while mitigating the risks of job displacement, precarity, and exacerbated inequality. A nuanced understanding of the diverse ways technology interacts with existing social and economic structures, coupled with proactive and inclusive policy interventions focused on human capital development, worker protection, and equitable growth, is important for ensuring a future where the benefits of technological progress are shared by all.

Thus, continued research and open dialogue are essential for understanding the long-term implications of these transformations and for developing effective strategies for shaping a more just and sustainable future of work.

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Declaration

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