



International  
Labour  
Organization

▶ **National workshop: "Towards a brighter future of work in the Indian digital economy"**

Summary report  
(25 May 2022)



## ▶ I. Opening remarks

---

### Introduction

1. On 25 May 2022, the International Labour Organization (ILO) held a virtual national workshop entitled "Towards a brighter future of work in the Indian digital economy". The webinar was held with a view to sharing the findings of the ILO's 'Future of Work in Information and Communication Technology (ICT)' project that was conducted between 2017 and 2020. The research focused on skills shortages, skills development strategies and the governance of international labour migration of ICT specialists in seven target countries: Canada, China, Germany, India, Indonesia, Singapore and Thailand. Given that many countries, including India, faced challenges in fulfilling the growing demand for highly skilled ICT personnel, the webinar aimed to share the findings of the project with a view to improve understanding of skills development strategies and governance of high-skilled labour migration.

### List of speakers

#### Moderator

Mr Casper N. Edmonds, Head of Unit (E2M) of Sectoral Policies Department, ILO Geneva

#### Opening remarks

Mr Satoshi Sasaki, Deputy Director, ILO DTW-South Asia and Country Office for India

#### Presentation of research findings

Ms Shreya Goel, Technical Officer of the Sectoral Policies Department, ILO Geneva

#### Open discussion

Mr Arvind Francis (All India Organization of Employers)

Ms Gagan Preet Kaur (NITI Aayog)

Dr Shashi Khurana (NITI Aayog)

Mr Binay Kumar Sinha (Executive Secretary, Bharatiya Mazdoor Sangh (BMS, Indian Workers' Union))

Ms Bornali Bhandari (Senior Fellow at NCAER)

Ms Shahnaz Rafique (Indian National Trade Union Congress)

Mr. Vidya Sagar Giri (All India Trade Union Congress)

#### Closing remarks

Mr Shinichi Akiyama, Deputy Director of ILO's Sectoral Policies Department

## ▶ I. Opening remarks

---

2. **Mr Sasaki** said that, in a rapidly developing global economy driven by technological change, ICT skills had become critically important. According to data from the Ministry of Electronics and Information Technology of India, the share of global domestic product (GDP) accounted for by the ICT sector in India had grown from only 1.2 per cent in 1998 to more than 7.9 per

cent in 2018. That growth had been driven primarily the ICT services subsector. Although ICT specialists only accounted for 3 per cent of the national workforce, in real terms India had many ICT specialists, employing some 10 million workers. Although the most powerful global companies had their headquarters outside of South-East Asia, countries in the region were experiencing growth in numbers of domestic ICT start-ups. Given that India would continue to see increasing demand for ICT specialists, the government needed to scale up investment in ICT skills. India had the largest diaspora workforce, with an increasing number of Indian ICT specialists migrating to non-English speaking countries. While there were concerns about the loss of highly skilled talent, there had also been an increase in temporary migration, with young ICT specialists returning to the domestic ICT sector. Although the COVID-19 pandemic had, in general, accelerated growth in the digital economy, its impact on the above-mentioned trends was as yet unknown. The ILO's global research project had aimed to provide a snapshot of, and assess the impact of migration on, digital talent demand and supply in seven countries, namely: Canada, China, Germany, India, Indonesia, Singapore and Thailand. Many changes had taken place since the publication of the report, and it would be interesting to hear participants' views, including on the impact of the COVID-19 pandemic on the digital talent market and what support the ILO could provide in managing supply and demand.

## ▶ II. Presentation of findings

---

- 3. Ms Goel** provided an overview of the findings of "The Future of Work in ICT" project, particularly with reference to India. The ILO project - carried out between 2017 and 2020 - had focused on anticipated needs, investment in ICT education and training, and governance of ICT specialist migration flows in seven target countries, to provide an impression of global trends in the sector. The ICT sector had experienced rapid growth in recent years, primarily driven by the services subsector. It was an important contributor to the economy. As a result, there was increasing demand for ICT specialists across all sectors of the economy. They constituted a mobile workforce and there was fierce global competition for talent, as migrant specialists could fill short-term skills shortages in destination countries. Many ICT specialists from India also worked in other countries. While sending countries were concerned about a potential "brain drain", the ILO's findings indicated that migration had a positive impact in the form of "brain circulation", namely the exchange of knowledge and skills, including through higher education institutions partnering with institutions abroad.
- 4.** ICT specialists were generally highly educated and commanded higher wages than other workers. While on average only 10 per cent of the total Indian workforce held a higher education qualification, 60 per cent of specialists in the software and telecommunications subsector had a university degree.
- 5.** The ICT sector remained a largely male-dominated field. While approximately a third of all ICT specialists were women, the share of women in the general labour force in India was particularly low, owing to a lack of formal job opportunities, discrimination and occupational segregation, and gender stereotypes. Further research was needed on women's labour participation in India.
- 6.** Self-employment was prevalent in the ICT sector, including temporary contracts and freelance work, often used by companies to cover short-term skills shortages for projects. Although such arrangements offered greater flexibility, they also posed challenges - including long working hours and reduced social protection and job security. Moreover, the responsibility for skills development was often passed on to the workers.

7. It was important to note that as the project data had been collected prior to the COVID-19 pandemic, the impact of the pandemic on the above-mentioned trends had yet to be assessed.
8. All seven of the countries studied faced skills shortages, with direct and indirect economic impacts. Although India had a large population of ICT specialists, the emergence of new technologies had led to shortages of specific skills relating to fields such as mobile analytics, cloud computing and artificial intelligence. A national study had indicated that more than 60 per cent of the Indian ICT workforce would need retraining or upskilling. It was important to understand talent and skills shortages at the occupational, sectoral and industry levels, to tackle them effectively.
9. There was also a shortage of soft skills. It was thus important to promote effective lifelong learning and to ensure the right balance between technical know-how and soft skills. An Indian study on employability had revealed that only just over half of all recent graduates were immediately employable, indicating a need for on-the-job learning. However, small and medium-sized companies often did not have the same resources as large enterprises to invest in graduates.
10. Given the increasing demand for ICT specialists in other sectors of the economy, there was also a growing need for interdisciplinary skills. It was important to promote interdisciplinary approaches to skills development, including through combined study courses, international faculty exchanges and research exchanges.
11. On the basis of research conducted as part of “The Future of Work in ICT” project, ten potential policy responses had been formulated to address skills shortages, promote continuous training and lifelong learning, increase the participation of women in ICT, improve governance of international labour migration, and strengthen social dialogue. Those responses could help to inform tripartite dialogue and lead to effective policies to advance decent work opportunities for women and men in the digital economy.

### ► III. Open discussion

---

12. The moderator, **Mr Edmonds**, opened the discussion, drawing attention to the rapid development of the digital economy in India. The ICT sector accounted for more than 10 million jobs, with a higher-than-average percentage of women workers. Its success had put India on the global map, thanks to farsighted government policies, employer investment and workers’ efforts. He invited participants to share their views, particularly with regard to post-pandemic opportunities and challenges, including on measures to ensure that workers had relevant skills - through reskilling, upskilling and lifelong learning programmes. Opinions would also be welcome on measures to enhance soft skills; prevent a potential “brain drain” and promote “brain circulation”; and attract women into science, technology, engineering and mathematics, as well as the ICT industry. Although India had a relatively high level of ICT readiness, access to ICTs was not equal across the country. It was vital to tackle that problem to ensure India’s leading role in the global digital economy.
13. **Mr Francis** said that the pandemic had sped up the development of new technologies and boosted the ICT sector. There was high demand for ICT skills, including in India, which already had a large ICT workforce. In order to tackle skills gaps and mismatches, particularly between skills taught at universities and those required by industry, the education sector needed to cooperate with industry to redesign curricula to produce well-qualified and employable ICT graduates. It was also important to focus on best practices, including research exchanges,

internships, with a view to replicating and extending successful partnerships. Successful measures implemented at high-ranking universities could be used as templates for other institutions, including in rural areas. It was also important to promote women's participation.

14. The moderator, **Mr Edmonds**, welcomed coordinated efforts to anticipate future skills and address current shortages by remodelling the educational curriculum to ensure that graduates would have the skills required by industry.
15. **Ms Kaur** said that action was needed to improve access to digital infrastructure, including phones and computers. Measures were also required to train teachers, revise the educational curriculum and review the national qualification framework, including by expanding in-person and virtual learning programmes across India. Policies needed to focus on the most in-demand skills, such as nanotechnology and artificial intelligence, and provide incentives to industry to improve understanding of emerging technologies, offer apprenticeships and contribute to curriculum development. It was also essential to raise awareness of the need to reskill workers to keep up with emerging technologies, with a focus on soft skills. A comprehensive policy response was required to achieve those goals.
16. The moderator, **Mr Edmonds**, welcomed the suggested overhaul of vocational training institutions to digitalize the learning environment. Access to digital technology as part of the educational infrastructure would translate into use of ICTs in the workplace. Investing in basic access would contribute to attracting workers into the ICT sector and increasing awareness of careers in the digital economy. Noting the relatively high number of women employed in the digital economy, compared with the labour market in general, he invited comments on gender-related barriers and measures to further increase women's participation.
17. **Dr Khurana** stressed the need for further research on women in non-traditional jobs and sectors, noting that social and cultural barriers prevented women from acquiring digital skills and impeded their access to smartphones and other digital technologies. It was important to overcome those obstacles and to draw attention to female role models. Although mechanical and technical trades were open to women, few enrolled in those courses. A framework for skills development was needed, as well as a greater focus on digital skills for women. More focused policies and programmes were required.
18. **Mr Sinha** said that, in the digital era, young people would need to learn and relearn skills throughout their lives. However, in his view, institutions were ill-equipped to provide the necessary digital education. As a significant share of the Indian workforce were illiterate, efforts to improve basic literacy and digital literacy were essential. Government policies and regulations did not correspond to the reality on the ground. Real social dialogue was needed, as well as real change. The implementation, monitoring and enforcement of measures was poor. For example, qualifications and certificates could simply be purchased and insufficient monitoring undermined the value of education and training.
19. The gap between supply and demand was a major concern. Digital education was inadequate and access to technology, including the internet, was often unreliable. Much of the rural workforce had little or no access to the Internet or to digital devices. Better governance was needed. He urged the ILO and national stakeholders to take the reality on the ground into account and to avoid further unilateral and ineffective measures.
20. The moderator, **Mr Edmonds**, agreed with the importance of responding to the reality on the ground. It was important to lay a strong foundation for the digital economy of the future: to invest in infrastructure to ensure universal access and adapt the current educational system and ensure better regulation, and more transparency. Without those foundations it would be difficult to ensure continued growth or create better job opportunities.

- 21. Ms Bhandari** said that ICT skills were an important commodity in a range of sectors. In that regard, it was vital to close the gap between secondary and higher education. At the moment, fewer than half of secondary school students had basic ICT skills. Introducing computers in schools would make a difference, as there was evidence of a positive association between the use of digital devices in educational institutions and higher skill levels among students. To that end, government programmes were needed to establish computer labs and train teaching staff. It was important to review the curriculum and adopt a more holistic approach. Furthermore, it was not only necessary to establish what specific skills were needed, but also at what level and for what purpose. She encouraged cooperation with secondary schools to ensure that students acquired the necessary functional skills.
- 22.** The moderator, **Mr Edmonds**, welcomed the proposals and also invited comments on challenges faced by trade unions in organizing workers in the digital economy.
- 23. Ms Rafique** said that infrastructure problems had a major impact on skills development. ICT skills had to be taught from secondary education level and efforts were needed to support student mobility, as well as to challenge prejudices concerning certain types of post-secondary institutions. The curriculum was not standardized and the cost of training was not universally affordable. Given that a large percentage of the Indian population lived in rural areas, with low literacy rates, it was important to promote literacy - including digital literacy - and to raise awareness of the Digital India campaign. Much remained to be done, including to improve connectivity across the country and to ensure that the digital infrastructure could cope with the increasing volume of digital transactions. Steps were also needed to ensure access to digital services in the various languages spoken in India, and tackle concerns about cybercrime and security.
- 24.** Women workers still faced many drawbacks. The situation for women workers in India - made worse by the pandemic - was not optimal, and there were fewer jobs available to women.
- 25.** There was a need to match talent to jobs and to address skills gaps that led to high attrition rates. Employers kept salaries low, given the time and cost involved in training and upskilling workers, and the unpredictability of the world of work. In order to ensure that new technologies had a positive impact, digitalization and innovation must contribute to better living conditions and more equal societies. Drawing attention to problems relating to digital work platforms, she stressed the inherent lack of social security and the isolating nature of that work model.
- 26.** Given the increasing internal and international migration and informal and precarious work models, both in India and across the world, organizing ICT workers was challenging. It was difficult to drive change without collective bargaining. Thus, efforts were being made to promote social dialogue and tripartite approaches. Digitalization of the economy had created new jobs, while making others redundant. Stakeholders needed to work together to develop and implement appropriate policies.
- 27.** The moderator, **Mr Edmonds**, said that, despite its success, the Indian digital economy faced a range of structural challenges that mirrored those facing the country as a whole. To ensure a brighter future of work in the domestic digital economy, it was essential to tackle those problems, namely low basic literacy levels, lack of equality, and challenges relating to the digital infrastructure, the education system, and the coordination and monitoring of the national qualification framework. It was vital to invest in efforts to close the digital gap, including by overhauling the education system to educate people for the digital economy. It was also important to take into account the various levels of skills required, to tackle existing skills gaps and to anticipate the skills needed in the future, in order to target investment.

There was a need to redesign the educational curriculum - in dialogue with industry and workers; tackle the challenges facing women, including with regard to access to ICT tools; and foster women's participation in the fields of science, technology, engineering and maths. An approach was required that focused on lifelong learning and strong labour market institutions. The challenges and opportunities ahead could only be addressed through cooperation and social dialogue.

- 28. Mr. Giri** raised doubts as to whether workers themselves would benefit from a “brighter future of work” in the digital economy, as digitalization was exacerbating existing inequalities. In the digital era, job security and contractual rights were being eroded, manpower was being lost and multinational companies were abusing ICT applications. It was essential to consider whether the changes discussed would contribute to achieving the Sustainable Development Goals, or merely increase the exploitation of workers and drive profits.

## ▶ IV. Closing remarks

---

- 29. Mr Akiyama** thanked the speakers and organizers for an interesting and informative webinar, which underscored the important role of ICTs as the backbone of the economy, and their transformative power. The COVID-19 pandemic had highlighted the important role of digital technologies, including to facilitate remote work and distance learning, keep people safe through screening and tracking programmes, and to digitalize financial, commercial and supply chain operations. The pandemic had also demonstrated the value of digital readiness. He encouraged stakeholders to make use of the outputs of the ILO's research to catalyse progress, and to continue to engage in social dialogue. Findings from the research and valuable inputs from speakers could contribute to addressing skills shortages and advancing decent work for men and women in a more competitive and inclusive digital economy. There were both challenges and opportunities ahead. He expressed the hope that those challenges would be met through social dialogue and cooperation.