Inclusion of persons with disabilities in the digital and green economy

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1. Introduction

Persons with disabilities continue to face lower labour market participation than people without disabilities and, while very few countries have statistical information on the impact of the pandemic on them, it is generally accepted that persons with disabilities are overrepresented among those who have been hardest hit.

As reflected in the ILO global call to action for a human-centred recovery from the covid-19 crisis ¹: “The crisis has affected the most disadvantaged and vulnerable disproportionately, particularly individuals in the informal economy and in insecure forms of work; those working in low-skilled jobs; migrants and those belonging to ethnic and racial minorities; older persons; and those with disabilities or living with HIV/AIDS. The impact of the crisis has exacerbated pre-existing decent work deficits, increased poverty, widened inequalities and exposed digital gaps within and among countries.”

The global call to action also recommends to “leverage the opportunities of just digital and environmental transitions to advance decent work”.

This document provides an overview of measures to ensure that persons with disabilities will benefit from the opportunities provided by the digital and green economy, as well as minimize some of the challenges that derive in particular from digitalization and seeks to inform related action by G20 States.

2. Inclusion of persons with disabilities in the digital economy

While many individuals with disabilities are technologically savvy, persons with disabilities in general are faced with a digital gap. This is further compounded by digital gaps along lines of gender and socio-economic status, amongst others. These digital gaps need to be addressed, if we want to ensure that they are not left behind and miss out on the opportunities provided by the digital economy.

2.1. Persons with disabilities have less access to relevant technology

Persons with disabilities frequently do not have access to even basic digital technology, which is a prerequisite to make use of most technological advances and AI. About one in seven persons with disabilities does not have a computer in their household and one in six does not have access to internet for personal use when needed on average across European OECD countries. This rate is about three times higher than among persons without disabilities.

The following graph provides figures from 5 G20 countries and shows that persons with disabilities have lower level of access to basic digital tools.

People with disabilities often lack access to basic digital tools

Note: Data cover the population aged 15 to 69. Italy data refer to 2018 and the United Kingdom to 2016.

According to the GSM Association, the main Association representing the mobile communications industry, there are significant digital gaps in mobiles’ ownership and use amongst people with disabilities.

2.2. Digital skills leading to digital jobs

The digital transformation is creating some well-paid employment opportunities that require strong digital expertise, such as data scientists, web designers and artificial intelligence specialists.

The current mismatch between supply and demand of new digital jobs presents an opportunity for people with disabilities. Digital accessibility is more and more becoming of strategic relevance for companies which seek to ensure accessible solutions for their clients while at the same time ensuring digital accessibility in its own functioning and within its supplier network.

This demand for digital accessibility professionals is also linked to legislative initiatives. For instance, the European Accessibility Act and Accessible Canada Act which promote requirements for accessibility in websites and other services became law in 2019. China enacted their accessibility law in 2008. These actions created a higher demand for talent skilled in digital accessibility and provides an opportunity to have access to decent work for persons with disabilities.

To this end, it is essential for these persons to possess the wide range of digital skills that are needed to perform jobs in the digital economy. The Global Initiative on Decent Jobs for Youth classifies these skills as follows:

- **Basic digital skills**: these are generic Information and Communication Technology (ICT) skills required for nearly all jobs. They relate to the effective use of technology, which is necessary in most professions. They include using productivity software, web research, online communication, use of professional online platforms and digital financial services.

- **Mid-level digital skills**: these include digital graphic design and marketing, desktop publishing and social media management, as well as entry level IT professional skills like installing and managing applications and simple network management, for both jobs and entrepreneurship opportunities.

- **Advanced digital skills**: skills necessary to create, manage, test and analyse ICTs. They relate to technology development, including coding, software and app development, network management, machine learning, big data analysis, Internet of Things (IoT), cybersecurity and block chain technology.

- **Digital entrepreneurship**: digital skills required by entrepreneurs, including online market research, strategic planning and business analysis, using financing and crowd funding platforms, online marketing, online networking and establishing mentoring relationships.

- **Soft skills**: complementary to technical skills, these are skills necessary for all professionals to ensure collaborative and effective work in the digital economy. They include leadership, creativity, communication, teamwork, growth mindset, and client focus, among others.

Yet, as OECD analysis shows, persons with disabilities have lower digital skills. Age and education cannot fully explain the digital skills gap. Accounting for these factors reduces the gap only by about half for the five indicators across European OECD countries. Among those with disabilities who have been online, fewer have used online facilities of public administration, banking, shopping or found a job online.

Addressing this gap requires efforts by all relevant stakeholders as indicated in the ILO report on the inclusion of persons with disabilities in the digital economy, which includes recommendations addressed to a range of stakeholders.

Social partners and governments have a particular role and responsibility. In many countries they come together in skills or sectoral councils and can establish joint priorities in adult learning and anticipate training.

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3 OECD (forthcoming), Disability, Inclusion and Work: Fighting Old and Addressing New Challenges, Paris: OECD

Initiatives by Governments and social partners

- Canada launched in 2019 the federal government initiative Future Skills which includes a Future Skills Council and a Future Skills Centre who have a special mandate to address the needs of disadvantaged groups, including persons with disabilities. (OECD, 2020[45]).
- In Korea, social partners provide information on changing skill needs and help set training standards. Tripartite Industry Skills Councils use labour market information to develop national occupational standards, to ensure that these standards reflect the needs of the workplace. These standards then form the base of vocational education and adult learning qualifications. Employers can apply the same standards in their human resource management, for instance for on-the-job learning.

There are some digital skills initiatives that target persons with disabilities.

- Radia is a digital technology training programme, led by Fundación ONCE, the Conference of Social Councils of Spanish Universities and the CEOE (Spanish Confederation of Employers’ Organizations) Foundation, which promotes the inclusion of women with disabilities in digital work environments. Participants learn about new digital technologies and receive a digital training course supported by mentors to do an internship at a company.
- Sightsavers, GIZ, and Three Talents have teamed up to pilot in Kenya the IT Bridge Academy – a programme which provides accessible IT training for women and men with disabilities. Almost 500 persons with disabilities applied of which 40 were selected to take part in this six-month programme. 36 of 37 students (97%) passed the rigorous globally recognized certification exam on the first attempt and 34 of the 37 students (92%) secured IT internships in the private sector upon graduation. All were unemployed prior to completing this programme.

These targeted initiatives are important in themselves but also provide useful lessons on how to promote the participation of women and men with disabilities in mainstream digital skills and employment initiatives, as only this will significantly increase the number of persons with disabilities able to find digital jobs. There are for instance many digital skills initiatives by Governments and the private sector targeting young persons, but usually these initiatives are not designed in an inclusive way.

- The ILO Global Business and Disability Network has launched end of 2021 the Digital in Demand initiative which promotes access to digital jobs for persons with disabilities, including through skills acquisition in mainstream training in partnership with business in Bangladesh, China, India, Indonesia, and the Philippines.

It is important to ensure access to mainstream digital skills training and jobs for persons with disabilities seeking to (re)enter the labour market, but also upskilling for those that already have a job, as automation and polarization risk to further increase labour market disparities between persons with and without disability.

Forthcoming OECD work shows that persons with disabilities more often perform monotonous and repetitive tasks in their work. Machines have a comparative advantage in carrying out monotonous and repetitive tasks, as these can be coded more easily into repetitive and systematic rules. About half the employed with disabilities indicate that their job contains more often monotonous and short repetitive tasks on average across European OECD countries. than the work of their counterparts without disabilities (OECD, forthcoming).

2.3. Artificial Intelligence as an enabler but also barrier

There are numerous examples of recent assistive (AI-enabled) technologies that help persons with disabilities contribute their skills and talents on the job in more inclusive work environments. Assistive innovations that are integrated into already widely available technologies are likely to be the most impactful for persons with disabilities.

Examples of this include:

- Vision-to-language tools, can describe text and objects aloud for people who are blind or have low vision.
- Text simplification tools can help people with cognitive disabilities to understand content.
- AI-enabled auto-captioning helps deaf people and those with hearing loss watching recorded or live video.
● Virtual or augmented reality technology can help persons with disabilities with the social competency skills needed for a successful job interview.

However, AI is usually not designed with persons with disabilities in mind, which puts them at an even greater labour market disadvantage. An increasing level of attention is being given to the risks resulting from the use of AI in recruitment processes (OECD, forthcoming).

These risks are highlighted by the UN Special Rapporteur on the Rights of Persons with Disabilities in his latest report to the Human Rights Council some of the risks that Artificial Intelligence has on the employment of persons with disabilities: “Artificial intelligence tools can exclude candidates at each stage of the hiring process and present further risks of exclusion after an individual with disabilities is hired. Video screening tools enabled by artificial intelligence are typically developed without including persons with disabilities as test subjects, thus creating the possibility of exclusion based on atypical attributes prior to a human interviewer meeting a candidate.”

2.4. Promoting Universal Design of mainstream technologies and access to assistive technologies

Persons with disabilities must be considered in the digital transformation, not only to prevent them from remaining on the side-lines of digital advances, but also to take advantage of new technologies to broaden their skills. Investing in people with disabilities might have an impact on other groups in risk of exclusion like older workers, resulting in higher returns for everyone. Using these technologies inclusively by putting people at the centre of development and innovation will expand the capabilities of our society, making it more inclusive and socially just.

Still too often online recruitment platforms used by organizations create barriers for many candidates with disabilities. According to a survey by PEAT in which persons with disabilities across the United States who had recently applied for a job online were interviewed, 46% of respondents rated their last experience applying for a job online as “difficult to impossible.” Of those, 9% were unable to complete the application, and 24% required technical assistance; 58% were unable to complete a job application even with employer-provided technical assistance.

To address this situation, the International Telecommunications Union (ITU) and the ILO are collaborating to produce guidelines on how to ensure accessible online recruitment processes.

Universal Design is a key principle to promote the inclusion of persons with disabilities in the digital economy and in education and adult learning. Technologies built based on Universal Design are developed from the outset in such a way that (virtually) everyone can access, understand and benefit from it, irrespective of their needs or ability. Governments should be stewards of inclusion in mainstream innovation and technology by advocating Universal Design.

Digital accessibility needs to be viewed as a foundational pillar of any digital architecture and infrastructure, very similar to privacy and security. Because privacy and security have a legislative mandate, such as GDPR (Global Data Protection Regulation), which is similar to the digital accessibility legislation mandate, companies should examine how privacy and security governance and policy are established and explore the possibility of implementing a similar corporate-wide policy and process for digital accessibility.

There are multiple ways through which governments can promote the Universal Design of mainstream technologies:

The public sector should lead by example and embed Universal Design in all its digital and physical infrastructure, products and services. For example, the European Accessibility Act (EU-AA) contains obligations to incorporate Universal Design in public procurements.

Universal Design should be a prerequisite when attributing public funds to develop any technology. Many innovation programmes, including in the field of AI, contain public funding, meaning that governments have a direct say and responsibility in steering innovation towards inclusion.

Government strategies on mainstream innovation and R&D should contain specific inclusion objectives. For instance, the AI strategies of France, Germany and the United Kingdom incorporate specific inclusion objectives to ensure a diverse AI implementation.

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1 A/HRC/49/52 - E - A/HRC/49/52 - Desktop (undocs.org)
2 PEAT. 2015 National Survey
talent pool, particularly by encouraging the participation of women and minority groups and promoting the use of AI applications to drive social inclusion.

The g3ICT guide for procurement for ICTs inclusive Government and public sector provides useful information for procurement staff of public authorities to purchase accessible ICT.7

### GSMA principles on digital inclusion of persons with disabilities

In conjunction with mobile operators and disability and accessibility experts, GSMA has developed a set of Principles8 to advance the digital inclusion of persons with disabilities. These Principles provide a framework for action for the mobile phone industry along with a set of potential activities that can be carried out by mobile operators to reduce the gap in access and use of mobile-enabled products and services by persons with disabilities. By endorsing these Principles, mobile phone operators and digital stakeholders will push a more inclusive society.

Governments can also stimulate the development and adoption of assistive technologies that are specifically designed to promote the needs of persons with disabilities by, for instance, steering funding to advance assistive technologies.

There is also potential to stimulate the adoption of assistive technologies in firms. Most OECD countries have reasonable accommodation obligations that cover adoption of assistive technologies for employees with disabilities. An increasing number of companies have reasonable accommodation policies and resources which include, when needed, the provision of assistive technologies to their employees.

### 2.5. Challenges and opportunities of teleworking and digital platform work for persons with disabilities

Teleworking practices are likely to stay in the future, albeit not to the same extent as during the COVID-19 pandemic. Indeed, the pandemic pushed aside inertia coming from experimentation costs, pessimistic expectations and workplace culture. Further, firms and workers are now in a better position to work from home, as they have made the necessary investments in physical and human capital. Also, stigma associated with teleworking has greatly diminished. Finally, technological innovations that support teleworking have surged.

Teleworking offers new opportunities and poses challenges as well for persons with disabilities.

Initial evidence suggests that telework can bring health advantages and can accommodate individual constraints when it is a worker’s own choice. However, telework can also present health risks, for workers who do prefer to work in the employer’s premises. There are different reasons for this. First, teleworkers work on average longer hours. Second, teleworkers more often work unsocial working hours in evenings and weekends. Third, telework may increase social isolation, blurred boundaries between work and home, distance to management and overall detachment from the workplace, although evidence is still inconclusive. Fourth, homes are generally less equipped to work from which bring occupational health and safety risks (OECD, forthcoming).

There are challenges related to teleworking for all workers and some specific or increased challenges faced by teleworkers with disabilities. The mental health aspects of teleworking have been addressed jointly by WHO and ILO9. The situation of teleworkers, with and without disabilities, needs to be covered by initiatives related to violence and harassment under ILO Convention 190. The ILO has produced a number of publications addressing teleworking also in the context of the covid-19 pandemic.1011

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8 The GSMA – Principles for Driving the Digital Inclusion of Persons with Disabilities (the "Principles")


Citing Eurofound, “Adopting telework practices requires an active engagement to foster the benefits and reduce the risks it involves, with the aim of ensuring the best possible working conditions for everyone. It can be a tool to customize work, allowing employers to better focus on the strengths and abilities of people with disabilities rather than on their support needs. For telework to be inclusive and non-discriminatory, the default position should be for it to be available and voluntary to the extent possible. Where job tasks allow, people should be free to decide whether, and how much, they want to telework, as some may want to do less instead of more. Working remotely, or from the office, should be an option, a facilitator and not a condition for access to work or retention.”

Increasing attention also needs to be given to workers with disabilities in the context of digital platform work. This work is not synonymous with teleworking and workers can be employees or self-employed.

**Digital labour platforms and persons with disabilities**

- In the context of the ILO 2018 report Digital Labour Platforms and the Future of Work: Towards Decent Work in the Online World, the ILO conducted surveys among some 2,860 workers in 100 countries around the world working on freelance, contest-based and competitive programming and microtask platforms.

- About 19 per cent of respondents reported that they had current physical or mental health conditions or illnesses lasting or expected to last 12 months or more. For more than half of these individuals (54 per cent), these health problems affect the kind of paid work that they might do. For about 18 per cent of them, the health conditions or illnesses strongly affect their ability to carry out day-to-day activities and crowdwork seems to provide an alternative way of carrying on work and earning some income. About 8 per cent of individuals surveyed said that the most important reason they do crowdwork is because they “can only work from home”. Of these, 25 per cent said that this was due to their health problems.

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12 How to use the surge in teleworking as a real chance to include (europa.eu)
13 wcms_645337.pdf (ilo.org)
3. Inclusion of persons with disabilities in the green economy

The transition to a low-carbon, circular, and resource-efficient economy will lead to changes in the occupational structure of the economy. In fact, it is estimated that it will generate 18 million new jobs worldwide and 1.2 million new jobs in the EU by 2030.

In fact, within the EU Green Deal, the Just Transition Mechanism aims to address the transition's social and economic impacts, focusing on regions, industries and workers who will face the greatest challenges.

At national and international levels, inclusion of persons with disabilities in climate action and the world of work is increasingly reflected in policy and planning documents, and while implementation continues to be a challenge, the expressed recognition of disability is a step in the right direction. For example, the Just Transition Declaration 14, agreed at the 2021 UN Climate Change Conference in Scotland, recognizes the need to ensure that no one is left behind in the transition to net zero economies – including persons with disabilities. Further, a recent systematic analysis 15 found that 34 state parties to the United Nations Framework Convention on Climate Change currently refer to persons with disabilities in their Nationally Determined Contributions (NDCs). While the references to disability in countries’ domestic climate policies are increasing, countries are still falling far short of their human rights and climate action obligations and much more work needs to be done, particularly in the translation of these mentions into concrete policy measures.

Overall, it is essential that persons with disabilities are not excluded or harmed in just transition efforts. The ILO Guidelines for a just transition towards environmentally sustainable economies and societies for all 16 present an opportunity to focus on pre-planning and co-designing solutions on the basis of non-discrimination and social inclusion.

Nationally determined contributions, which capture the efforts by each country to reduce national emissions and adapt to the impacts of climate change are poised to be further revised by countries to be more ambitious. Many of these updated plans will be brought by countries to the COP27 due to take place in 2022. These plans provide an important entry point for addressing the concerns of persons with disabilities as countries plan their efforts to reduce emissions across various parts of their economy and devise their adaptation strategies. These can have major implications for job creation and job losses, as for instance, entire sectors can be targeted for emissions reductions. Promoting the inclusion of persons with disabilities in the design and implementation of the NDCs will be vital to ensure that these plans reflect their specific priorities and create opportunities in the low-carbon economy.

Several countries have also started to develop just transition strategies and plans, which can be sector specific. Ensuring the participation of persons with disabilities and the incorporation of their needs and concerns in such strategies and plans will also be equally important to minimize the negative impacts.

Persons with disabilities in climate action planning in Finland

The government of Finland is taking measures to realize human rights and ensure accessibility and inclusion of people with disabilities in their climate action and just transition planning. For example, the government has conducted human rights impact assessment in legislative reforms and amended the Climate Act to include and take into consideration the rights of persons with disabilities both in the consultation phase and in the impact assessment. Finland is also taking measures to ensure accessibility of webpages including videos with sign language and closed captioning, and easy to read information on climate change, so that access to information on climate issues is guaranteed. Accessibility is also a key consideration in investment decisions.

Governments and social partners can support effective job matching initiatives to advance inclusion of persons with disabilities in green jobs. They can support employment agencies that effectively match people with jobs based on the

14 Supporting the Conditions for a Just Transition Internationally. Available at: https://ukcop26.org/supporting-the-conditions-for-a-just-transition-internationally/
skills and abilities of persons with disabilities and provide incentives for these agencies to develop expertise in the needs and issues of green businesses.

Apprenticeships are one potential pathway between education and green jobs, as increasingly recognized in the technological sector which is key to developing a green economy. Apprenticeships should be expanded to prepare persons with disabilities for emerging green jobs and can be developed using the ILO approach to successful Quality Apprenticeship systems based on inclusiveness, meaningful social dialogue, a robust regulatory framework, clear roles and responsibilities, equitable funding arrangements and strong labour market relevance. Workers’ and employer’s organizations can play a key role in facilitating opportunities for inclusion of persons with disabilities in particular sectors that are relevant to the greening of local and national economies.

**Bridging the gap between sustainability and accessibility: STIL Solutions**

STIL Solutions (Sustainability Through an Inclusive Lens) is a Canadian social enterprise founded and operated by a woman with vision impairment to bridge the gap between sustainability and accessibility. This company produces WasteFinder - a two-part waste management system that provides both tactile and visual information to assist individuals with disabilities to dispose of their waste independently and effectively in public spaces. STIL Solutions also offers consultation and workshops for businesses, communities, and institutions to make their spaces more accessible, sustainable, and inclusive. Their products have been sold to municipal governments, universities, pharmacies, food markets, sports centers, cafes, medical centers, and non-profit organizations across Canada with recent sales in the US and India. This enterprise has received numerous grants from a local university and national government funded agencies to advance research and evaluation of accessible waste disposal.

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More efforts are required by States, social partners and other stakeholders to ensure that persons with disabilities, in all their diversity, get their fair share in the opportunities provided by the digital and green economies, including the investments that are made in the context of the recovery from the covid-19 pandemic.

In the context of development co-operation, development donors supporting investments in these areas should commit to ensure the inclusion of persons with disabilities, with a particular focus on women with disabilities.

**4. Conclusions and recommendations**

To promote the inclusion of persons with disabilities in the digital economy:

- Specific measures and initiatives must be implemented to promote the skills required in the digital world amongst people with disabilities and to connect them to new job opportunities, with a special focus on young people and women with disabilities as well as digital entrepreneurship initiatives;
- Foster reskilling and upskilling of persons with disabilities, especially those affected by technological changes, such as job destruction and obsolescence;
- Legislation and policies dealing with remote working and digital platforms need to address the specific challenges faced by persons with disabilities;
- Mainstream initiatives that promote digital skills among youth and women need to be inclusive of young women and men with disabilities;
- Provide grants to the most vulnerable people with disabilities to help them deal with the cost of ICTs and assistive technologies;
- Use public procurement programmes to promote accessible digital products and services;
- Establish requirements for digital industries to use a Universal Design approach to digital developments so that products and services provided are accessible to people with disabilities;
- As suggested by the UN Special Rapporteur on the Rights of Persons with Disabilities: “Ensure that national artificial intelligence regulations include human rights principles and standards and an explicit prohibition against discriminatory and harmful uses or impacts of artificial intelligence in relation to persons with disabilities. National digital inclusion strategies should explicitly take into account the need for human rights-compliant artificial intelligence tools, in particular as they address disability”

To promote the inclusion of persons with disabilities in the green economy:

- Develop and realign incentive schemes to dedicate financial and practical supports for employers to hire or retain workers with disabilities in green jobs;
- Facilitate skills development, including through apprenticeship, that prepare persons with disabilities for career pathways into green jobs and the green economy also as entrepreneurs;

Recommendations that are relevant both for the digital and the green economy:

- Ensure persons with disabilities and their representative organizations take part in the relevant bodies that address the digital and green economy;
- When data are collected on the employment in the digital and in the green economy, data should be disaggregated by disability using the Washington Group short set of questions;
- Different types of disabilities and an intersectional approach must be considered when working towards the inclusion of persons with disabilities in the digital and green economy.