Digitalisation and digital transformation in Europe: Implications for the rights of persons with disabilities

Synthesis report
with input from the country experts of the European Disability Expertise (EDE)

Neil Crowther and Lisa Waddington

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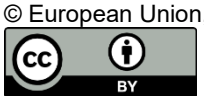

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Executive summary

About this report

This synthesis report, and the related country reports, explore current initiatives and measures at EU and national level concerning digitalisation and digital transformation, and their implications for persons with disabilities.

Digitalisation and digital transformation refer to the shift by institutions, enterprises and citizens towards digital interactions and environments using a range of digital technologies in all spheres of life. Digital technologies include, but are not limited to, information and communications technology (ICT), artificial intelligence (AI), intelligent domotics, the internet of things, wireless data communication, person-machine communication, biotechnologies, nanotechnologies and advanced robotics.

Digitalisation and digital transformation offer the potential for promoting the participation of persons with disabilities in the community and the virtual world, but, when they are not accessible, they can create barriers and hurdles to such participation.[1] This is especially true for some persons with disabilities, some older people, and even more often for older people with disabilities who can may face particular difficulties in engaging with digital technologies. The COVID-19 pandemic, and the sudden mass move to working, studying and shopping from home, has emphasised the importance of ensuring that the development, regulation and use of digitalisation and digital transformation include a disability perspective, and that related technologies are accessible for people with disabilities.

The scale, reach and pace of change with regard to digitalisation and digital transformation is both extensive and rapid. This change will be exponential, as various new and emerging technologies are fused together. While these changes and developments offer exciting opportunities for greater societal participation and empowerment of persons with disabilities, they also bring with them risks regarding the rights of people with disabilities and human rights more generally. In light of the transformative potential of digitalisation and digital transformation, it is imperative that EU and national digitalisation strategies and related actions address and fully embed the rights of persons with disabilities.

The reports focus in particular on relevant EU and national strategies that set a framework regarding digitalisation and digital transformation and their relation to persons with disabilities. This approach allows for an identification of the broad policy framework within which digitalisation and digital transformation are developing and being used from a disability perspective in Europe. The reports also consider how digitalisation and digital transformation are addressed in disability strategies.

[1] The report by the European Disability Forum (2018), *Plug and pray? A disability perspective on artificial intelligence, automated decision-making and emerging technologies*, discusses in some detail the potential and existing benefits of AI, automated decision-making and emerging technologies for persons with disabilities, as well as the associated challenges and risks. The report by Disability Hub Europe (2021), *An inclusive digital economy for people with disabilities*, also identifies potential benefits and risks related to the digital economy in the specific context of employment.

The European Union

The EU has adopted different strategies and action plans that touch on digitalisation and digital transformation in various ways. Some of these explicitly incorporate a disability dimension and require accessibility. This is important, as the EU has accepted a number of obligations relevant to digitalisation and digital transformation through its conclusion of the UN Convention on the Rights of Persons with Disabilities (CRPD) and has adopted legislation that requires that ICT be accessible.

Chapter 3 of this report classifies relevant EU strategies into four broad groups: strategies which focus on different aspects of digitalisation and digital transformation; strategies focusing on digitalisation and digital transformation in specific areas; strategies in specific fields which address digitalisation and digital transformation, among other issues; and the European Disability Strategy*, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030*.

The European Strategies on digitalisation and digital transformation (the Commission Communications *Shaping Europe's digital future*; *A European strategy for data*; and *2030 Digital Compass: the European way for the Digital Decade*; and the *White Paper on Artificial Intelligence*) make a small number of explicit references to people with disabilities or the potential challenges and benefits that digitalisation and digital transformation present for them, although they do frequently acknowledge that all EU citizens and residents should benefit from this process. The White Paper on AI clearly identifies discrimination, including on the ground of disability, as a potential risk associated with AI, and indicates that the Commission intends to propose action to address this.

The EU has adopted two sector-specific strategies which address digitalisation in the fields of education and eGovernment. The *Digital Education Action Plan* contains more references to people with disabilities and accessibility, and is more disability-inclusive, than some of the other Communications and documents examined in this part of the report. In any case, there is certainly scope for many of the actions planned in the sector-specific strategies to include a disability perspective, even if disability is not yet mentioned explicitly. Close monitoring of the actions used to implement the *Digital Education Action Plan* to ensure that an appropriate disability perspective is included will be important. The EU has also adopted a number of instruments in the area of eGovernment. These documents contain some references to persons with disabilities, as well as fundamental rights, social participation and digital inclusion more generally. As with the other strategies and action plans, many of the principles and planned actions are of potential relevance for people with disabilities, even if this group is not yet explicitly mentioned in the context of the planned actions.

The EU has also adopted a number of strategies in specific fields which address, among other topics, digitalisation and digital transformation. These strategies include *The European Green Deal*, the *New Consumer Agenda* and the *European Skills Agenda for sustainable competitiveness, social fairness and resilience*. While *The European Green Deal* contains no reference to persons with disabilities, it does refer to providing users with accessible transport and to a 'just and inclusive' transition and 'inclusive' growth. However the two Agendas do contain some disability-specific provisions and foresee actions targeted at people with disabilities.

Lastly, the new Strategy for the Rights of Persons with Disabilities pays specific attention to digitalisation and digital transformation and persons with disabilities in many different areas, and includes supporting 'digital transitions' among its goals. The European Disability Strategy addresses digitalisation and digital transformation in the context of web accessibility; independent living and community-based services; skills development; improving access to justice, legal protection, freedom and security; education; and healthcare.

The numerous references to digitalisation and digital transformation in the new Strategy for the Rights of Persons with Disabilities are not, on their own, sufficient to ensure that a disability perspective is adopted in all relevant EU initiatives. The Disability Strategy and the other EU instruments referred to in this report should be seen as complementary and reinforcing. In order to adequately address the needs of people with disabilities, mainstream instruments must include a disability perspective, with this approach being buttressed by the Strategy for the Rights of Persons with Disabilities. The way in which the various EU strategies and plans are implemented in practice will be crucial; addressing the situation of people with disabilities in the actions taken to implement the strategies will be very important. This is necessary even if people with disabilities are not explicitly referred to in the overarching strategic document.

Synthesis of findings from the EDE country reports

National digitalisation strategies

The EDE country reports begin by exploring the extent to which national digitalisation strategies and associated sector strategies and plans address the rights of people with disabilities. Not all of the strategies do so. Those that do, do so in the following ways:

- implicitly, as part of an overall commitment to inclusion or equality
- implicitly or explicitly in the context of a commitment to be attentive to 'vulnerable' or 'disadvantaged groups';
- in relation to accessibility.

The emphasis in those strategies which do refer to people with disabilities is generally on ensuring that people with disabilities are not excluded or left behind by digitalisation and digital transformation, rather than on harnessing digital technologies as a new tool through which to remove barriers or to address existing inequalities experienced by people with disabilities. Even to the extent that high-level commitments are made to ensure that digitalisation occurs in a way that is accessible and inclusive, the practical steps necessary to ensure this are rarely elaborated, nor is a *rights-based approach* typically evident in such strategic documents, with the exception of Greece.

Sector or issue specific digitalisation strategies and plans

The EDE country reports explore sector or issue-specific strategies and plans concerning digital technologies that include a disability perspective. These cover digital government, including administration of social welfare, which is increasingly

being automated; innovations in the fields of health and social care; initiatives to improve digital skills among the population; the introduction of digitalisation in the field of education; measures concerning the development of artificial intelligence; and action to improve digital infrastructure, including connectivity.

Although the EDE country reports identified promising examples of sector or issue-specific strategies which include a disability perspective, and plans that either encompass or specifically address the rights of people with disabilities, there is a lack of consistency in this respect across countries, and within and between different fields and areas of digital development. On the whole, it does not appear that the rights of persons with disabilities are routinely anchored in sector or issue-specific digitalisation and digital transformation strategies and plans. This is true both in the context of non-discrimination, accessibility and inclusion, and with regard to a positive or specific focus within the strategies themselves. This presents a risk of deepening exclusion and inequality for people with disabilities in key areas of life, such as health, training and employment, as well as entrenching the 'digital divide', as digital technologies permeate and revolutionise almost every area of our lives.

The country reports did not reveal evidence that there has been formal involvement of people with disabilities and their representative organisations in the development of these strategies and plans in any European country covered by this report, although the strategies and plans were often the subject of public consultation, and people with disabilities and their representative organisations *may* have contributed and influenced their development through this route. There are, however, examples of organisations of persons with disabilities being involved in monitoring accessibility in the context of digitalisation, or in the implementation of specific programmes flowing from national strategies and plans.

National and issue specific disability strategies and plans

The EDE country reports subsequently explore the degree to which digitalisation and digital transformation are addressed in national disability strategies and associated strategies and plans. The evidence identified by the EDE country experts suggests that implementation of the EU Directive on the accessibility of the websites and mobile applications of public bodies is the primary focus, with some focus on the European Accessibility Act (EAA). Beyond these areas, there is little reference to the need to ensure that digitalisation and digital transformation in key fields proceed in a manner that is disability inclusive; nor are there practical measures planned to achieve this goal. The potential for digitalisation and digital transformation to be at the forefront of strategies and plans to advance the rights of people with disabilities in key life domains and sectors is not recognised.

Given the scale and pace of digitalisation and digital transformation in every area of life, this omission, if the evidence is accurate, paints a concerning picture. The potential for digitalisation and digital transformation to either entrench or create new barriers and forms of discrimination and exclusion is significant. Preventing such discrimination from emerging demands foresight, planning and preparation. At the same time, the opportunities presented by digitalisation and digital transformation to overcome disabling barriers, and to up-end entrenched discrimination and inequalities, are significant. However, this will happen only with the right incentives and investment.

Areas such as employment, education, transport and mobility and the transition from institutional care to independent living should be addressed in this respect. Nevertheless, there is little evidence in the EDE country reports that such incentives or investment are routinely happening.

Funding and training

The EDE country reports explored evidence of practical measures to ensure disability-inclusive digitalisation and digital transformation and digital accessibility, including funding and the training of digital professionals, accessibility and inclusion professionals and people with disabilities.

The EDE country reports identified significant investment in digitalisation and digital transformation across European countries. While in some country reports reference was made to the general conditions governing the use of European Structural and Investment Funds, only a minority identified specific or targeted conditions or objectives attached to such funding concerning the promotion of disability rights, inclusion or accessibility. In this sense, it does not appear from the evidence collated for this study that public procurement is being widely harnessed to leverage accessible and inclusive digitalisation. There were also few examples of initiatives that focused specifically on the rights of people with disabilities, or where people with disabilities could confidently be identified as beneficiaries.

Based on the evidence collated by the EDE country experts, it appears that, where professional education, training and development of digital professionals addresses the rights of people with disabilities and associated themes, it does so in an ad hoc way and at the initiative of individual education institutions. The findings from the EDE country studies reveal that there would therefore be significant benefits if Governments were to offer strategic leadership and support for such training on a wider scale. Similarly, the country studies found that education and training for accessibility and inclusion professionals that addresses digitalisation and digital transformation is also provided only on an ad hoc basis. Such training seems to be offered in only a limited way.

Despite widespread recognition of the growing importance of digital skills, the EDE country reports provide little evidence of the targeting of people with disabilities by, or their participation in, such training programmes.

Opportunities and risks of digitalisation and digital transformation

Finally, the EDE country reports explored available independent analysis concerning the perceived opportunities and risks of digitalisation and digital transformation.

The reports point to three cross-cutting thematic challenges regarding digitalisation and digital transformation. These challenges concern: affordability and financial inclusion; acquisition of digital skills; and the under-development / poor quality of the digital infrastructure in some countries / regions. The challenges are not exclusively experienced by people with disabilities, nor do they all relate directly to disability, but the evidence presented suggests that they are both disproportionately encountered and acutely experienced by some people with disabilities, especially when disability

intersects with other factors, including poverty and where people live. In addition, an inaccessible digital environment is also a key challenge / barrier for many people with disabilities. This has been addressed by EU legislation to some degree through the Directive on the accessibility of public sector websites and the European Accessibility Act.

The reports also identified a number of opportunities and challenges in specific life domains or fields, including employment, education and learning and independent living.

New and emerging technologies hold the potential to open up employment to some people with disabilities. They can do this by removing barriers, opening up the range of jobs that people may be able to perform and creating new forms of work. At the same time, new technologies may shut off opportunities by automating jobs in sectors and fields where people with disabilities may otherwise have found employment. In addition, new jobs linked to digitalisation and digital transformation may demand digital skills that many people with disabilities do not possess, and automated recruitment processes may codify and reinforce disability-based bias and discrimination. Such issues were addressed in a number of EDE country reports, as noted below.

As with employment, new and emerging technologies linked to digitalisation and digital transformation are perceived to hold great potential to support more people with disabilities to live independently and to be included in the community. Conversely, automation of care and support, remote monitoring, artificial intelligence and the internet of things are also considered to pose risks to people's autonomy and inclusion in society, by depriving people of human contact or subjecting them to digital surveillance, monitoring and daily routines that undermine their autonomy.

Education is also a field where digital technology is recognised as presenting both significant opportunities for, and challenges to, the rights of people with disabilities, including, for example, more accessible teaching materials, online consultations without waiting in line and lectures that can be watched from home, as well as inaccessibility and limited access to distance education, as experienced by some during COVID-19 lockdowns. The COVID-19 pandemic accelerated the use of, and innovation around, digital technologies in the educational context. In doing so, it has revealed significant barriers to children and young people with disabilities using digital technologies, which must be resolved if digital technologies are to be an enabler of inclusive education, rather than creating further barriers.

Concluding remarks

With or without Government engagement or direction, digitalisation and digital transformation are transforming at a rapid pace the way that we live and relate to one another, and the way in which we learn, work, consume and access public services. Digital technologies hold the potential to open up the world and to empower people with disabilities. They also hold the potential to reinforce existing patterns of social and economic exclusion and human rights violations, as well as generating new ones.
The evidence that EDE has obtained and analysed suggests that, to date, the rights of people with disabilities have enjoyed only marginal attention in the elaboration of national or sector-specific digitalisation strategies and programmes. There is no

evidence that people with disabilities or their representative organisations have been meaningfully or systematically involved in the development of such strategies and programmes. At the same time, beyond the important matter of website accessibility, digitalisation and digital transformation are generally peripheral to national disability strategies and sub-strategies. This is despite evidence pointing to current and likely growing digital exclusion and the risk of new patterns of discrimination, some of which have been spotlighted by the large-scale shift to online platforms during the COVID-19 pandemic. Further, the new opportunities that digital technologies potentially offer to address longstanding challenges, such as the shift from institutional care to independent living; educational inclusion; and narrowing the employment gap, appear underexplored in national strategies and programmes.

The intersections between disability, poverty and age are of particular importance for understanding and responding to digital exclusion faced by people with disabilities. Further, location plays a big role in determining the quality, availability and affordability of high-speed internet access, with people in rural areas far less likely to have such access than those in urban areas.

With respect to independent analysis, it is worth noting that issues connected to digital exclusion and people with disabilities do not appear to be a primary focus of the policy advocacy work of many organisations of people with disabilities, over and above web accessibility. This may just be a matter of prioritisation, but it could equally suggest a lack of awareness, understanding and foresight concerning the revolutionary potential of digital technologies to transform every area of life in the not-too-distant future, and the emergent gaps in consideration of the rights of people with disabilities among those leading this change.

Recommendations

The evidence collated for this EDE report strongly suggests that far more concerted effort and action is required to protect, promote and ensure the rights of people with disabilities, at three levels:

- Harnessing the opportunities of digitalisation and digital transformation to advance the rights of people with disabilities across all areas of life, including through measures to ensure digital inclusion and by employing digital technologies to address specific challenges.

- Predicting and taking steps to avert risks to the rights of people with disabilities arising from new and emerging digital technologies.

- Preparing individuals, including people with disabilities, for the opportunities and challenges presented by digitalisation and digital transformation.

Below, we address specific recommendations addressed to different actors: the European Commission; states; and disabled persons' organisations (DPOs). For each actor, recommendations are grouped under four headings: policy and strategy; funding; capacity building; and co-design. The recommendations are elaborated on in more detail in chapter 6 of this report.

To the European Commission

Policy and strategy

It is recommended that the Commission should:

- Ensure that the European strategies and actions described in chapter 3 of this study are implemented in a disability-inclusive manner, including by ensuring accessibility and explicitly considering disability-related issues in implementation, monitoring and evaluation.

- Utilise the Strategy for the Rights of Persons with Disabilities to provide an overarching framework within which the various other European Commission plans and strategies identified in chapter 3 of this study are implemented in a disability-inclusive way. The Commission's Task Force on Equality, which strives to ensure the mainstreaming of disability throughout all policy areas, should play an important role in this respect. In addition, the Commission should use the Better Regulation toolbox to enhance disability-inclusiveness when implementing the plans and strategies, and ensure the coherent inclusion and assessment of disability matters in impact assessments and evaluations of these strategies and plans.

- Address digitalisation and digital transformation in the monitoring framework and new disability indicators to be developed under the EU Strategy for the Rights of Persons with Disabilities.

- Recognise and respond to the intersectional nature of digital exclusion and disadvantage experienced by persons with disabilities who are older, live in poverty and/or live in remote/rural areas through appropriate actions.

Funding

It is recommended that the Commission should:

- (Continue to) ensure fulfilment of the enabling conditions and ensure that all funded projects comply with the CRPD and harmonised accessibility requirements relevant to digitalisation. This should include addressing digitalisation and digital transformation in a disability-inclusive manner and ensuring accessibility.

- (Continue to) require that published research and findings resulting from EU funded projects which address digitalisation and digital transformation and which include a disability perspective, including addressing accessibility, are open access.

- Require researchers and other recipients of EU funding to publish accessible versions of their publications regarding issues which concern disability and digitalisation and digital transformation.

- (Continue to) utilise key funds, such as the Digital Europe Programme, Horizon Europe, Next Generation EU and the European Structural and Investment Funds to support disability-inclusive digitalisation, accessibility, digital transformation, bridging the digital gap and increasing digital competences of persons with disabilities, ensuring connectivity for all people and particularly those in marginalised communities, with low income and/or in rural settings.

Capacity building and co-design involving disabled persons' organisations

It is recommended that the Commission should:

- Require that digitalisation projects explicitly involve disabled persons' organisations as co-partners. Where this is not feasible, the Commission should nevertheless require that disabled persons' organisations are still involved in the project, for example as members of an advisory panel, are consulted when defining specific goals of the project, and/or are involved in monitoring progress. Representatives of disabled persons' organisations should receive adequate compensation for this work.

- Fund projects which have the explicit goal of capacity building for disabled persons' organisations in this area, and on building the digital skills of persons with disabilities.

- Fund projects which have the explicit goal of building the capacity of digitalisation professionals in accessibility and disability-inclusive digitalisation.

- Fund the development and publication of open access tools and resources on accessibility and disability-inclusive digitalisation. This will facilitate capacity building and upskilling of ICT professionals and others, who will have easy access to up-to-date material.

To states

Policy and strategy

It is recommended that states should:

- Ensure that digital strategies and plans and their implementation are disability inclusive, including by recognising the intersection of disability with age, social and economic exclusion and geography in the context of addressing digital exclusion and ensure accessibility.

- Ensure that actions developing digital strategies are required to comply with state-of-the-art accessibility requirements.

- Fully explore and invest in the potential opportunities and risks of digital technologies in the context of strategies, plans and initiatives to advance the rights of people with disabilities, including with respect to inclusive education, employment, transport and the transition from institutional care to independent living.

- Address digitalisation and digital transformation in monitoring frameworks and indicators concerning the implementation of National Disability Strategies

- Ensure that existing programmes to improve digital skills, both for the purposes of everyday living and to take advantage of the growing digital economy, are accessible and targeted at people with disabilities.

- Recognise and respond to the intersectional nature of digital exclusion and disadvantage experienced by persons with disabilities who are older, live in poverty and/or live in remote/rural areas through appropriate actions

Funding

It is recommended that states should:

- Make full use of the possibilities provided by EU public procurement law, as well as funding criteria and processes, to ensure accessibility and disability-inclusivity with respect to digitalisation and digital transformation or projects and initiatives which rely upon digital technologies and as a catalyst for innovation, as well as ensuring that digital products and services purchased by public bodies are accessible and inclusive.

- Develop ways to incentivise and support innovation with respect to accessible digital technologies in fields, such as independent living, where consumer markets may be under-developed, including through financial investment, while clearly denoting areas in which increased digitalisation cannot be used as an alternative to in-person support.

- Fund and promote research to support disability-inclusive digitalisation, digital accessibility and digital transformation and with respect to developing the role of digital technologies across key fields of social change necessary to advance the rights of people with disabilities.

Capacity building and co-design involving disabled persons' organisations

It is recommended that states should:

- Engage meaningfully with people with disabilities and their representative organisations with respect to the further development, implementation and monitoring of strategies, plans and initiatives on digitalisation and digital transformation.

- Support disabled persons' organisations to develop the capacity to engage meaningfully with the development, implementation and monitoring of digital technologies and accessibility of such technology.

- Support persons with disabilities to gain digital skills, including on accessibility, and digitalisation professionals to gain accessibility competences in both the public and the private sector.

To organisations of people with disabilities

Organisations of people with disabilities are advised to:

- Prioritise digitalisation and digital transformation, as well as digital accessibility, both in the context of supporting individual people with disabilities and with respect to advocacy and influencing.

- Consider and plan how to build and share capacity and knowledge concerning the opportunities and risks of digitalisation and digital transformation.

1 Introduction

Digitalisation and digital transformation refer to the shift by institutions, enterprises and citizens towards digital interactions and environments using a range of digital technologies in all spheres of life. Digital technologies include, but are not limited to, information and communications technology (ICT), artificial intelligence (AI), intelligent domotics, the internet of things, wireless data communication, person-machine communication, biotechnologies, nanotechnologies and advanced robotics.

Digitalisation and digital transformation offer the potential for promoting the participation of persons with disabilities in the community, but, when they are not accessible, they can create barriers and hurdles to such participation.[2] This is especially true for some persons with disabilities, some older people, and specially older people with disabilities may face particular difficulties in engaging with digital technologies. The COVID-19 pandemic, and the sudden mass move to working, studying and shopping from home, has emphasised the importance of ensuring that the development, regulation and use of digitalisation and digital transformation include a disability perspective, and that related technologies are accessible for people with disabilities. This is an area where the European Union has been particularly active in recent years, and highly relevant mainstream and disability-specific EU instruments, such as the Audiovisual Media Services Directive[3] and the Electronic Communications Code[4] (both mainstream instruments) and the Directive on the accessibility of public sector websites[5] and the European Accessibility Act[6] (both disability-specific instruments), have been adopted[7]. The European Accessibility Act regulates the accessibility of key products and services in the internal market, such as computers, smartphones, tablets, TV sets, banking ATMs and services, payment terminals, e-books and e-readers, e-commerce websites and mobile applications and ticketing machines.

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2 The report by the European Disability Forum (2018), *Plug and pray? A disability perspective on artificial intelligence, automated decision-making and emerging technologies*, discusses in some detail the potential and existing benefits of AI, automated decision-making and emerging technologies for persons with disabilities, as well as the associated challenges and risks. The report by Disability Hub Europe (2021), *An inclusive digital economy for people with disabilities*, also identifies potential benefits and risks related to the digital economy in the specific context of employment.

3 Directive (EU) 2018/1808 of the European Parliament and the Council of 14 November 2018 amending Directive 2010/13/EU on the coordination of certain provisions laid down by law, regulation or administration action in Member States concerning the provision of audiovisual media services (*Audiovisual Media Services Directive*) in view of changing market realities [2018] OJ L 303/69.

4 Directive (EU) 2018/1972 of the European Parliament and of the Council establishing a European Electronic Communications Code (Recast) [2018] OJ L 321/36.

5 Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies [2016] OJ L 327/1.

6 Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (*European Accessibility Act*) [2019] OJ L 151/70.

7 For an overview of relevant EU legislation, see: *A European Ecosystem for ICT Accessibility*, Inmaculada Placencia Porrero, presented at the 12th session of the Conference of State Parties to the CRPD, available at: https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2019/06/Inmaculada-PlacenciaICT-accessibility-EU-policy-and-legislation-Compatibility-Mode.pdf

The scale, reach and pace of change with regard to digitalisation and digital transformation is both extensive and rapid. This change will be exponential, as various new and emerging technologies are fused together. While these changes and developments offer exciting opportunities for greater societal participation and empowerment of persons with disabilities, they also bring with them risks regarding the rights of people with disabilities and human rights more generally. In light of the transformative potential of digitalisation and digital transformation, it is imperative that EU and national digitalisation strategies and related actions address and fully embed the rights of persons with disabilities.

This synthesis report, and the related country reports, explore current initiatives and measures at EU and national level concerning digitalisation and digital transformation, and their implications for persons with disabilities. The reports focus in particular on relevant EU and national strategies. These strategies can address digitalisation explicitly, such as the European Commission Strategy *Shaping Europe's digital future*, or address digitalisation in a specific area, such as the European Commission's *Digital Education Action Plan 2021-2027*. Strategies which address digitalisation as part of a broader strategy within a particular area, such as the European Commission's 2020 *New Consumer Agenda*, also fall within the scope of this report. Lastly, disability specific strategies which address digitalisation in some way, such as the European Commission's *Strategy for the Rights of Persons with Disabilities 2021-2030*, are also relevant. Therefore, this synthesis report, and the related country reports, explore relevant strategies that set out a framework regarding digitalisation and digital transformation and their relation to persons with disabilities. This approach allows for an identification of the broad policy framework within which digitalisation and digital transformation are developing and being used from a disability perspective in Europe.

1.1 Methodology

This synthesis report is based upon desk research conducted by EDE's country experts in 30 European countries.[8] The individual country studies were carried out using a common template and guidance developed by EDE. The European Commission gave feedback on the reports and, following revision, approved the reports for publication. Each report was independently reviewed by academic experts and revised accordingly. The reports will be published alongside this synthesis report. Subject to the availability of data, each country study considered the following:

Country experts were asked to draw upon a range of data and evidence, including official reports, published peer-reviewed research and 'grey literature' reports by NGOs and organisations of people with disabilities to assess the extent to which Governments are demonstrating strategic leadership and action to ensure that digitalisation and digital transformation advance the rights of people with disabilities, and to identify the opportunities and challenges that lie ahead.

In order to do so, the experts looked at three levels of action: Government strategy and plans; implementation; and outcomes.

[8] Information available at: https://ec.europa.eu/social/main.jsp?catId=1532&langId=en.

With respect to Government strategy and plans, the country reports have sought to identify and assess:

- the extent to which high-level Government strategies and plans on digitalisation and digital transformation can be said to be 'disability inclusive';
- whether issue-specific or sector-specific plans concerning digitalisation and digital transformation address the rights of people with disabilities;
- evidence of the involvement of people with disabilities and their representative organisations in the development of these strategies and plans;
- the extent to which high-level Government strategies and plans on advancing the rights of people with disabilities address, or propose to harness, digitalisation and digital transformation;
- whether issue or sector specific plans concerning the rights of people with disabilities address or seek to harness digitalisation and digital transformation.

With respect to implementation, and based on available evidence, the country reports have considered:

- whether Government funding (including European Union funding) is being used to advance the rights of people with disabilities through digitalisation and digital transformation;
- whether steps are being taken to ensure that the rights of people with disabilities are addressed via the education and training of digital professionals;
- whether steps are being taken to ensure that digitalisation and digital transformation are addressed in the training and professional development of those working in the field of accessibility and inclusion;
- whether steps are being taken to provide people with disabilities access to training on digital technologies.

Finally, with respect to outcomes, the country reports have considered independent evidence, including academic studies, papers and interventions by National Human Rights Institutions and Equality Bodies, and so-called 'grey literature', such as the reports of Organisations of People with Disabilities and NGOs, to identify:

- perceived opportunities presented by digitalisation and digital transformation with respect to advancing the rights of people with disabilities;
- perceived challenges presented by digitalisation and digital transformation with respect to advancing the rights of people with disabilities.

1.2 Structure of the report

This synthesis report is divided into five chapters.

Chapter 2 briefly defines some of the key concepts used in this report.

Chapter 3 identifies and explores the European Union strategies which are relevant from a disability perspective concerning digitalisation and digital transformation.

Chapter 4 synthesises the country reports prepared by EDE experts for this thematic study, exploring how far national digitalisation strategies and plans address disability; the extent to which digitalisation and digital transformation are included in national disability strategies and plans; evidence of action to promote disability inclusion through funding and training; and independent evidence concerning digitalisation and disability inclusion.

Chapter 5 sets out conclusions and recommendations.

2 Definitions and terminology

Digitalisation and digital transformation are complicated areas which are replete with complex concepts and definitions. This complexity can be particularly challenging for social scientist and disability experts not familiar with the area. This short chapter explains and defines some of the key terms used elsewhere in this report.

As noted above, *digitalisation* and *digital transformation* refer to the shift by institutions, enterprises and citizens towards digital interactions and environments using a range of digital technologies in all spheres of life. For the purposes of this report, the two terms are understood in the following way.

Digitalisation refers to the use of digital technologies to carry out activities which are currently being done in an analogue format. This could involve transferring activities which currently use paper – such as completing a form – to an online format, or storing documents previously held on paper in a digital format. Understood in this way, digitalisation involves making existing activities more efficient though the use of digital technologies, but without radically changing the way in which those activities are done. Rendering information accessible for people with disabilities is one area where digitalisation can apply.

Digital transformation refers to a far more radical change and involves the development and use of new technologies to carry out new activities or to transform the way existing activities are approached and addressed. It may involve new technologies, such as the internet of things, virtual reality and augmented reality. It creates new strategies and processes, renders new activities possible, and fundamentally changes how activities are carried out. The use of new technologies, such as wearable devices, and new means of interacting with technology, such as through voice or facial recognition, to support independent living is an example of how digital transformation can change existing modalities and approaches. Moreover, existing technology, such as mobile digital technology, has been embraced and adapted by some people with disabilities, proving transformative with respect to, for example, information, communication, living independently and personal mobility. Digital transformation is always an ongoing process.

Information and communications technology (ICT), which is a subject of digitalisation, is 'technology, equipment, or interconnected system or subsystem of equipment for which the principal function is the creation, conversion, duplication, automatic acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission, reception, or broadcast of data or information'.[9] Varney argues that 'advances in information and communication technologies (ICTs) should benefit everybody, and products and services should be designed with accessibility in mind'.[10]

[9] Accessibility requirements for ICT products and services, EN 301 549 V2.1.2 (2018-08), CEN, CENELEC, and ETSI section 3.1, available at: https://www.etsi.org/deliver/etsi_en/301500_301599/301549/02.01.02_60/en_301549v020102p.pdf p. 13,

[10] Varney, E., 'Article 21, Freedom of Expression and Opinion, and Access to Information', in Bantekas, I., Stein, M. A., and Anastasiou, D., The UN Convention on the Rights of Persons with Disabilities: A Commentary, Oxford University Press, 2018, pp. 582-583.

Artificial intelligence (AI) refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals. AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems), or AI can be embedded in in hardware devices (e.g. advanced robots, autonomous cars, drones or internet of things applications).[11] AI involves 'the ability for a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings'.[12]

Accessibility, in the context of ICT products and services, can be defined as the 'extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of characteristics and capabilities, to achieve a specified goal in a specified context of use'.[13] In the context of EU policies and legislation accessibility concerns the prevention and removal of barriers that hinder participation of persons with disabilities in society on equal basis with others. The European Disability Strategy 2010-2020 indicated that 'Accessibility' involves people with disabilities having access, on an equal basis with others, to the physical environment, transportation, information and communications technologies and systems (ICT), and other facilities and services. The Impact Assessment of the European Accessibility Act (EAA) indicated that 'Accessibility' involves the prevention or removal of barriers to the use of mainstream goods and services. This last definition is important in the context of the application of the EAA.

Accessible ICT involves 'making ICT more accessible for all and fostering new methodologies for technology development (design for all)'.[14]

Assistive technology (AT) means any item, piece of equipment, service or product system including software that is used to increase, maintain, substitute or improve functional capabilities of persons with disabilities or for, alleviation and compensation of impairments, activity limitations or participation restrictions.[15] This is a very broad definition which includes 'any product (including devices, equipment, instruments, and software), either specially designed and produced or generally available, whose primary purpose is to maintain or improve an individual's functioning and independence and thereby promote their wellbeing'.[16]

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[11] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, Artificial Intelligence in Europe, Brussels, 25 April 2018, COM(2018) 237 final, p.1.

[12] European Disability Forum (2018), Plug and pray? A disability perspective on artificial intelligence, automated decision-making and emerging technologies.

[13] Accessibility requirements for ICT products and services, EN 301 549 V2.1.2 (2018-08), ETSI,CEN, CENELEC, section 3.1, available at: https://www.etsi.org/deliver/etsi_en/301500_301599/301549/02.01.02_60/en_301549v020102p.pdf p. 13.

[14] Commission homepage, 'Digital Inclusion for a better EU society', available at: https://ec.europa.eu/digital-single-market/en/digital-inclusion-better-eu-society.

[15] Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (*European Accessibility Act*), Article 3(37).

[16] Desmond, D., Layton, N., Bentley, J., Boot, F., Borg, J., Maya Dhungana, B., Gallagher, P., Gitlow, L., Gowran, R., Groce, N., Mavrou, K., Mackeogh, T., McDonald, R., Pettersson, C. and Scherer, M. (2018), 'Assistive technology and people: a position paper from the first global research,

The term *AT systems*, which includes both services and products, refers to 'the development and application of organised knowledge, skills, procedures, and policies relevant to the provision, use, and assessment of assistive products'. This therefore includes training in the use of AT and other infrastructure and technologies, such as ICT, that promote the effectiveness of AT.[17]

Mainstream accessible technologies have embedded accessibility or interoperate with assistive technology in order for the technology, and any related product or service, to be accessed and used by people with disabilities. While the incorporation of a 'design for all' or 'universal design' approach in the development of new and emerging technologies should lead to greater accessibility for people with disabilities through mainstream devices, it will not completely remove the need for assistive technologies and devices designed with the needs of individuals with specific impairments in mind.

Digital inclusion is defined by the European Commission as its 'efforts to ensure that everybody can contribute to and benefit from the digital economy and society'.[18] The Commission also notes that digital exclusion is 'part of the overall challenge of exclusion, a widespread and growing phenomenon which carries with it a series of deteriorations in life paths like poor health, poor lifelong earnings and increased marginalisation'.[19] In this respect, the Commission notes that 'an important factor is the type or level of cognitive or physical disability that prevents those affected to use ICT and Internet'.[20]

Data which is stored digitally can be *personal data*. This is 'any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person'.[21] Data is used in machine learning, which is a type of AI. It works by identifying patterns in available data and then applying the knowledge to new data.[22]

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innovation and education on assistive technology (GREAT) summit', *Disability and Rehabilitation: Assistive Technology*.

17 Desmond, D., Layton, N., Bentley, J., Boot, F., Borg, J., Maya Dhungana, B., Gallagher, P., Gitlow, L., Gowran, R., Groce, N., Mavrou, K., Mackeogh, T., McDonald, R., Pettersson, C. and Scherer, M. (2018), 'Assistive technology and people: a position paper from the first global research, innovation and education on assistive technology (GREAT) summit', *Disability and Rehabilitation: Assistive Technology*.

18 Commission homepage 'Digital Inclusion for a better EU society', available at: https://ec.europa.eu/digital-single-market/en/digital-inclusion-better-eu-society.
Commission homepage 'Digital Inclusion for a better EU society', available at: https://ec.europa.eu/digital-single-market/en/digital-inclusion-better-eu-society.

20 Commission homepage 'Digital Inclusion for a better EU society', available at: https://ec.europa.eu/digital-single-market/en/digital-inclusion-better-eu-society.

21 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (*General Data Protection Regulation*)) [2016] OJ L 119/1, Article 4(1).

22 Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, Artificial Intelligence in Europe, Brussels, 25 April 2018, COM(2018) 237 final, p. 10.

This report reflects on the extent to which strategies take disability-related issues into account. In that context, *disability inclusive* refers to a situation in which strategies, policies, plans and actions concerning digitalisation and digital transformation maintain a disability perspective**,** including accessibility, with a view to ensuring that people with disabilities benefit equally from their development, application and availability.

3 European strategies and actions concerning digitalisation and digital transformation

Among the six priorities for the European Commission for 2019-2024 is 'A Europe fit for the digital age'.[23] While this priority focuses on digitalisation and digital transformation explicitly, digital developments[24] are also a means for achieving some of the other priorities, including a European Green Deal, 'An economy that works for people', and 'A new push for European democracy'.[25] Digitalisation and digital transformation will therefore play a prominent part in the work of the EU in the coming decade, and in the lives of all Europeans. In light of this, it is highly important that the needs and aspirations of persons with disabilities are taken into account as digital developments progress and take on an even greater role in society. In this way, digitalisation and digital transformation can contribute to removing existing barriers, creating new opportunities, and allowing for greater participation and inclusion of people with disabilities. Indeed, there is hardly any area of life where digital developments will not play an important role, including work, education, the public sector, health care and commercial transactions, and the importance of digitalisation will only increase in the coming decades.

However, if the processes of digitalisation and digital transformation fail to take account of the needs of persons with disabilities, they can lead to further exclusion and segregation. Such exclusion and segregation will also result even if digital developments are accessible for, and useable by, people with disabilities, but are not actually available to them. Lack of availability may relate to digital services and equipment being unaffordable for many people with disabilities, or being physically unavailable, for example, as a result of a lack of broadband in certain areas. In this sense, disadvantages related to, and exclusion from, digital developments experienced by people with disabilities may also intersect with issues relating to poverty or living in (rural) areas with an under-developed digital infrastructure. For the most part, such issues are not addressed in the various EU strategies and the instrument considered below and are therefore not reported on in this part of the report – although they are issues of significant concern.

This chapter of the report explores different EU strategies which touch on digitalisation and digital transformation in various ways, and considers the extent to which a disability dimension is recognised and planned for in those strategies. In doing so, the chapter is mindful of the obligations which the EU has taken on through concluding the UN Convention on the Rights of Persons with Disabilities (CRPD). In this respect, the principle of accessibility is particularly important. Accessibility is one of the general principles on which the Convention is based (Article 3, CRPD) and it is also addressed in a free-standing article in the Convention – Article 9. This Article is of particular relevance to e-accessibility and digital transformation. Article 9 obliges State Parties to 'take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to … information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public …'It also provides that these measures 'shall include

[23] See: https://europa.eu/european-union/about-eu/priorities_en.
[24] For the purposes of this report, this term covers both digitalisation and digital transformation.
[25] See: https://europa.eu/european-union/about-eu/priorities_en.

the identification and elimination of obstacles and barriers to accessibility', and that they shall apply to 'information, communications and other services, including electronic services and emergency numbers'. State Parties are to 'promote the design, development, production and distribution of accessible information and communication systems at an early stage, so that these technologies and systems become accessible at minimum cost'.

The relevance of the CRPD to this area, and its broad reach, is reinforced by General Comment No. 2 of the CRPD Committee on Accessibility.[26] This states that 'ICT' is an umbrella term which includes any information or communication device or application and its content. This includes television, radio, mobile phones, computers, fixed lines and network hardware and software. The General Comment further highlights the importance of ICT accessibility, as it is capable of 'open[ing] up a wide range of services, transform[ing] existing services and creat[ing] greater demand for access to information […]'. It specifies that any [ICT] good, product or service which is provided to the general public must be accessible to all, no matter if it is provided by a public authority or private enterprise.

Access to information presented in a digital format was also addressed in Individual Communication No. 21/2014,[27] in which the Committee on the Rights of Persons with Disabilities held that live travel information presented in a visual form on digital information displays on tram lines should be provided to persons with visual impairments, on an equal basis to persons without visual impairments, through digital audio information.

General Comment No. 7 of the CRPD Committee on participation of persons with disabilities in the implementation and monitoring of the Convention[28] further emphasises that in order to comply with the obligations under Article 4(3), i.e. to consult persons with disabilities through their representative organisations, State Parties must ensure 'access to all relevant information, including the websites of public bodies, through accessible digital formats and reasonable accommodations when required […]'. Moreover, as confirmed in Individual Communication No. 21/2014, 'State Parties have the duty to provide accessibility before receiving an individual request to use a service'. This Communication also confirmed that the 'obligation to implement accessibility is unconditional' and that parties may not be excused by 'referring to the burden of providing access to people with disabilities'.[29]

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[26] UN Committee on the Rights of Persons with Disabilities, General comment No. 2 (2014) Article 9: Accessibility, eleventh session, 31 March–11 April 2014.

[27] UN Committee on the Rights of Persons with Disabilities, Communication No. 21/2014, 21 September 2015.

[28] UN Committee on the Rights of Persons with Disabilities, General comment No. 7 (2018) on the participation of persons with disabilities, including children with disabilities, through their representative organisations, in the implementation and monitoring of the Convention, 21 September 2019.

[29] The preceding paragraphs draw on text in: Lisa Waddington, 'Regulating e-accessibility and digital equality in Europe from a multi-level perspective', in Carola Ricci (eds.) (2019), *Building an Inclusive Society for Persons with Disabilities. New Challenges and Future Potentials in the Digital Era*, Pavia University Press, available at: http://www.paviauniversitypress.it/catalogo/building-an-inclusive-digital-society-for-persons-with-disabilities/1587, p. 3-18.

Digitalisation and digital transformation have impacts on many other areas of life which are covered by the CRPD, including living independently and being included in the community (Article 19); freedom of expression and opinion, and access to information (Article 21); education (Article 24); health (Article 25); work and employment (Article 27); and participation in political and public life (Article 29).

The chapter now proceeds to examine four broad groups of EU strategies and reflects on how they address digitalisation, digital transformation and people with disabilities. The four groups of strategies are: strategies which focus on different aspects of digitalisation and digital transformation, such as the European Commission Digital Strategy, and actions relating to artificial intelligence; strategies focusing on digitalisation and digital transformation in specific areas, such as education and eGovernment; strategies in specific fields, such as consumer protection and the *European Skills Agenda*, which address digitalisation and digital transformation, among other issues; and the EU Strategy for the Rights of Persons with Disabilities .

3.1 European strategies on aspects of digitalisation and digital transformation

In 2020, the European Commission published three documents addressing different aspects of digitalisation and digital transformation: the Commission Communications *Shaping Europe's digital future*[30] and *A European strategy for data*,[31] and the *White Paper on Artificial Intelligence*. In March 2021, the Commission published a further Communication on the *2030 Digital Compass: the European way for the Digital Decade*.[32] The disability dimension to all four documents is addressed below. A number of other European instruments are also considered in this context.

3.1.1 Commission Communication: Shaping Europe's digital future

A key strategic document concerning digitalisation, digital transformation and the EU is the Commission Communication *Shaping Europe's digital future*, which was published in 2020.[33] The Communication recognises that the 'twin challenge' of a green and digital transformation go 'hand-in-hand'.[34] The Communication is 'person-centred', recognising the potential benefits that digitalisation and digital transformation can bring for citizens and residents, while also acknowledging that digital technologies bring risks and costs with them. The Communication requires that 'every citizen, every

[30] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020.

[31] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020.

[32] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *2030 Digital Compass: the European way for the Digital Decade*, COM(2021) 118 final, Brussels, 9 March.2021.

[33] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020.

[34] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 1.

employee, every business person has a fair chance, wherever they live, to reap the benefits of our increasingly digitised society',[35] and that Europe 'has the means to bring about this better digital future for everyone'.[36] Moreover, 'people must have the opportunity to develop personally, to choose freely and safely, to engage in society, regardless of their age, gender or professional background'[37] and everyone should benefit from a digital dividend.[38] In spite of the repeated references to ensuring that everyone should benefit from digitalisation and digital transformation, the Communications makes no reference to people with disabilities or older people, or the potential challenges and benefits that digitalisation and digital transformation present for them. In that sense, the Communication is not disability inclusive.

The Communication indicates that the Commission will focus on three key objectives to work 'towards a digital transformation that works for the benefit of people'.[39] These are:

- technology that works for people;
- a fair and competitive economy; and
- an open, democratic and sustainable society.

Each of these areas, and the planned actions, are potentially relevant for people with disabilities – although, as noted above, this group is not mentioned explicitly in the Communication.

In terms of *technology that works for people*, the Communication recognises that improving education and skills is a key part of digital transformation in Europe, and that this is necessary both in terms of the labour market as well as in people's private lives. The Communication recognises that 'having at least basic digital literacy and skills has become a precondition for participating effectively in today's society'.[40]

The Communication acknowledges the particular situation of specific groups in terms of developing technology that works for people. Particular attention is paid to the situation of women. The Communication states: 'more women can and must have rewarding careers in tech, and European tech needs to benefit from women's skills and competences', and 'the digital transition must be fair and just and encourage

[35] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Shaping Europe's digital future, COM(2020) 67 final, Brussels, 19 February 2020, p. 1.

[36] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 1.

[37] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 1.

[38] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 2.

[39] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 2.

[40] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 5.

women to fully take part'.[41] Digitalisation and digital transformation also have the potential 'to close existing participation gaps, notably in rural and remote areas suffering from population ageing and decline'.[42] Lastly, the specific situation of people who are platform workers[43] and do not have worker status, and their legal protection, is acknowledged.[44]

For each of the three areas, the Communication identifies key actions that the Commission plans to take. In terms of technology that works for people, these key actions include a White Paper on Artificial Intelligence which will set out options for a legislative framework for trustworthy AI and address fundamental rights, among other issues; a Digital Education Action Plan to boost digital literacy and competences; and a reinforced Skills Agenda to strengthen digital skills throughout society and a reinforced Youth Guarantee to put a strong focus on digital skills in early career transitions.[45] Some of these actions should lead to stronger digital skills for individuals through lifelong access to digital technology and skills training.[46]

The second key objective concerns *a fair and competitive economy*. In this respect, the Communication recognises the importance of data for the development of any products and services, and the need for 'a European data space based on European rules and values'.[47] The Communication also addresses consumer protection, and notes that 'there is a need to pay attention to the most vulnerable consumers and to ensure the enforcement of safety laws, also in relation to goods originating from third countries'.[48]

The key actions planned with regard to a fair and competitive economy include a European Data Strategy as well as a legislative framework for data governance and a

41 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 5.
42 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 6.
43 The publication *Measuring the Digital Transformation: A Roadmap for the Future* (ÓECD, 2019) defines platform workers in the following way: 'Platform workers are individuals who use an app (such as Uber) or a website (such as Amazon Turk) to match themselves with customers, in order to provide a service in return for money. They offer a diverse range of services including transport, coding and writing product descriptions.
44 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 6.
45 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 7.
46 What's in it for me, Shaping Europe's Digital Future, European Commission, February 2020.
47 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 7.
48 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 8.

new Consumer Agenda to empower consumers to make informed choices and play an active role in the digital transformation.[49]

The third and final objective concerns *an open, democratic and sustainable society*. Under this objective, 'the Commission will continue to develop and implement innovative and proportionate rules for a trustworthy digital society. Such a digital society should be fully inclusive, fair and accessible for all'.[50] The Communication notes the need for consumers to have 'greater control of and responsibility for their own data and identity' in the online world, and for there to be 'clearer rules on the transparency, behaviour and accountability of those who act as gatekeepers to information and data flows'.[51] The Communication also recognises the relevance and 'power' of data in the health sector. It notes that 'digitised health records, gathered in a European health data space, can lead to better treatment for major chronic conditions, including cancer and rare diseases, but also to equal access to high quality health services for all citizens'.[52]

Key actions under this objective include new and revised rules to deepen the Internal Market for Digital Services, a European Democracy Action Plan to improve the resilience of European democratic systems; and the promotion of electronic health records based on a common European exchange format to give European citizens secure access to and exchange of health data across the EU. Work will also be done on a European health data space to improve safe and secure accessibility of health data, allowing for targeted and faster research, diagnosis and treatment.[53]

The Communication concludes by stating that:

'Europe can own this digital transformation and set the global standards when it comes to technological development. More importantly still, it can do so while ensuring the inclusion and respect of every single human being. The digital transformation can only work if it works for all and not for only a few'.[54]

The reference to digital transformation working for all is important – although the lack of reference to the situation of persons with disabilities may undermine this message somewhat. However, what will be of more significance is whether the specific actions

[49] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 10.

[50] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 10.

[51] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 11.

[52] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 12.

[53] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 13.

[54] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Shaping Europe's digital future*, COM(2020) 67 final, Brussels, 19 February 2020, p. 15.

identified in the Communication pay attention to the situation of persons with disabilities. More information on some of those actions is already available, and they are discussed below.

3.1.2 Commission Communication: A European strategy for data

The *European strategy for data* recognises that data is at the centre of the transformation of the economy and society being brought about by digital technologies, and that data-driven innovation can bring benefits for citizens.[55] The strategy sets out a number of measures to contribute to 'a comprehensive approach to the data economy that aim to increase the use of, and demand for, data and data-enabled products and services throughout the Single Market'.[56] The strategy is 'person-centred' and recognises that the interests of the individual must be placed first.[57] However, as with the Commission Communication *Shaping Europe's Digital Future*, no reference is made to persons with disabilities, although the relevance of data, and the need for related actions, for 'elderly people' and women are mentioned in some contexts.

The Communication identifies policy measures and investments for the coming five years, and states that benefits will be felt in all aspects of life.[58] It notes that data drives economic development and is the basis for many new products and services, and that it allows 'for more personalised products and services and enabling better policy making and upgrading government services', including personalised medicine.[59] While recognising the potential for societal benefits driven by data, the Communication refers to the low level of digital literacy among the workforce and notes that participation gaps exist. 'Elderly people' are referred to explicitly in the context of such gaps.[60]

The Communication sets out a number of actions based on four pillars in order to achieve its goals. The four pillars are:

- a cross-sectoral governance framework for data and use;

[55] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 1.

[56] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 1.

[57] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 1.

[58] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 1-2.

[59] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 2.

[60] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 11. The term 'elderly people' is used in the Communication. This is the only reference to older people it contains.

- enablers: Investments in data and strengthening Europe's capabilities and infrastructures for hosting, processing and using data, interoperability;
- competences: Empowering individuals, investing in skills and in small and medium-sized enterprises (SMEs); and
- common European data spaces in strategic sectors and domains of public interest.

Some of the actions planned under the last two pillars may be of particular relevance to persons with disabilities, and are discussed further below.

Actions relating to *investments in skills and general data literacy* are planned under the pillar concerning competences. The EU will provide funding under the Digital Europe programme to train people to work with the latest technologies, including in the context of data. This should reduce the current gap of 1 million digital specialists by half, and will include putting a focus on increasing the participation of women.[61] With regard to general data literacy, the Reinforced Skills *Agenda* will aim to increase the proportion of the EU population who have basic digital skills, from the current level of 57 % to 65 % by 2025. Persons with disabilities are not specifically mentioned as a group that is more likely to lack basic digital skills.[62] The Digital Education Plan will also reinforce better access to, and use of, data through education and training.[63]

Under the pillar *Common European data spaces*, the Commission will support the development of nine common data spaces, including a Common European health data space, which is viewed as 'essential for advances in preventing, detecting and curing diseases as well as for informed, evidence-based decisions to improve the accessibility, effectiveness and sustainability of the healthcare systems'.[64]

As noted above, this strategy does not refer to persons with disabilities explicitly, but, as with the Commission Communication *Shaping Europe's Digital Future*, it will be important to see whether the planned actions pay attention to the situation of persons with disabilities.

3.1.3 Commission White Paper on artificial intelligence and the High-level Expert Group on Artificial Intelligence, Ethics Guidelines for Trustworthy AI

In February 2020, the Commission published a *White Paper on Artificial Intelligence*, and invited feedback from stakeholders. The online consultation was part of a broader stakeholder consultation and impact assessment intended to contribute to the

[61] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 20.

[62] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 20.

[63] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 21.

[64] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *A European Strategy for Data*, COM(2020) 66 final, Brussels, 19 February 2020, p. 22.

preparation of a regulatory proposal on AI. The White Paper built on the work of the High-level Expert Group on Artificial Intelligence, including the *Ethics Guidelines for Trustworthy AI*. In addition, the Commission published a Communication on *Artificial Intelligence for Europe* in 2018.[65] That Communication is not examined in detail here, but it is worth noting that it makes two explicit references to people with disabilities, noting that 'AI can provide new solutions to support more people to participate and remain in the labour market, including persons with disabilities'[66] and 'More women and people of diverse backgrounds, including people with disabilities, need to be involved in the development of AI, starting from inclusive AI education and training, in order to ensure that AI is non-discriminatory and inclusive'.[67]

The High-Level Expert Group on Artificial Intelligence is an independent body established by the European Commission. Its work has contributed to the development of the Commission's approach to AI. In 2019, it published a report on *Ethics Guidelines for Trustworthy AI*,[68] which addressed the concept of trustworthiness and set out requirements to guide future legislative action in AI. Trustworthy AI should be lawful, ethical and robust,[69] and the Guidelines play particular attention to the last two dimensions. The Guidelines identify seven requirements for AI systems relating to: human agency and oversight; technical robustness and safety; privacy and data governance; transparency; diversity, non-discrimination and fairness; environmental and societal wellbeing; and accountability.[70] In the context of diversity, non-discrimination and fairness, the Guidelines state:

Equal respect for the moral worth and dignity of all human beings must be ensured. This goes beyond non-discrimination, which tolerates the drawing of distinctions between dissimilar situations based on objective justifications. In an AI context, equality entails that the system's operations cannot generate unfairly biased outputs (e.g. the data used to train AI systems should be as inclusive as possible, representing different population groups). This also requires adequate respect for potentially vulnerable persons and groups, such as workers, women, persons with disabilities, ethnic minorities, children, consumers or others at risk of exclusion.[71]

The 2020 Commission *White Paper on Artificial Intelligence* takes as its starting point the recognition that AI, which is developing very quickly, has the potential to improve

[65] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *Artificial Intelligence for Europe*, COM(2018) 237 final, Brussels, 25 April 2018.
[66] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *Artificial Intelligence for Europe*, COM(2018) 237 final, Brussels, 25 April 2018, p. 11.
[67] Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, *Artificial Intelligence for Europe*, COM(2018) 237 final, Brussels, 25 April 2018, p. 12.
[68] High-Level Expert Group on Artificial Intelligence (2019), *Ethics Guidelines for Trustworthy AI*, European Commission.
[69] High-Level Expert Group on Artificial Intelligence (2019), *Ethics Guidelines for Trustworthy AI*, European Commission, p. 5.
[70] High-Level Expert Group on Artificial Intelligence (2019), *Ethics Guidelines for Trustworthy AI*, European Commission, chapter II.
[71] High-Level Expert Group on Artificial Intelligence (2019), *Ethics Guidelines for Trustworthy AI*, European Commission, p. 11.

lives, as well as presenting a number of potential risks. In this context, discrimination, including on the grounds of disability, is explicitly mentioned. The White Paper indicates that 'the Commission supports a regulatory and investment-oriented approach with the twin objective of promoting the uptake of AI and of addressing the risks associated with certain uses of this new technology'.[72] The White Paper sets out policy options on how to achieve these objectives.

In terms of risks for fundamental rights, including personal data and privacy protection and non-discrimination, the White Paper explicitly states:

The use of AI can affect the values on which the EU is founded and lead to breaches of fundamental rights, including the rights to freedom of expression, freedom of assembly, human dignity, non-discrimination based on sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation, as applicable in certain domains, protection of personal data and private life, or the right to an effective judicial remedy and a fair trial, as well as consumer protection.[73]

Furthermore, in this context, the Guidelines address accessibility and universal design and state:

Particularly in business-to-consumer domains, systems should be user-centric and designed in a way that allows all people to use AI products or services, regardless of their age, gender, abilities or characteristics. Accessibility to this technology for persons with disabilities, which are present in all societal groups, is of particular importance. AI systems should not have a one-size-fits-all approach and should consider Universal Design principles addressing the widest possible range of users, following relevant accessibility standards. This will enable equitable access and active participation of all people in existing and emerging computer-mediated human activities and with regard to assistive technologies.[74]

The Guidelines therefore identify aspects concerning discrimination and fundamental rights, as well as accessibility, in the context of persons with disabilities, and recognise that the particular situation of persons with disabilities must be considered when developing trustworthy AI.

The White Paper reflects on possible adjustments to existing EU law which can address the risks associated with AI. In this context, it refers to both the Employment Equality Directive,[75] which prohibits discrimination on the ground of disability in the field of employment requiring reasonable accommodation which could include the provision of digital technologies, and the European Accessibility Act which requires

[72] European Commission, White Paper on Artificial Intelligence – A European approach to excellence and trust, COM(2020) 65 final, Brussels, 19 February 2020, p. 1

[73] European Commission, White Paper on Artificial Intelligence – A European approach to excellence and trust, COM(2020) 65 final, Brussels, 19 February 2020, p. 11.

[74] High-Level Expert Group on Artificial Intelligence (2019), *Ethics Guidelines for Trustworthy AI*, European Commission, pp. 18-19.

[75] Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation [2000] OJ L303/16.

accessibility of key digital products and services, as well as setting regarding public procurement and EU funding.[76] The White Paper states:

While the EU legislation remains in principle fully applicable irrespective of the involvement of AI, it is important to assess whether it can be enforced adequately to address the risks that AI systems create, or whether adjustments are needed to specific legal instruments.[77]

The White Paper goes on to suggest that the legislative framework could be improved to address several explicit risks and situations, including the limited scope of application of existing legislation and the need for changes to the concept of safety.[78] Disability-related issues are not mentioned in this context.

The White Paper also addresses the scope of a future EU regulatory framework and the type of requirements to be imposed on relevant actors. Disability is explicitly mentioned in a footnote, in the context of specific requirements for remote biometric identification. The Paper notes that the gathering and use of biometric data for remote identification purposes carries specific risks for fundamental rights. A footnote indicates that these risks can concern people's dignity; the right to respect for private life and protection of personal data when using facial recognition technology; and freedom of expression, association and assembly. The footnote also states: 'There is also a potential impact on non-discrimination and rights of special groups, such as children, older persons and persons with disabilities'.

In conclusion, the White Paper clearly identifies discrimination, including on the grounds of disability, as a potential risk associated with AI, and indicates that the Commission wishes to address this in the new regulatory framework which it will ultimately propose. Other disability-related implications or risks associated with AI are not explicitly identified.

Lastly, the public consultation on the AI White Paper has now been completed, and the Commission published a Final report on the consultation in November 2020. Disability is mentioned once in the report, in the context of safety and liability, where risks to people with disabilities were specifically mentioned by some respondents in their open answers on this topic.[79]

[76] Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (*European Accessibility Act*) [2019] OJ L 151/70.

[77] European Commission, White Paper on Artificial Intelligence – A European approach to excellence and trust, COM(2020) 65 final, Brussels, 19 February 2020, p. 13.

[78] European Commission, White Paper on Artificial Intelligence – A European approach to excellence and trust, COM(2020) 65 final, Brussels, 19 February 2020, p. 14.

[79] European Commission, Public Consultation on the AI White Paper – Final report, November 2020, p. 14.

3.1.4 Commission Communication: 2030 Digital Compass: the European way for the Digital Decade

In March 2021, the Commission published the *2030 Digital Compass*,[80] which began the process of setting out 'digital ambitions' for 2030, establishing a related monitoring system and outlining key milestones and the means of achieving these ambitions.[81] The four pillars or 'cardinal points' of the compass relate to skills, infrastructures, transformation of business, and public services. Persons with disabilities are mentioned only once in the *2030 Digital Compass*, in the context of public services.

The EU's objective is to ensure that, by 2030, democratic life and public services online will be fully accessible for everyone, including persons with disabilities, and will benefit from a best-in-class digital environment providing for easy-to-use, efficient and personalised services and tools with high security and privacy standards.[82]

The goals pursued in the context of skills are of potential relevance to persons with disabilities, as they are to other citizens. The Communication states that 'access to education allowing the acquisition of basic digital skills should be a right for all EU citizens and lifelong learning should become a reality'[83].

The realisation of the goals set out in the *2030 Digital Compass* should support digital citizenship. In this context, the Communication states:

> To be fully empowered, people should first have access to affordable, secure and high-quality connectivity; be able to learn basic digital skills – which should become a right for all; and be equipped with other means, which together allow them to fully participate in economic and societal activities of today and the future. They also need to have easy access to digital public services, on the basis of a universal digital identity, as well as access to digital health services. People should benefit from non-discriminatory access to online services and as well from the realisation of principles, such as secure and trusted digital spaces, work-life balance in a remote working environment, protection of minors, and ethical algorithmic decision-making.[84]

[80] Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, *2030 Digital Compass: the European way for the Digital Decade*, Brussels, 9 March 2021, COM(2021) 118 final.

[81] Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, *2030 Digital Compass: the European way for the Digital Decade*, Brussels, 9 March 2021, COM(2021) 118 final p. 1.

[82] Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, *2030 Digital Compass: the European way for the Digital Decade*, Brussels, 9 March 2021, COM(2021) 118 final, p. 10.

[83] Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, *2030 Digital Compass: the European way for the Digital Decade*, Brussels, 9 March 2021, COM(2021) 118 final, p. 4.

[84] Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, *2030 Digital Compass: the European way for the Digital Decade*, Brussels, 9 March 2021, COM(2021) 118 final, p. 12.

The Communication is a step towards a Commission proposal for a policy programme based on the *2030 Digital Compass*.

In conclusion, this initiative clearly has great potential to include a disability-inclusive approach to digitalisation. However, the March 2021 Communication on the *Digital Compass* pays hardly any attention to the situation of persons with disabilities and, as with other strategies and instruments addressed in this part of the report, much will depend on the extent to which a disability perspective is included in subsequent actions.

3.1.5 Commission Communication: The European Commission Digital Strategy

The last document examined in this section is the Communication which sets out the European Commission's own digital strategy.[85] The Strategy sets out 'new, innovative digital solutions in support of the Commission's policies and activities' with the aim of 'evolving towards a digitally transformed, user-focused and data-driven administration'. [86] The goal is to increase the Commission's efficiency, effectiveness, transparency and security.[87] The Strategy is intended to focus on 'people and their needs, not just data and technology'.[88]

The Strategy is to be implemented based on a set of five high-level principles: digital by default and once-only; security and privacy; openness and transparency; interoperability and cross-border; and user-centric, data-driven, agile.

The description of the first of these principles, digital by default and once-only, contains the only reference to persons with disabilities in the 32-page strategy. The Communication states:

> Services will be designed to be inclusive by default, accessible for those with disabilities and to cater for different user needs.[89]

The Communication recognises the importance of satisfying the needs of users, who may be internal to the European institutions as well as external, including EU citizens. In light of the broad spectrum of users, attention will need to be paid to the design of

[85] Communication to the Commission, European Commission Digital Strategy, A digitally transformed, user-focused and data-driven Commission C(2018) 7118 final, Brussels, 21 November 2018.

[86] Communication to the Commission, European Commission Digital Strategy, A digitally transformed, user-focused and data-driven Commission, C(2018) 7118 final, Brussels, 21 November 2018, p.2.

[87] Communication to the Commission, European Commission Digital Strategy, A digitally transformed, user-focused and data-driven Commission, C(2018) 7118 final, Brussels, 21 November 2018, p. 3

[88] Communication to the Commission, European Commission Digital Strategy, A digitally transformed, user-focused and data-driven Commission, C(2018) 7118 final, Brussels, 21 November 2018, p. 3.

[89] Communication to the Commission, European Commission Digital Strategy, A digitally transformed, user-focused and data-driven Commission, C(2018) 7118 final, Brussels, 21 November 2018, p. 5.

the user interface. Factors to consider in this respect include 'handicaps' of users.[90] It is not clear what is meant by this term, and whether it is an outdated reference to either impairment or disability or refers to something else.

The Communication makes reference to a number of EU legislative instruments, including the Directive on the re-use of public sector information[91] and the EU General Data Protection Regulation,[92] noting that the European Commission's actions or solutions should be consistent or aligned with these instruments.[93] However, no reference is made to the Directive on the accessibility of public sector websites,[94] even though that Directive was adopted more than two years before the publication of the Communication. The Communication also recognises that the Commission can use its purchasing power to 'stimulate innovation internally and externally',[95] but no reference is made to procuring disability accessible technology or stimulating the development of such technology through its purchasing policy.

In general, this Communication pays very little attention to the needs of users with disabilities, be they staff or citizens, and fails to build on, or even refer to, the obligations imposed on public sector bodies in the Member States through the Directive on the accessibility of public sector websites. It is disappointing that the Commission did not use the publication of the Communication to make an explicit commitment to at least meet the standards set by this Directive in its own digital strategy.

3.2 European Strategies on Digitalisation in a Specific Field

In addition to the broad strategies and documents discussed above, EU institutions have adopted a number of instruments which address digitalisation and digital transformation in specific fields. Some of these are discussed below.

3.2.1 The Digital Education Action Plan 2021-2027

The *Digital Education Action Plan 2021-2027* was published by the Commission in 2020. It notes the important role played by education and training in digital transformation, as well as the risks of this transformation, particularly in the context of a digital divide. Varney has noted that 'persons with disabilities face significant barriers

[90] Communication to the Commission, European Commission Digital Strategy, A digitally transformed, user-focused and data-driven Commission, C(2018) 7118 final, Brussels, 21 November 2018, p. 6.

[91] Directive 2013/37/EU on the re-use of public sector information.

[92] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (*General Data Protection Regulation*)) [2016] OJ L 119/1.

[93] Communication to the Commission, European Commission Digital Strategy, A digitally transformed, user-focused and data-driven Commission, C(2018) 7118 final, Brussels, 21 November 2018, p. 10.

[94] Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies [2016] OJ L 327/1.

[95] Communication to the Commission, European Commission Digital Strategy, A digitally transformed, user-focused and data-driven Commission, COM(2018) 7118 final, Brussels, 21 November 2018, p. 26.

in accessing ICTs and these barriers create a 'digital divide' between those with and those without access to information'. She also argues that 'the importance of challenging these barriers cannot be overstated'.[96] The 'digital divide' is naturally much broader than access to information and, as noted in the *Digital Education Action Plan*, it covers education as well as other fields.

The Plan pays particular attention to the rapid increase in the use of digital tools in education as a result of the COVID-19 pandemic. In introducing the background and the need for a new *Digital Education Plan*, the report makes two references to people with disabilities, noting that 'Students with disabilities …, need tools that are fully accessible if they are to benefit from digital transformation'.[97] The Plan also states:

> Although digital technologies enabled many pupils, students and adult learners to continue learning, it also proved a major barrier for others when access, equipment, connectivity or skills were lacking. In some Member States, the vast majority of educators and learners had little if any experience of teaching and learning online and the different pedagogical approaches needed for this mode of instruction. Not all tools or content were accessible, and learners with disabilities faced particular challenges.[98]

The Commission carried out a stakeholder consultation before drawing up the Plan, and respondents also noted the challenges that people with disabilities can face in terms of accessing and benefiting from digital education. The responses received on this point were summarised in this way:

> Persons with disabilities also reported difficulties: on the accessibility of technology and digital educational material; availability of assistive technology; technical support provided to students with disabilities and the teacher competence on disability and accessibility matters.[99]

The Plan goes on to identify guiding principles for education and training systems fit for the 'Digital Age'. Many of these are potentially relevant for people with disabilities, such as making digital competence a core skill for all educators and staff, and ensuring citizens can acquire basic digital skills, but persons with disabilities are not explicitly mentioned.[100] Two strategic priorities are identified in the Plan. The first concerns fostering the development of a high-performing digital education ecosystem. Two of the actions planned under this priority are explicitly relevant for persons with disabilities:

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[96] Varney, E., 'Article 21, Freedom of Expression and Opinion, and Access to Information', in Bantekas, I., Stein, M. A., and Anastasiou, D., *The UN Convention on the Rights of Persons with Disabilities: A Commentary*, Oxford University Press, 2018, pp. 582-583.

[97] European Commission (2020), Digital Education Action Plan 2021-2027: Resetting education and training for the digital age, p. 2.

[98] European Commission (2020), Digital Education Action Plan 2021-2027: Resetting education and training for the digital age, p. 3.

[99] European Commission (2020), Digital Education Action Plan 2021-2027: Resetting education and training for the digital age, p. 6.

[100] European Commission (2020), Digital Education Action Plan 2021-2027: Resetting education and training for the digital age, p. 9.

> Addressing accessibility and availability of assistive technologies; and
>
> Making the most of EU support with regard to internet access, purchase of digital equipment and e-learning applications and platforms for schools and in particular for students from disadvantaged groups and for students and educators with disabilities.[101]

The second priority concerns enhancing digital skills and competences for the digital transformation. While disability is not mentioned in any of the specific actions planned with regard to this priority, disability is mentioned in terms of the overall goals:

> Everyone should acquire a basic understanding of new and emerging technologies including AI. This will help them to engage positively, critically and safely with this technology, and be aware of potential issues related to ethics, environmental sustainability, data protection and privacy, children rights, discrimination and bias, including gender bias and disability and ethnic and racial discrimination. Stronger representation and participation of young people, women and underrepresented groups in AI research and the AI industry should also be encouraged by supporting existing initiatives and promoting knowledge sharing and collaboration.[102]

There also seems to be scope for addressing the situation of people with disabilities in some of the planned actions, such as a Council recommendation on improving the provision of skills in education and training.

A further action planned concerns the establishment of a European Digital Education Hub, which will have the goal, among others, of:

> Supporting Member States by setting up a network of national advisory services on digital education to exchange experience and good practice on the enabling factors of digital education; link national and regional digital-education initiatives and strategies; and connect national authorities, the private sector, experts, education and training providers and civil society through various activities; and sharing good practice.[103]

This too has scope for including a disability perspective, although this is not mentioned in the Plan.

Overall, the *Digital Education Action Plan* contains more references to people with disabilities and, in that sense, seems to be more disability inclusive, than some of the other Communications and documents examined in this part of the report. Moreover, many of the planned actions seem to be capable of including a disability perspective, although this is not always mentioned. Close monitoring of the actions used to implement the Plan to ensure that an appropriate disability perspective is included will

[101] European Commission (2020), Digital Education Action Plan 2021-2027: Resetting education and training for the digital age, p. 11.
[102] European Commission (2020), Digital Education Action Plan 2021-2027: Resetting education and training for the digital age, p. 14.
[103] European Commission (2020), Digital Education Action Plan 2021-2027: Resetting education and training for the digital age, p. 16.

be important. This is an area which is of great importance to people with disabilities, and the Plan recognises this to some degree and opens the door to further action in this respect.

3.2.2 eGovernment Action Plans, the Berlin Declaration on Digital Society and Value-Based Digital Government, and related initiatives

In December 2020, the Council of the EU adopted the Berlin Declaration on Digital Society and Value-Based Digital Government. This built on the 2017 Tallinn Declaration on eGovernment.[104] While the Tallinn Declaration contained no explicit references to people with disabilities, it did refer to use of services in a non-discriminatory manner, and the principle of universal design[105] among the user-centric principles for design and delivery of services identified in an annex. This Declaration also referred to web accessibility.[106]

The more recent Berlin Declaration 'aims to contribute to a value-based digital transformation by addressing and ultimately strengthening digital participation and digital inclusion in our societies'.[107] The Declaration identifies a number of 'cornerstone' principles[108] in the digital sphere:

- validity and respect of fundamental rights and democratic values;
- social participation and digital inclusion to shape the digital world;
- empowerment and digital literacy;
- trust and security in digital government interactions;
- digital sovereignty and interoperability;
- human-centred systems and innovative technologies in the public sector; and
- towards a resilient and sustainable digital society.

Of these, the only principle where explicit reference is made to people with disabilities concerns social participation. The Declaration recognises 'the need for equal access to open Internet for all parts of society, including disadvantaged groups and citizens with disabilities, as a cornerstone of diversity of opinion, pluralism, innovation and progress'.[109] The related list of areas for policy action calls for enhancing social participation and inclusion by, among other things, 'ensuring that the digital transformation is inclusive of and accessible for persons with disabilities and developing relevant policies to deal with existing participation gaps especially with

[104] Tallinn Declaration on eGovernment at the ministerial meeting during the Estonian Presidency of the Council of the EU on 6 October 2017.
[105] Tallinn Declaration on eGovernment at the ministerial meeting during the Estonian Presidency of the Council of the EU on 6 October 2017, p. 9.
[106] Tallinn Declaration on eGovernment at the ministerial meeting during the Estonian Presidency of the Council of the EU on 6 October 2017, p. 4.
[107] Berlin Declaration on Digital Society and Value-Based Digital Government at the ministerial meeting during the German Presidency of the Council of the European Union on 8 December 2020, p. 2.
[108] Berlin Declaration on Digital Society and Value-Based Digital Government at the ministerial meeting during the German Presidency of the Council of the European Union on 8 December 2020, p. 3.
[109] Berlin Declaration on Digital Society and Value-Based Digital Government at the ministerial meeting during the German Presidency of the Council of the European Union on 8 December 2020, p. 4.

regard to demographics and remote or rural areas' and 'making public services fully available via standard mobile devices and accessible for persons with disabilities, including secure possibilities for electronic identification'.[110] No other explicit references are made to people with disabilities in the Declaration, but many of the principles and planned actions, including the promotion of fundamental rights and democratic values in the digital sphere, and fostering digital empowerment and digital literacy, are of potential relevance, and it will be important to adopt a disability-inclusive approach when developing initiatives.

The Commission has also adopted a series of eGovernment *Action Plans*, including most recently the *eGovernment Action Plan 2016-2020*.[111] This has now expired, and a reinforced EU digital government strategy is expected to be launched in 2021.[112] The eGovernment *Action Plans* are political instruments to advance the modernisation of public administrations across the EU, including through making them more open, efficient and inclusive, and by providing borderless, personalised, user-friendly, end-to-end public services to all citizens and businesses in the EU.[113] Among the principles underlying the *Action Plan 2016-2020* were:

Inclusiveness and accessibility: public administrations should design digital public services that are inclusive by default and cater for different needs such as those of 'the elderly' and people with disabilities.[114]

The then pending Directive on the accessibility of public sector websites was explicitly mentioned in this context. The Plan did not contain any other references to disability. However, the fact that the upcoming reinforced EU digital government strategy is mentioned in the Commission's *Strategy for the Rights of Persons with Disabilities 2021-2030* may indicate that greater attention will be paid to the needs of persons with disabilities in the new strategy.

3.2.3 European Strategies in a specific field which address digitalisation and digital transformation amongst other issues

This section of the report examines a number of recently adopted European strategies and action plans addressing specific areas which include, among others, a digital

[110] Berlin Declaration on Digital Society and Value-Based Digital Government at the ministerial meeting during the German Presidency of the Council of the European Union on 8 December 2020, p. 9.

[111] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *EU eGovernment Action Plan 2016-2020, Accelerating the digital transformation of government*, Brussels, 19 April 2016, COM(2016) 179 final.

[112] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 8.

[113] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *EU eGovernment Action Plan 2016-2020, Accelerating the digital transformation of government*, Brussels, 19 April 2016, COM(2016) 179 final, p. 2.

[114] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *EU eGovernment Action Plan 2016-2020, Accelerating the digital transformation of government*, Brussels, 19 April 2016, COM(2016) 179 final, p. 4. The phrase 'the elderly' is used in the Communication.

dimension. The report considers the extent to which the instruments adopt a disability-inclusive approach when addressing digitalisation.

3.2.4 The New Consumer Agenda

The *New Consumer Agenda* was published at the end of 2020 and aims to strengthen consumer resilience for sustainable recovery.[115] The Agenda addresses digitalisation and digital transformation and, in those contexts, refers to both people with disabilities and older people. It also supports relevant international frameworks, and the CRPD is explicitly mentioned in this context.[116] The Agenda addresses five key priority areas: the green transition; the digital transformation; redress and enforcement of consumer rights; specific needs of certain consumer groups; and international cooperation.[117] Disability is explicitly addressed with regard to the digital transformation and addressing specific consumer needs.

With regard to the priority *Digital transformation*, the Agenda notes:

'In addition, the digital transformation can also bring new challenges such as when digital solutions are not designed to be also accessible to persons with disabilities. The Commission is supporting Member States in the transposition of the European Accessibility Act. Its application by 2025 will help remove digitalisation challenges for people with disabilities and increase the availability of accessible products and services for persons with disabilities'.[118]

While the European Accessibility Act should help to remove the 'digitalisation challenges' regarding accessibility faced by people with disabilities, there are some areas that it does not cover, such as transmission services used for the provision of machine-to-machine services, digital contracts, digital platforms and services not qualifying as e-commerce, or artificial intelligence systems which are not used in one of the products or services falling within the scope of the EAA. It will be important for the EU to address the situation of consumers with disabilities in other instruments, and to support the digital transition by mainstreaming disability issues in line with the CRPD, and building on the obligations and accessibility requirements found in the European Accessibility Act. This includes the 2019 Digital Content Directive, which does not refer to the CRPD or establish specific rights in the context of consumers with disabilities,[119] and the proposal for a new Consumer Credit Directive[120] also fails

[115] Communication from the Commission to the European Parliament and the Council, *New Consumer Agenda, Strengthening consumer resilience for sustainable recovery*, Brussels, 13 November 2020, COM(2020) 696 final.

[116] Communication from the Commission to the European Parliament and the Council, *New Consumer Agenda, Strengthening consumer resilience for sustainable recovery*, Brussels, 13 November 2020, COM(2020) 696 final, p. 2.

[117] Communication from the Commission to the European Parliament and the Council, *New Consumer Agenda, Strengthening consumer resilience for sustainable recovery*, Brussels, 13 November 2020, COM(2020) 696 final, p. 1.

[118] Communication from the Commission to the European Parliament and the Council, *New Consumer Agenda, Strengthening consumer resilience for sustainable recovery*, Brussels, 13 November 2020, COM(2020) 696 final, p. 13.

[119] Directive (EU) 2019/770 of the European Parliament and of the Council on certain aspects concerning contracts for the supply of digital content and digital services [2019] OJ L 1/136.

[120] Proposal for a Directive of the European Parliament and of the Council on consumer credit, Brussels 30.6.2021, 2021/0171 (COD).

to refer to the CRPD or people with disabilities. The *New Consumer Agenda* indicates that a number of legislative proposals and amendments are being worked on, including in the context of AI, product safety, consumer credit and financial services. It will be important to include a disability perspective in these consumer protection instruments, and not to assume that the EAA provides sufficient protection for consumers with disabilities on its own.

Consumers with disabilities are also addressed under the priority *Addressing specific consumer needs* in the context of digitalisation. Older consumers are also referred to in this context. The Plan notes:

The vulnerability of consumers can be driven by social circumstances or because of particular characteristics of individual consumers or groups of consumers, such as their age, gender, health, digital literacy, numeracy or financial situation. A lack of accessibility can put older people or people with disabilities in situations of exclusion or limit their interactions. These forms of vulnerability may have been exacerbated by the current pandemic, but they exist independently of it.[121]

The Plan recognises that people with disabilities and older people have 'specific consumption-related needs'.[122] In this respect, the Plan addresses both groups of consumers together, and does not differentiate between their needs. The Plan states:

It is important to ensure that clear, user-friendly and accessible information is available both online and offline in accordance with EU accessibility requirements for products and services. Older consumers and consumers with disabilities also need accessible products and assistive technologies that are compatible with mainstream technologies. A fair and non-discriminatory approach to the digital transformation should cater to the needs of older consumers, consumers with disabilities and more generally "off-liners" who may be less familiar or less at ease with digital tools and more prone to fall victim to fraud.[123]

Among the actions planned in this context are an initiative to support the provision of local advice to consumers and a strategic approach to improving consumer awareness and education, addressing the needs of different groups, on the basis of, *inter alia*, equality and non-discrimination.[124]

The *New Consumer Agenda* pays attention to disability-related issues in the context of digitalisation and digital transformation. However, it is important to realise that, to date, EU consumer protection law has a fairly poor record in addressing the rights of

[121] Communication from the Commission to the European Parliament and the Council, *New Consumer Agenda, Strengthening consumer resilience for sustainable recovery*, Brussels, 13 November 2020, COM(2020) 696 final, p. 16.
[122] Communication from the Commission to the European Parliament and the Council, *New Consumer Agenda, Strengthening consumer resilience for sustainable recovery*, Brussels, 13 November 2020, COM(2020) 696 final, p. 17.
[123] Communication from the Commission to the European Parliament and the Council, *New Consumer Agenda, Strengthening consumer resilience for sustainable recovery*, Brussels, 13 November 2020, COM(2020) 696 final, p. 17.
[124] Communication from the Commission to the European Parliament and the Council, *New Consumer Agenda, Strengthening consumer resilience for sustainable recovery*, Brussels, 13 November 2020, COM(2020) 696 final, pp. 18-19.

consumers with a disability.[125] The references to the needs of people with disabilities in this Agenda are welcome, but it will be important to adopt a disability-inclusive approach when implementing the actions linked to the Agenda.

3.2.5 The European Democracy Action Plan

The *European Democracy Action Plan* 'seeks to strengthen the resilience of EU democracies in the face of challenges, addressing the areas in which our systems and citizens are most vulnerable'.[126] The Plan notes that the digital revolution has transformed democratic politics, by bringing political actors new opportunities to reach out to voters and new opportunities for civic engagement; however, it has also opened up 'new vulnerabilities and made it more difficult to maintain the integrity of elections'.[127] The Action Plan provides a framework and specific measures to: promote free and fair elections and strong democratic participation; support free and independent media; and counter disinformation.[128]

Among the issues to be addressed under the Plan is e-voting, and the Commission intends to produce a compendium of e-voting practices. It notes that it will work with Member States and the Council of Europe in preparing the compendium, and that the latter organisation 'has already issued substantial guidance in this area, including on accessibility for persons with disabilities and older persons'.[129] This seems to indicate that the Commission compendium will also address disability accessibility.

The Plan also indicates that the Commission will ensure the mainstreaming of equality in its actions to promote access to democratic participation. Some of these actions concern digitalisation and digital transformation. Persons with disabilities are mentioned in this context, and a reference is made to Article 29 of the CRPD in a footnote.[130] The Plan does not explicitly address persons with disabilities in other respects.

3.2.6 The European Skills Agenda

The *European Skills Agenda* is a five-year plan to help individuals and businesses to develop more and better skills and put them to use, by strengthening sustainable

[125] Waddington, L., 'Vulnerable and Confused: The Protection of "Vulnerable" Consumers under EU Law', 38, *European Law Review*, 2013, 6, pp. 757-782.
[126] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *On the European democracy action plan*, Brussels, 3 December 2020, COM(2020) 790 final, p. 2.
[127] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *On the European democracy action plan*, Brussels, 3 December 2020, COM(2020) 790 final, p. 2.
[128] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *On the European democracy action plan*, Brussels, 3 December 2020, COM(2020) 790 final, p. 3.
[129] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *On the European democracy action plan*, Brussels, 3 December 2020, COM(2020) 790 final, p. 8.
[130] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *On the European democracy action plan*, Brussels, 3 December 2020, COM(2020) 790 final, p. 10 and footnote 10.

competitiveness, ensuring social fairness, and building resilience to react to crises. It is linked to the *European Digital Strategy* and sets out 12 actions organised around four building blocks. The four building blocks are a call to join forces in a collective action; ensuring people have the right skills for jobs; supporting people through lifelong learning; and investment in skills. It sets specific targets which are to be measured by quantitative indicators.[131]

Disability is mentioned in the context of social fairness, where access to upskilling and reskilling opportunities is mentioned. The Agenda notes that 'this requires providing equal access to additional up-skilling opportunities for all people, regardless of gender, racial or ethnic origin, religion or belief, disability, age or sexual orientation, and including low-qualified/skilled adults and people with a migrant background'.[132] It will be important to pay attention to persons with disabilities when developing actions to support lifelong learning and upskilling opportunities linked to digitalisation. However, people with disabilities are not explicitly mentioned in the Agenda's actions linked to providing people with the skills needed to work. References to avoiding discriminatory stereotypes are made under the action involving EU support for strategic national upskilling actions,[133] which will clearly address skills needed to succeed in the digital world, as well as other skills. References are also made to supporting digital skills for all, including through updating the *Digital Education Action Plan*.[134]

The Agenda sets a number of goals linked to digitalisation including that by 2025, 230 million adults should have at least basic digital skills (70 % of the adult population in the EU). Progress towards achieving these goals will be monitored by the European Semester, and 'Whenever possible, the Commission will monitor the objectives by gender, geographical areas and for vulnerable groups in addition to the low-qualified and unemployed, such as persons with disabilities'.[135] This indicates that a disability mainstreaming approach will be expected of the Commission and Member States when implementing actions under the Agenda, and attention will be paid to ensuring people with disabilities are targeted and supported in practice. No further references are made to persons with disabilities in the Agenda.

3.2.7 The EU Strategy for the Rights of Persons with Disabilities , digitalisation and digital transformation

In March 2021, the Commission published its new disability strategy: *Union of Equality, Strategy for the Rights of Persons with Disabilities 2021-2030*.[136] The Strategy makes multiple references to digitalisation and digital transformation and includes supporting

[131] See European Commission home page, 'European Skills Agenda', https://ec.europa.eu/social/main.jsp?catId=1223&langId=en.
[132] European Commission, European Skills Agenda, For Sustainable, Competitiveness, Social Fairness and Resilience, undated, p. 4.
[133] European Commission, European Skills Agenda, For Sustainable, Competitiveness, Social Fairness and Resilience, undated, p. 9.
[134] European Commission, European Skills Agenda, For Sustainable, Competitiveness, Social Fairness and Resilience, undated, p. 12.
[135] European Commission, European Skills Agenda, For Sustainable, Competitiveness, Social Fairness and Resilience, undated, p. 18.
[136] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final.

'digital transitions' among its goals.[137] In that context, the Strategy refers to many of the Communications and reports mentioned elsewhere in this report.

Accessibility is a key goal for, and an area addressed in, the Strategy. Accessibility is regarded as an enabler of rights, autonomy and equality, and the Strategy refers to a variety of EU instruments which have addressed accessibility and digitalisation in the past.[138] Those instruments have also been mentioned elsewhere in this report. The Strategy indicates that 'during the last decade, a number of EU rules have been adopted in different areas to make the EU more accessible for persons with disabilities: the European Accessibility Act covering products and services, the Web Accessibility Directive, the Electronic Communications Code, the Audiovisual Media Services Directive and copyright legislation.[139] European accessibility standards have been put in place to support implementation in the built environment and ICT and for organisations to adopt a Design for All approach.[140]' Hence, the Strategy places a priority on implementation of these legal acts. In addition, among the planned actions are including accessibility and inclusiveness in a reinforced EU digital government strategy, and an evaluation of the Directive on the accessibility of public sector websites to 'assess whether the Directive should be revised to address any gaps identified, such as scope, technological advances, and coherence with other relevant EU legislation'.[141]

Digital transformation is also mentioned in the context of independent living and community-based services where:

Accelerated digital transformation and the green transition offer opportunities, using ICT, artificial intelligence and robotics to design on-site and remote services tailored to the needs of persons with disabilities. Effective use of these technologies requires the removal of accessibility barriers for persons with disabilities and investing in their digital skills.[142]

In the context of skills development, the *European Skills Agenda* and the *Digital Education Action Plan 2021-2027* are mentioned. These should help close digital skills gaps for 'vulnerable groups', and support Member States in 'securing assistive

[137] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 6.
[138] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 6.
[139] Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (*European Accessibility Act*) [2019] OJ L 151/70.; Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies [2016] OJ L 327/1; Directive (EU) 2018/1972 of the European Parliament and of the Council establishing a European Electronic Communications Code (Recast) [2018] OJ L 321/36.; Directive (EU) 2018/1808 of the European Parliament and the Council of 14 November 2018 amending Directive 2010/13/EU on the coordination of certain provisions laid down by law, regulation or administration action in Member States concerning the provision of audiovisual media services (*Audiovisual Media Services Directive*) in view of changing market realities [2018] OJ L 303/69.
[140] Accessibility standards resulting from Commission Mandates 376, 554, 420 and 473.
[141] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 8.
[142] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 11.

technologies and in providing an accessible digital learning environment and content'.[143] Member States are called on to identify 'digital skills needs' and apply 'assistive technology for better employability'.[144]

With regard to improving access to justice, legal protection, freedom and security, the Strategy notes that the Commission 'takes account of disability in line with the UNCRPD. Digitalisation of judicial systems is essential for improving access to justice, including for persons with disabilities when accessibility is provided'.[145] The Commission intends to put a focus on protection of individuals' right in the digital space in its training strategy for justice professionals.[146]

In the context of education, the Strategy calls on Member States 'to support the development of inclusive schools that can become a reference in inclusive and innovative teaching and learning across the EU along the objectives of the European Education Area and the Digital Education Action Plan'.[147]

With regard to healthcare, Member States are called on to 'raise awareness and develop support strategies for patients with disabilities related to rare diseases and identify and examine ways of facilitating access to state-of-the-art treatment including making use of digital innovations across Member States'.[148]

The Strategy also notes that the Commission has been 'continuously improving' the accessibility of its digital environments.[149]

In terms of monitoring the Strategy the Commission will include 'insights' into what digital transitions 'mean for persons with disabilities'.[150] Digital transformation is also referred to in the conclusion of the Communication on the Strategy, reflecting its importance as a cross-cutting theme:

> Empowering persons with disabilities to fully participate and contribute to the transition to an inclusive, green and digital economy and society as well as to our democracy will reaffirm the EU values enshrined in the Treaties. It will bring a strong contribution to the Union of Equality and strengthen the rights of persons with disabilities globally.[151]

[143] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 13.
[144] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 13.
[145] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 16.
[146] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 16.
[147] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 19.
[148] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 20.
[149] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 29.
[150] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 31.
[151] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 32.

The Strategy builds on many of the digitalisation and digital transformation initiatives discussed in this chapter and recognises the importance of digitalisation and digital transformation for people with disabilities across a wide range of themes. It will be important to ensure that the planned initiatives and actions build on the Disability Strategy and are disability inclusive.

However, the numerous references to digitalisation and digital transformation in the new Strategy for the Rights of Persons with Disabilities are not sufficient to ensure that a disability perspective is adopted in all relevant EU initiatives. The *Strategy for the Rights of Persons with Disabilities* is a broad document, covering multiple areas, and does not have a specific focus on disability-inclusive digitalisation and digital transformation processes. The degree to which this important issue can be addressed in the Strategy is therefore limited. Moreover, the Strategy is not a self-executing instrument – rather, it sets out a plan for action that applies across the Commission and serves a guide for future action across the DGs. The Disability Strategy, and the other instruments referred to in this part of the paper, should therefore be seen as complementary and reinforcing. Moreover, while the new Strategy is naturally a disability-specific instrument, the other Strategies and initiatives referred to in this part of the report are mainstream instruments. In order to adequately address the needs of people with disabilities, these mainstream instruments must include a disability perspective, with this approach being buttressed by the EU Strategy for the Rights of Persons with Disabilities. In addition, the implementation of the mainstream EU strategies mentioned in this report initiatives will be shaped by existing EU accessibility legislation. This will influence future developments in key digital areas, such as electronic communications, audio-visual or ecommerce, and help to ensure accessibility.

3.3 Conclusion

The Commission has adopted a wide range of strategies addressing digitalisation and digital transformation in a variety of fields. The mainstreaming of digitalisation and digital transformation in the new *Disability Strategy* is particularly notable – in contrast, disability issues are mainstreamed to a much lesser degree in the other strategies and documents examined in this chapter. While some strategies pay attention to disability issues, including the *Digital Education Action Plan 2021-2027* and the *New Consumer Agenda*, others, including the flagship Communications on *Shaping Europe's Digital Future* and *A European Strategy for Data* make no reference to people with disabilities. A report by Disability Hub Europe has commented on this, stating:

The importance of equality is mentioned in all these initiatives [The Recovery Plan for Europe, The European Digital Strategy and The Digital Europe Programme], however people with disabilities are rarely mentioned explicitly.[152]

A number of key themes or priorities emerge from an examination of the strategies and instruments discussed in this chapter from a disability perspective. First, many of the strategies refer to the need to ensure that more people acquire basic digital skills.

[152] Disability Hub Europe (2021), An inclusive digital economy for people with disabilities, available at: https://disabilityhub.eu/sites/disabilitybub/files/archivos_adjuntos/noticias/an_inlusive_digital_economy_for_people_with_disabilites.pdf, p. 17.

Education and lifelong learning are relevant in this respect, and the strategies often refer to the need to target 'vulnerable' or currently excluded groups, although without always explicitly linking this to people with disabilities. Secondly, importance is placed on training more individuals in advanced digital skills, so that they can contribute to the 'digital economy and society'. The targeting of women, but not people with disabilities, is mentioned in this respect.[153] Thirdly, and especially in the context of AI, several strategies or documents pay attention to the need to prohibit and prevent discrimination and protect fundamental rights. Disability discrimination is sometimes explicitly mentioned in this context.

Many of the specific actions planned under the strategies discussed in this chapter have the potential to be particularly relevant for people with disabilities, and to facilitate their participation in society, education and employment. While a disability dimension is often not mentioned in the strategies in the context of the listed actions, it will be important to include that dimension in the actions when actually implemented. The new Strategy for the rights of persons with disabilities indicates that disability will be mainstreamed in some areas, and it will be important to monitor and act on that commitment. More generally, it will be important to monitor and evaluate the implementation of these various strategies and actions to identify measures taken to enable people with disabilities to be included in, and benefit from, digitalisation and the digital transformation.

[153] For example, in the Commission Communications on Shaping Europe's Digital Future and A European Strategy for Data.

4 Synthesis of emerging themes from the EDE country reports

4.1 Introduction

This chapter provides a synthesis of themes that have emerged from the 30 country reports produced for this study.[154]

This chapter draws on the country reports and follows the same structure used in those reports.

Section 4.2 considers the extent to which high-level strategies and plans, and issue-specific or sector-specific plans, on digitalisation and digital transformation address the rights of people with disabilities.

Section 4.3 considers the extent to which high-level strategies and plans, and issue-specific or sector-specific plans, concerning the rights of people with disabilities address or harness digitalisation and digital transformation.

Section 4.4 considers implementation. It explores evidence of Government funding of digitalisation and digital transformation being used to advance the rights of people with disabilities. It also considers whether the rights of people with disabilities are addressed in the education and professional development of digital professionals, and whether accessibility and inclusion professionals have access to training and professional development regarding digital technologies. Lastly, it considers the availability of training in the use of digital technologies to people with disabilities.

Section 4.5 draws together independent evidence concerning the perceived opportunities and challenges presented by digitalisation and digital transformation for the rights of people with disabilities.

Unless stated otherwise, all translations into English found in this report were done by EDE country experts.

4.2 Government strategies on digitalisation and digital transformation and the rights of people with disabilities

4.2.1 Introduction

Governments across Europe are prioritising digitalisation and digital transformation in their strategic planning. While European states are at different stages of development in this respect, and address different areas, some common themes can be identified in national strategies on digitalisation and digital transformation. These include:

- **Improving digital infrastructure and coverage:** this involves, in particular, expanding geographic and population coverage of 'superfast' digital broadband and 5G to improve connectivity, and close 'digital divides'. For example, in

[154] The 27 EU Member States, Iceland, Liechtenstein and Serbia.

Poland, the *National Broadband Plan*[155] aims to ensure that, by 2025, there is universal internet access of at least 100 Mbps and internet access of at least 1 Gbps for all locations and institutions that are key drivers of socio-economic development, including schools, transport hubs, major public service locations and internet-intensive businesses.

- **The transition to digital government and public services**: this involves, in particular, the full or partial automation of services and customer/citizen interfaces, including application processes for social security benefits, and service delivery, such as telehealth. For example, in Poland, the *Integrated State Informatisation Programme* aims at further modernisation of the public administration and improvement of the functioning of the state through the use of digital technologies.[156] Similarly, in Cyprus, the Government Gateway Portal (Ariadni)[157] has been a major infrastructure measure, providing the main portal for accessing various governmental information systems and securing access to citizens' personal files for public service transactions.

- **Harnessing the potential of 'big data':** this involves, in particular, facilitating greater data collection, sharing, analytics and interoperability. For example, in Greece, disability assessment and certification procedures, access to welfare benefits and social protection services are being digitised.[158] A specific objective is to achieve interoperability among public agencies which require access to case files.

- **Increasing digital literacy among the population:** this involves addressing inequalities in the digital capabilities of citizens and investing in the development of digital skills, with the goal of developing a competitive digital economy. For example, the *Digital Skills Development Strategy in the Republic of Serbia for the period 2020 to 2024* aims to improve digital knowledge and skills for all citizens, including members of 'vulnerable social groups'.[159]

- **Digital education:** this includes the use of digital technology and tools within the classroom and ongoing assessment, distance learning and dissemination of educational materials**.** For example, in Italy, the Ministry of Education, University and Research adopted the *National Digital School Plan* in 2015[160] to launch an

[155] Poland, *National Broadband Plan*, available at: https://www.gov.pl/web/cyfryzacja/narodowy-plan-szerokopasmowy; see also: https://mc.bip.gov.pl/programy-realizowane-w-mc/narodowy-plan-szerokopasmowy.html.
[156] Poland, *Integrated State Informatisation Programme*, available at: https://www.gov.pl/web/cyfryzacja/program-zintegrowanej-informatyzacji-panstwa.
[157] Cyprus, Government Gateway Portal (Ariadni), https://eservices.cyprus.gov.cy/EN/Pages/Home.aspx.
[158] Greece, Ministry of Digital Governance (2020), *Digital Transformation Bible* (*Βίβλος Ψηφιακού Μετασχηματισμού 2020-2025*), available at: http://www.opengov.gr/digitalandbrief/wp-content/uploads/downloads/2020/12/digitalstrategy.pdf, p. 199-219.
[159] Serbia, Digital Skills Development Strategy in the Republic of Serbia for the period 2020 to 2024, Official Gazette of the Republic of Serbia, No. 6/2020, available (in Serbian only) at: https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/strategija/2020/21/2/reg.
[160] Italy (2015), *National Digital School Plan*, available at: https://www.miur.gov.it/scuola-digitale.

overall innovation strategy for Italian schools and to reposition its educational system for the digital era.

- **Fostering a digital economy:** digitalisation and digital transformation are regarded as central to future economic growth, productivity and competitiveness, and employment, with strategies focused on supporting business, skills development and investing in research and development. For example, the Netherlands *Digitalisation Strategy* aims to increase opportunities to scale up digital applications in the economy and community, and to make the Netherlands a frontrunner in Europe on digitalisation.[161]

- **Digital security and safety:** this includes the regulation of new and emerging technologies, such as artificial intelligence, the internet of things, data management, language and image technologies and distributed registry technologies such as blockchain. For example, in 2017, the Swedish Government adopted a new digitalisation strategy, *For a sustainable digitalised Sweden.*[162] With respect to digital security, the strategy said: 'Through digital security, people, companies and organisations must feel trust and confidence in the use of digital services and that they are easy to use.'

- **Artificial Intelligence:** some countries have developed dedicated strategies promoting the development of Artificial Intelligence. For example, the national roadmap for a *Strategic Vision for Artificial Intelligence in* Luxembourg (2019)[163] aims for Luxembourg to become one of the most advanced digital societies; establish a sustainable, data-driven economy; and develop digitalisation and artificial intelligence with a human-centred approach.

4.2.2 The extent to which high-level Government strategies and plans on digitalisation and digital transformation address the rights of people with disabilities

The EDE country experts were asked to identify and review high-level Government strategies on digitalisation and digital transformation to identify the degree to which such strategies addressed the rights of people with disabilities. This section provides an overview of the findings.

[161] Netherlands (2018), *Digitalisation Strategy 2018-2021*, Letter to Parliament, June 2018, available at: https://www.nederlanddigitaal.nl/nederlandse-digitaliseringsstrategie; Netherlands (2021), *Digitalisation Strategy 2021*, Letter to Parliament, April 2021, available at: https://www.rijksoverheid.nl/documenten/kamerstukken/2021/04/26/nederlandse-digitaliseringsstrategie-2021.

[162] The Swedish Government´s digitalisation strategy in brief: https://www.regeringen.se/regeringens-politik/digitaliseringsstrategin/.

[163] Grand Duchy of Luxembourg (2019), *Data-Driven Innovation Strategy for the Development of a Trusted and Sustainable Economy in Luxembourg* (Luxembourg AI strategy), available at: https://gouvernement.lu/fr/publications/rapport-etude-analyse/minist-economie/intelligence-artificielle/data-driven-innovation.html.

Country	Inclusion of people with disabilities in digitalisation strategies
Austria	The Austrian EDE country study reports that the Government's overall strategy on digitalisation does not refer to the impact and potential of digitalisation and digital transformation on persons with disabilities, nor does the *national disability strategy (National Action Plan on Disability 2012-2020)*. This may contribute to a growing digital divide between people with and without disabilities in future.
Belgium	The *Digital Belgium* action plan[164] created the Directorate General of Digital Transformation, which is responsible for the implementation of the EU Directive on the accessibility of public sector websites (2016/2102). The Flemish Government's strategy, *Flanders Radical Digital 2015-2019*,[165] aimed to ensure that all Flemish Government services and communication with citizens would be digitised by 2020, and referred to the importance of e-inclusion, especially in the context of 'vulnerable groups'.[166] The *Digital Wallonia* strategy[167] of the Walloon Community (2019-2024) emphasizes the need to tackle digital inequalities, including through extending digital literacy and by ensuring accessibility.
Bulgaria	The *Digital Bulgaria 2025* national programme (adopted in 2019)[168] includes measures concerning the application of general accessibility requirements for creating, maintaining, and updating websites and mobile applications of public sector organisations.[169]
Croatia	The *Strategy for e-Croatia 2020* states that 'Inclusion means allowing everyone to take full advantage of the opportunities offered by new technologies to overcome social and economic disadvantages. This means that it is ensured that people with disabilities and the elderly can use public services with the same service levels as all other citizens.'[170]
Cyprus	The *Digital Strategy for Cyprus* includes six main objectives, each of which is promoted through different measures and instruments, Objective 3 is to 'include everyone' (including

[164] Belgium (2015), *Digital Belgium* action plan, available at: https://economie.fgov.be/nl/themas/online/strategie-voor-een-digitale/digital-belgium-de-digitale.
[165] Flemish Government, *Flanders Radical Digital 2015-2019*, available at: https://www.vlaanderen.be/publicaties/vlaanderen-radicaal-digitaal-2015-2019.
[166] The 'vulnerable groups' were not strictly defined.
[167] See: https://www.digitalwallonia.be/fr.
[168] Bulgaria, Council of Ministers, *Digital Bulgaria 2025* national programme, adopted on 5 December 2019, available (in Bulgarian) at: https://www.mtitc.government.bg/bg/category/85.
[169] Bulgaria, Council of Ministers, *Digital Bulgaria 2025* national programme, adopted on 5 December 2019, p. 35.
[170] The Strategy for e-Croatia 2020 available (in Croatian) at https://rdd.gov.hr/vijesti/vlada-usvojila-strategiju-e-hrvatska-2020/172.

Country	Inclusion of people with disabilities in digitalisation strategies
	vulnerable groups) in 'Digital Cyprus' by promoting digital literacy and providing internet connections in public places.
Czechia	The digitalisation strategy *Digital Czech Republic*[171] refers to the diverse needs of users, but disability inclusion and the impact on persons with disabilities are not specifically mentioned in any of the documents.
Denmark	There have been a number of three or four-year digitalisation strategies since the 1990s, most recently the joint public strategy 2016-2020. The preparation of a strategy for 2021-2025 has been postponed due to COVID-19. In the meantime, the strategies are being continued by the Digitalisation Pact 2020. In addition, a new national strategy for cyber and information security is expected to be launched in 2021.
Estonia	A new strategy[172] for the digital society covering the period up to 2030 has been prepared by the Ministry of Economic Affairs and Communications. This is an update of the previous strategy, *Digital Agenda 2020 for Estonia*.[173] The new strategy mentions that one of its positive outcomes will be improved distance working, and through that, greater employment of people with mobility difficulties and improved access to and accessibility of public services for people with 'special needs'. The strategy also identifies protecting human rights as one of its core principles.
Finland	None of the national digitalisation strategies address the implications of the transition to digital technologies for persons with disabilities within their list of priorities. The national strategies cover all citizens, without specifying any particular groups. However, national strategies and recommendations must always comply with legislation, including the Non-Discrimination Act 21/2004[174] and the Act on the Provision of Digital Services 306/2019.[175]
France	A general aim of the *National Strategy for Inclusive Digital Technology* is to address digital exclusion. In the words of the French President Emmanuel Macron, 'Digital technology should not be reserved for the most agile, the most advantaged, or the most urban. Everyone must find the means to gain autonomy, to have the capacity to act, to undertake and to choose.' The

[171] Czechia (2018), *Digital Czech Republic*, available at: https://www.mpo.cz/en/business/digital-society/digital-czech-republic--243601/.

[172] Estonia (2021), *Estonian Digital Society 2030*, available at: https://mkm.ee/sites/default/files/eesti_digiuhiskond_2030.pdf.

[173] Estonia, *Digital Agenda 2020 for Estonia* (updated 2018), available at: https://www.mkm.ee/sites/default/files/digitalagenda2020_final.pdf.
Finland, Non-Discrimination Act, 21/2004, available at: https://www.finlex.fi/fi/laki/kaannokset/2004/en20040021.

[175] Finland, Act on the Provision of Digital Services, 2019/306, available at: https://www.finlex.fi/fi/laki/ajantasa/2019/20190306?search%5Btype%5D=pika&search%5Bpika%5D=saavutettavuus.

Country	Inclusion of people with disabilities in digitalisation strategies
	strategy aims to map and develop strategies and plans to target excluded groups. It does not address people with disabilities explicitly.[176]
Germany	The digitalisation strategy comprises a package of measures focusing on digital competence, infrastructure and equipment, innovation and digital transformation, society in digital transformation and the modern state. Security and equality are general principles underpinning the whole strategy. However, accessibility is not mentioned in this context, so it appears not to enjoy equal weight. Accessibility is mentioned only a few times in the strategy, mainly in the context of e-governance.[177]
Greece	The Greek Government's *National Digital Strategy 2016-2021* appears to be the only digitalisation strategy included in this study that refers to the UN Convention on the Rights of Persons with Disabilities. It explicitly mentions disability in relation to monitoring and evaluation of web accessibility 'in compliance with UN CRPD Article 9.' The strategy foresaw the involvement of representative disability organisations in this monitoring process.[178]
Hungary	The draft new Hungarian *National Digitalisation Strategy* stands out for the way that it emphasises the potential of digitalisation as a tool to address existing disadvantage. It makes the case for the spread of digitalisation, rather than including specific commitments: 'The spreading of digitalisation promotes digital equal opportunities of those living in isolation, with social disadvantages, living with disabilities, therefore, improves quality of life by overcoming difficulties deriving from physical mobility and geographical distances.'
Iceland	The Government-led digital strategies at the national level in Iceland are either becoming outdated and are primarily focused on web accessibility, such as the *Web Accessibility Strategy* (*Aðgengisstefna fyrir opinbera vefi*) from 2012,[179] or else they are more broadly concerned with digitalisation, such as the more recent Digital Iceland (Stafrænt Ísland) initiative, but lack a disability-specific focus.[180]
Ireland	Phase 1 of *Doing more with Digital: National Digital Strategy for Ireland*[181] refers to persons with disabilities in the context of web accessibility and usability. The strategy highlights the importance of universal design principles for ensuring equal

[176] France (2018), *National Strategy for Inclusive Digital Technology*, available at: https://societenumerique.gouv.fr/strategie-nationale-pour-un-numerique-inclusif/.
[177] Germany (2020) national digital strategy, pp. 166, 187, 208 and 210.
[178] Greece, Ministry of Digital Policy (2016) *National Digital Strategy 2016-2021*, p. 35.
[179] Iceland (2012), Web Accessibility Strategy, available at: https://www.stjornarradid.is/verkefni/stafraent-island/opinberir-vefir/adgengisstefna/.
[180] Iceland, Digital Iceland initiative; see: https://island.is/stafraent-island.
[181] Ireland (2013), *Doing more with Digital: National Digital Strategy for Ireland*, available at: https://assets.gov.ie/27518/7081cec170e34c39b75cbec799401b82.pdf.

Country	Inclusion of people with disabilities in digitalisation strategies
	access to online services, as addressed by the Directive on the accessibility of public sector websites and the European Accessibility Act.
Italy	The 2025 strategy[182] affirms that 'Digital public services should be accessible to everyone, without exception. Otherwise, the risk is that the digital transformation of the country will end up favouring only the most digitally educated and aware citizens and disadvantage the others'.
Latvia	In Latvia, people with disabilities are not explicitly identified as a direct target group in the policy document *Digital Transformation Guidelines for 2021-2027*.[183] However, they are included within the group 'individuals with special needs,' and are partly included in the target group 'seniors', which are both mentioned in the guidelines. At the same time, the guidelines mention people with functional impairments, such as vision, hearing or physical impairments, with a focus on adapting the Latvian digital space so that text, audio and video content is available to people with visual, hearing, movement and perception disabilities.
Liechtenstein	A digital agenda has been adopted by the Government of the Principality of Liechtenstein. All Government ministries were involved in drafting it.[184] The *Digital Agenda Liechtenstein* spans nine fields of action: state and administration; economy; education; token economy; infrastructure; transportation; health; family and equal opportunities; and culture. However, it makes no specific reference to people with disabilities, and does not target any specific actions at this group.
Lithuania	The first goal of the *Digital Agenda for the Republic of Lithuania*[185] is to enable groups of the Lithuanian population, including people with disabilities, who have either never or rarely used modern digital tools and the internet, to gain the necessary digital skills and apply them in various fields. In order to achieve this goal, the Government has declared that the information provided on the public institutions' websites must meet specific accessibility standards.
Luxembourg	The Ministry for Digitalisation has set out four high-priority strategic goals, the third of which is 'promoting digital inclusion'.

[182] Italy, *Strategy for technological innovation and digitisation of the country 2025* (adopted in November 2020), available at: https://docs.italia.it/italia/mid/piano-nazionale-innovazione-2025-docs/it/stabile/la-strategia.html.

[183] Latvia, Ministry of Environmental Protection and Regional Development (2020), *Digitālās transformācijas pamatnostādnes 2021.-2027.gadam (Projekts)* (*Digital Transformation Guidelines for 2021-2027 (project)*), available at: http://tap.mk.gov.lv/lv/mk/tap/?pid=40496916.

[184] Liechtenstein, (2019), *Digital Agenda Liechtenstein*, available at: ikr-DigitaleAgendaFL-A4-Einzelseiten-200dpi.pdf (regierung.li).

[185] Lithuania, Resolution On Approval of Information Society Development Programme for 2014-2020 'Digital Agenda for the Republic of Lithuania', 28 September 2015, available at: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/033ccec007c411e687e0fbad81d55a7c?jfwid=14rb0wkcb1.

Country	Inclusion of people with disabilities in digitalisation strategies
	This has the aim of making digital technologies beneficial for everybody, including people with disabilities.[186]
Malta	The document *Digital Malta: National Digital Strategy 2014-2020*[187] states: 'It is essential that the benefits of this nation's knowledge society are enjoyed by every citizen irrespective of age, gender, sexual orientation, disability, education, economic means or race. This will be achieved through intervention to circumvent obstacles. There will be action to enhance digital literacy and social equality, increase access for all and stimulate local content.' Among the actions mentioned in section 4.3 of the strategy are two entitled 'Enhancing Digital Literacy and Social Equality' and 'Access for All'. Point 4 is dedicated to accessibility and assistive technology: 'Internet accessibility standards will be promoted to enable everyone, irrespective of disability, to navigate and access content. Access and use of assistive technologies will be promoted and facilitated to help independent living of elderly people and members of 'vulnerable groups'. This will also stimulate market demand for diverse, affordable technologies.'
Netherlands	The Dutch *Digitalisation Strategy 2018-2021* has two aims: to pursue opportunities to scale up digital applications in the economy and community to make the Netherlands a frontrunner in Europe on digitalisation, and to secure the safety and privacy of citizens. The strategy makes no reference to people with disabilities.
Poland	The Polish Government's plan for modernising government using digital technology, the *Integrated State Informatisation Programme*, includes a principle that says that public administrations should design digital public services so that they are inherently universal and adapted to different needs, such as the needs of older people and people with disabilities. There is no further reference to the non-discrimination principle, nor any reference to the CRPD.
Portugal	The *Action Plan for the Digital Transition of Portugal*[188] (adopted in March 2020) mentions disability in the context of 'Digitalisation of the State', saying that 'the evolution towards an increasingly inclusive and democratic digital society, endowed with public services that serve citizens better and better…rests

[186] See Luxembourg, 'Four strategic axes for a common goal', at: https://digital.gouvernement.lu/en/axes.html.

[187] Malta, *Digital Malta: National Digital Strategy 2014-2020*, available at: https://digitalmalta.org.mt/en/Documents/Digital%20Malta%202014%20-%202020.pdf, p. 8 and others.

[188] Portugal (2020), *Action Plan for the Digital Transition of Portugal*,, available at: https://www.portugal.gov.pt/gc22/portugal-digital/plano-de-acao-para-a-transicao-digital-pdf.aspx.

Country	Inclusion of people with disabilities in digitalisation strategies
	on communicational accessibility, providing everyone, particularly people with disabilities, with the means to access opportunities that new digital technologies create. This evolution will always have to meet the accessibility requirements in force for public bodies' websites and mobile applications'.
Romania	The *National Strategy on the Digital Agenda for Romania for 2020*[189] identifies two 'opportunities' that are relevant for people with disabilities – to promote the development of digital skills among all inhabitants of the country: pupils, students, adults in continuing education and people in a situation of social exclusion (with disabilities, below the poverty line, from disadvantaged rural areas, etc.).[190] It also mentions the possibility of using digitalisation to support the registration of people with disabilities with a view to providing access to certain rights, such as social benefits (monthly allowances/allowances for carers etc.).[191]
Serbia	The *Digital Skills Development Strategy in the Republic of Serbia for the period 2020 to 2024* is focused on improving the digital knowledge and skills of all citizens, including members of 'vulnerable' social groups. A section of the strategy specifically addresses people with disabilities, noting that: 'Affordable technology and skills development programmes can enable persons with disabilities to become entrepreneurs, get jobs in conventional sectors and find jobs in the technology sector. However, persons with disabilities are often excluded from digital technologies and the opportunities they offer'.[192]
Slovenia	*Digital Slovenia 2020: The Strategy to Develop Information Society by 2020*[193] includes a strategic goal to achieve better e-inclusion and e-service for all societal groups, especially less educated people, older people, persons with disabilities and inactive persons, and to achieve better e-accessibility.

[189] Romania (2020), *Strategia Națională privind Agenda Digitală pentru România 2020* (*National Strategy on the Digital Agenda for Romania for 2020*), available at: https://www.ancom.ro/uploads/links_files/Strategia_nationala_privind_Agenda_Digitala_pentru_Romania_2020.pdf.

[190] Romania (2020), Strategia Națională privind Agenda Digitală pentru România 2020, p. 129.

[191] Romania (2020), Strategia Națională privind Agenda Digitală pentru România 2020, p. 140.

[192] Serbia, Digital Skills Development Strategy in the Republic of Serbia for the period 2020 to 2024, Official Gazette of the Republic of Serbia, No. 6/2020, available (in Serbian only) at: https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/strategija/2020/21/2/reg.

[193] Slovenia, Digitalna Slovenija 2020 – Strategija razvoja informacijske družbe do leta 2020 (Digital Slovenia 2020: The Strategy to Develop Information Society by 2020), available at: https://www.gov.si/assets/ministrstva/MJU/DID/Strategija-razvoja-informacijske-druzbe-2020.pdf.

Country	Inclusion of people with disabilities in digitalisation strategies
Spain	In Spain, a draft *Charter of Digital Rights*,[194] prepared by the Ministry of Economic Affairs and Digital Transformation, is currently being consulted on. It refers to 'Protection of people with disabilities in the digital environment' and says that the accessibility of digital environments for people with disabilities must be guaranteed. While generic terms, such as 'vulnerable groups', are used in various other high-level strategies addressing digitalisation, the term 'disability' is not mentioned in important documents such as the *Recovery Transformation and Resilience Plan*,[195] the *Plan for the Digitalisation of Spain's Public Administration: 2021-2025*,[196] the *Digital Infrastructures and Connectivity plan for society, economy and the territories*,[197] or the *SME digitalisation Plan 2021-2025*.[198] In other documents, such as the *National strategy for artificial intelligence,*[199] disability is mentioned only incidentally.
Sweden	*For a sustainable digitalised Sweden* (2017)[200] is addressed at the whole Swedish population, but does not include any reference to measures focused on people with disabilities.

Based on the evidence and analysis presented in the EDE country reports, the rights of people with disabilities are recognised in high-level digitalisation and digital transformation strategies and plans in the following ways:

- implicitly, as part of an overall commitment to inclusion or equality;
- implicitly or explicitly in the context of a commitment to pay attention to 'vulnerable' or 'disadvantaged groups';
- in relation to accessibility.

However, not all such strategies refer to people with disabilities.

[194] Spain, *Charter of Digital Rights (draft)*, available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/participacion_publica/audiencia/ficheros/SEDIACartaDerechosDigitales.pdf.

[195] Spain (2020), *Recovery Transformation and Resilience Plan*, available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/ESPA%C3%91A-PUEDE-English.pdf.

[196] Spain, *Plan for the Digitalisation of Spain's Public Administration: 2021-2025*, available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/Digitalisation-of-Public-Administrations-Plan.pdf.

[197] Spain (2020), *Digital Infrastructures and Connectivity plan for society, economy and the territories*, available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/Connectivity-Plan.pdf.

[198] Spain (2021), *SME digitalisation Plan 2021-2025*, available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/SME-Digitalisation-Plan.pdf.

[199] Spain (2020), *National strategy for artificial intelligence*, available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/National-Strategy-on-AI.pdf.

[200] The Swedish Government's digitalisation strategy in brief: https://www.regeringen.se/regeringens-politik/digitaliseringsstrategin/.

The emphasis in those strategies which do refer to people with disabilities is generally on ensuring that people with disabilities are not excluded or left behind by digitalisation and digital transformation, rather than on harnessing digital technologies as a new tool through which to remove barriers or to address existing inequalities experienced by people with disabilities. Even to the extent that high-level commitments are made to ensure that digitalisation occurs in a way that is accessible and inclusive, the practical steps necessary to ensure this are rarely elaborated, nor is a rights-based approach typically evident in such strategic documents.

4.2.3 The extent to which sector or issue-specific strategies and plans on digitalisation or digital transformation address the rights of people with disabilities

4.2.3.1 Introduction

EDE country experts were asked to identify a sample of sector-specific or issue-specific strategies and plans on digitalisation and digital transformation, and to report on the extent to which these addressed the rights of people with disabilities. Below is an overview of the strategies and plans reported on by the country experts, by thematic area.

4.2.3.2 Digital government and social welfare

The shift to digital government, including in the context of social welfare services, across many states poses numerous opportunities to advance the rights, and the lived experience, of people with disabilities, including through online platforms and the integration of data; reducing the burden of applications and assessments for services and support; and data analytics to design and better personalise such services. It also poses significant risks, including with respect to the accessibility of websites and processes; privacy and data protection; surveillance and monitoring; and the potential for bias and discrimination, either to be built into algorithms involved in decision-making or to emerge through the use of artificial intelligence and machine learning.

Below are examples of how the rights of people with disabilities were addressed in strategies and plans on digital government and social welfare, as identified by EDE country experts.

A number of countries address **accessibility** in the context of their strategies and plans on digital government.

In Bulgaria, the *Updated Strategy for the Development of E-Governance of the Republic of Bulgaria 2019-2023* establishes the principle of inclusion and accessibility in e-governance, requiring that public authorities and administrations design e-public services that are inclusive by default and meet different needs, such as the needs of older people and people with disabilities.[201]

[201] Bulgaria, Council of Ministers, *Updated Strategy for the Development of E-Governance of the Republic of Bulgaria 2019-2023*, August 2019, available (in Bulgarian) at: https://e-gov.bg/wps/portal/agency/strategies-policies/e-management/strategic-documents.

Similarly, in the Netherlands, where all Government and Government-related services at all levels are digitalised, the national disability strategy acknowledged that digitalisation of Government services on a large scale ran the risk of excluding people with intellectual disabilities, who may have low reading skills and low digital skills. The strategy committed to ensuring that Government services would remain accessible for those groups. In response, a specific action plan on digital inclusion in Government services (2018) set four specific goals: to make digital services easy to use; to help and educate people on digitalisation; to highlight the importance of digitalisation and fund research on this topic; and to cooperate with companies and NGOs in a public-private alliance to share experiences and knowledge on how to make digital services accessible.[202]

In Serbia, the *E-government Development Programme in the Republic of Serbia for the period 2020-2022 and Action Plan for its implementation* provides for harmonisation of national law with EU law concerning the accessibility of electronic services and the principle of universal design, and specifically the Directive on the accessibility of public sector websites (2016/2102/EU).[203]

A report by Sweden's Agency for Digital Government (2020) notes how, during the COVID-19 pandemic, the wholesale switch to digital community services has completely excluded some people with different types of 'functional variations' (meaning people with disabilities). This highlights the urgent need to take 'active measures to make digital services accessible'.[204]

The EDE country reports from Denmark, Finland, Greece and Latvia refer to steps that are being taken by Government to digitalise social welfare services, including through the automation of application and assessment processes, and data sharing across Government agencies to achieve interoperability.

In Denmark, the public digitalisation strategy is focused on improving social welfare, including through improved coordination and coherence to benefit people who are supported by multiple agencies. This is to be achieved via data standardisation, data sharing, IT support, better workflows and possible legislative reform.[205] Similarly, in Finland, central to ongoing health and social service reform is the digitalisation of 'knowledge management' across health, care and social welfare agencies, at different levels and across geographic areas, with a view to harmonising data, knowledge collection and analysis.[206]

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[202] See Netherlands, 'Kamerbrief Digitale inclusie' (Letter to Parliament on digital inclusion), December 2018, at: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/archief/toegankelijkheid/kamerbrief-digitale-inclusie/.

[203] Serbia, E-Government Development Programme in the Republic of Serbia for the period *2020−2022 and Action Plan for its implementation, Official Gazette of the Republic of Serbia*, No. 85/2020, available (in Serbian) at: https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/drugiakt/2020/85/1/reg.

[204] Sweden, Agency for Digital Government, Sweden's digital administration 2020 An overall analysis and assessment of digitalisation by the public administration, available at: https://www.digg.se/4aefd7/globalassets/dokument/publicerat/publikationer/sveriges-digitala-forvaltning-2020.pdf.

[205] Denmark, *A Stronger and More Secure Digital Denmark: Digital Strategy 2016-2020*, available at: https://en.digst.dk/policy-and-strategy/digital-strategy/.

[206] See Finland, Valtava project, information available at: https://soteuudistus.fi/en/toivo-programme.

In Greece, disability assessment and certification procedures, access to welfare benefits and social protection services, are being digitalised.[207] The focus of this process is increasing efficiency by reducing the need for repeated physical presence (e.g. application, reassessment, notification and appeal), which has also been viewed as excessive from the user perspective, resulting in long delays and disruption of disability provisions.[208] A specific objective is to achieve interoperability among public agencies requiring access to shared case files, which are currently fragmented.[209] Apart from enhanced efficiency and transparency and better data protection, connected information systems will offer the possibility for data analytics to support policy making, taking into consideration disability support needs, social and geographical traits.[210]

Given that these various plans are presently either proposed actions or are in the process of being implemented, it is not yet possible to assess their impact on the rights of people with disabilities. However, it is worth noting that, in a report to the UN General Assembly (2019), the (previous) UN Special Rapporteur on Extreme Poverty and Human Rights, Professor Philip Alston, raised a number of concerns about the risks to human rights posed by 'digital welfare', including to people with disabilities, such as increased surveillance, threats to autonomy, discrimination, lack of accountability and inaccessibility.[211]

4.2.3.3 Health and social care

Several EDE country reports highlight Government ambitions in the field of e-health and social care, and a small number of these foresee benefits of digitalisation for people with disabilities.

The country reports from France, Ireland, Italy and Sweden indicate that the opportunities presented by digitalisation to accord people with disabilities greater levels of choice, control and participation are referred to in relevant strategic documents.

In France, the High Council of Social Work (Haut Conseil du travail social) and the Ministry of Solidarity (Ministère des solidarités), have published strategic guidelines and good practice recommendations, as well as studies on digital technology and artificial intelligence in social work, which emphasise the benefits of digital social

[207] Greece, Ministry of Digital Governance (2020), *Digital Transformation Bible*, available at: http://www.opengov.gr/digitalandbrief/wp-content/uploads/downloads/2020/12/digitalstrategy.pdf, pp. 199-219.

[208] See, for instance, Greek Ombudsman (2013), *Special Report on KEPA (Centralised Certification Centre for Disability)*, available at: http://www.synigoros.gr/resources/docs/130404-special-report.pdf; see also ANED (2018), *Disability assessment – country report*, for more detailed discussion of disability assessment procedures and related challenges.

[209] Greece, Ministry of Digital Governance (2020), *Digital Transformation Bible*, available at: http://www.opengov.gr/digitalandbrief/wp-content/uploads/downloads/2020/12/digitalstrategy.pdf pp. 202, 212.

[210] Greece, Ministry of Digital Governance (2020), *Digital Transformation Bible*, available at: http://www.opengov.gr/digitalandbrief/wp-content/uploads/downloads/2020/12/digitalstrategy.pdf, p. 213.

[211] See information on the *Report of the Special rapporteur on extreme poverty and human rights*, October 2019: https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25156.

services for people with disabilities, including with respect to control over day-to-day life.[212]

In Ireland, the potential for digital technologies to support mental health and wellbeing has been identified. The *Sharing the Vision: A Mental Health Policy for Everyone*[213] report refers to 'digital mental health' and how engagement with digital mental health technology is increasing in popularity, with well-designed products and e-health initiatives providing greater opportunities for mental health promotion, prevention and early intervention.[214] The policy document proposed that digital developments will form part of the National Mental Health Promotion Plan. It suggests using digital and social media channels to promote mental health and to provide appropriate signposting to services and supports. In addition, the report recommends the development of digital health tools to enhance service delivery and empower service users.[215]

The Italian EDE country report notes that the use of telecare accelerated during the COVID-19 pandemic. During the first phase of the pandemic, the Italian Institute of Health (Istituto Superiore di Sanità) identified different types of home care needs that could be addressed through telemedicine, including the needs of people who have chronic diseases, as well as the needs of people who must maintain care continuity during quarantine, isolation or during the period of social distancing rules (such as people with mental health problems or disabilities).[216] Prior to the pandemic, Law 112/2016 on provisions on assistance in favour of people with severe disabilities without family support, already provided for the launch of 'intervention programmes aimed at fostering de-institutionalisation and autonomy paths in apartments that reproduce the living conditions and relationships of the family home, and that also take into account the best opportunities offered by new technologies, in order to prevent the isolation of people with severe disabilities'. However, the Law is still largely unimplemented.[217]

The Swedish Government's *Vision for E-health 2025* (2016), which aspires for Sweden to be a world leader in harnessing digitalisation in the fields of health and social

[212] See France, High Council of Social Work, report and recommendations for digitalisation of social work: pourquoi_et_comment_les_travailleurs_sociaux_se_saisissent_des_outils_numeriques.pdf (solidarites-sante.gouv.fr); Ministry of Solidarity and Health, report and recommendations for the use of artificial intelligence in social work, Travail social et intelligence artificielle - Ministère des Solidarités et de la Santé (solidarites-sante.gouv.fr).

[213] Ireland (2020), *Sharing the Vision: A Mental Health Policy for Everyone*, available at: https://www.gov.ie/en/publication/2e46f-sharing-the-vision-a-mental-health-policy-for-everyone/.

[214] Digital health refers to using online or other digital technology to provide prevention and care. Some digital health programmes focus on promoting health and wellbeing and preventing ill health, while others may deliver early intervention and mental health treatment. There are numerous digital health programmes available, covering a range of mental and physical health concerns, and thus increasing individual healthcare management choices and improving access to support.

[215] Ireland (2020), *Sharing the Vision: A Mental Health Policy for Everyone*, available at: https://www.gov.ie/en/publication/2e46f-sharing-the-vision-a-mental-health-policy-for-everyone/, p. 60.

[216] See Italian Institute of Health, Rapporto ISS Covid-19 n.12/2020 – Indicazioni ad interim per servizi assistenziali di telemedicina durante l'emergenza sanitaria COVID-19 (Interim indications for telemedicine assistance services during the COVID-19 health emergency), available at: https://www.iss.it/documents/20126/0/Rapporto+ISS+COVID-19+n.+12+telemedicina.pdf/37b4b856-603a-76c1-1b85-5ff9c662bbbb?t=1586860608120.

[217] Rotolo, A. (2018), 'Innovazione tecnologica nel settore LTC. Diffusione e prospettive'.

services by 2025, states: 'With new technology, care and other support and services can be provided outside the traditional environments, such as care centres, hospitals and special housing. Among other things, conditions need to be created for older people or people with disabilities to be able to live independently in their own home with digital support while maintaining security.'[218]

Conversely, the EDE Iceland country study notes how the *National Policy for the Icelandic Health Services to 2030* includes a significant digital and e-health focus, yet does not explicitly recognise people with disabilities as potential beneficiaries, nor does it provide for actions to ensure that the adoption of these new technologies will benefit people with disabilities on an equal basis with others.[219]

Based on the evidence collated by EDE country experts, it is not obvious that the rights of people with disabilities are a priority focus of e-health initiatives. There appears to be very little explicit focus on ensuring that digitalisation in the field of healthcare is inclusive of people with disabilities, nor does there appear to be much emphasis on promoting innovation and harnessing digital technologies to advance the rights of people with disabilities to health, and to live independently and be included in the community.

4.2.3.4 Digital skills

Improving digital skills is a major focus for various European Governments. This is important for preparing populations for digital transformation; improving productivity and competitiveness; and tackling inequalities. The nature and extent to which people with disabilities are identified and addressed in national plans on digital skills varies considerably, as illustrated below.

The EDE country report for Austria notes that the *Digitalisation Masterplan* (2018) made lessons in basic digital education for 10 to 14-year-olds part of the curriculum.[220] However these lessons were not introduced in 'special schools', nor was the 'special school' curriculum amended. As children with special educational needs in mainstream schools follow the same curriculum as is used in 'special schools', they are also excluded from these lessons.

In Hungary, 'Decreasing the digital gap' is a priority Government project funded by the EU. It was launched in 2016 to narrow the digital gap among the population.[221] The programme, which focuses mainly on disadvantaged people, identifies people with disabilities as one target group. The project involves different courses such as 'First steps in the digital world' and 'I use my digital device independently'.[222] The

[218] Sweden (2016), *Vision for E-health 2025*, available at: https://www.ehalsomyndigheten.se/om-e-halsa/vision-e-halsa-2025/.
[219] Iceland (2019), Heilbrigðisstefna Stefna fyrir íslenska heilbrigðisþjónustu til ársins 2030 (National Policy for the Icelandic Health Services to 2030), available at: https://www.stjornarradid.is/lisalib/getfile.aspx?itemid=879dd726-9e80-11e9-9443-005056bc4d74.
[220] See basic information on Austria's *Digitalisation Masterplan* in English at: https://www.bmbwf.gv.at/en/Topics/school/krp/8_p_p/dig_edu.html.
[221] See: https://eacea.ec.europa.eu/national-policies/eurydice/content/validation-non-formal-and-informal-learning-34_es.
[222] See: https://budapest.katedra.hu/informatika.

programme aimed to involve a total of 260 000 people in digital training and, by 2019, it had reached almost 150 000.[223]

In Italy, the *National Strategy for Digital Skills*, adopted in July 2020, takes into account the situation of persons with disabilities.[224] The strategy identifies as an area of priority 'The digital inclusion of the elderly, unemployed women, immigrants, persons with disabilities and disadvantaged groups generally considered to have a low level of knowledge.'

In Romania, despite the active measures adopted by Romania to increase the employment rate of people with disabilities, there are still major discrepancies in comparison with the employment rates in other EU Member States. A large proportion of people with disabilities who could be integrated into the labour market fail to find a job. One of the causes of this is their low level of basic skills and employability skills, which are not related to their support needs.[225] The draft *Strategy on the Digitalisation of Education in Romania – SMART-Edu*[226] includes a specific section related to supporting people with disabilities in the development of basic and advanced digital skills.[227]

The *Digital Skills Development Strategy in the Republic of Serbia for the period 2020 to 2024* addresses, under goal 2, specific measures to improve basic and advanced digital skills for all citizens. It refers to the need to improve digital skills of persons with disabilities.[228] The Strategy emphasises that educational programmes and training should be provided free of charge, or at subsidised prices, for persons belonging to marginalised groups, including persons with disabilities.

In Spain, the *National Plan for Digital Skills*[229] mentions the initiative 'Digital skills training programmes for workers in employment', which was launched by the Ministry of Labour and Social Economy. The programmes consisted of digital transformation training courses offered in 2021 and included grants to participate in these courses. The programmes were primarily aimed at persons in employment, assigning priority

[223] See: https://ec.europa.eu/info/sites/default/files/2019-european-semester-national-reform-programme-hungary-annex_hu.pdf.

[224] Italy (2020), *National Strategy for Digital Skills*, available at: https://repubblicadigitale.innovazione.gov.it/assets/docs/national-strategy-for-digital-skills.pdf.

[225] Romania, Ministry of Education and Research, (2020), Strategia privind Digitalisarea Educației in România – SMART-Edu. Document în consultare publică în perioada 18 decembrie 2020 – 15 februarie 2021 (Strategy on the Digitalisation of Education in Romania – SMART-Edu (draft). Document for public consultation from 18 December 2020 to 15 February 2021), available at: https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf, p. 44.

[226] Romania, Ministry of Education and Research, (2020), *Strategy on the Digitalisation of Education in Romania – SMART-Edu (draft*), available at: https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf.

[227] Romania, Ministry of Education and Research, (2020), *Strategy on the Digitalisation of Education in Romania – SMART-Edu (draft*), available at: https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf, p. 48.

[228] Serbia, Digital Skills Development Strategy in the Republic of Serbia for the period 2020 to 2024, Official Gazette of the Republic of Serbia, No. 6/2020, available (in Serbian only) at: https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/strategija/2020/21/2/reg.

[229] Spain, *National Plan for Digital Skills*, available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/Digital-Skills-Plan.pdf.

access to women, persons with disabilities, workers with little formal education and persons aged over 45 years.

On the basis of the evidence that the EDE country experts were able to identify, these examples of training in digital skills targeting people with disabilities represent the exception rather the rule. At the level of national strategies and plans concerning digital skills, it appears that people with disabilities are often addressed only in a marginal way, if at all. In section 4.5.6, evidence is also presented concerning the existence of training opportunities for people with disabilities regarding digital skills.

4.2.3.5 Digitalisation in education

Examples of digitalisation and digital transformation in the field of education which were identified by the EDE country experts include digitally enhanced learning and assessment in the classroom, distance learning and web-based digital teaching resources.

In Austria, the COVID-19 pandemic prompted the development of an *8-Point Plan for Digital Learning*. The Plan was published in August 2020, and has a budget of EUR 200 million up to 2022.[230] A new website for digital education derived from the 8-Point Plan presented by the Ministry for Education in August 2020 does not include any references to the needs of students with disabilities.[231] The list of criteria for the evaluation of educational apps does not include accessibility.[232] A new website with educational materials for teachers, students and parents covering kindergarten, primary schools, secondary I and secondary II schools is also available, but it does not cover materials for use in 'special schools' or any kind of material which is specifically adapted to the needs of students with different kind of disabilities.[233]

Similarly, in Cyprus, while efforts to introduce digitalisation and digital transformation have accelerated since the beginning of the COVID-19 pandemic, the inclusion of students with disabilities has not featured in developments related to digitalisation to date. The EDE country report on Cyprus's response to the COVID-19 pandemic highlighted that students with disabilities were excluded from online and distance education (and education in general) during the lockdown periods. This was due to a lack of access to the necessary technology; unprepared students and educators; the under-development of digital materials and methods for inclusive education; and inaccessible learning materials.[234] The observation of the Office of the Commissioner for Administration and Protection of Human Rights and the Ombudsman for the Protection of Children's Rights, as well as the experiences of parents, indicated that children with disabilities were not able to participate in digitally enhanced and distance education.[235] In 2020 the Ministry of Education, Culture, Youth and Sports appointed

[230] See information in English on the Austrian 8-Point Plan for Digital Learning at: https://www.bmbwf.gv.at/en/Topics/school/krp/8_p_p.html.
[231] See: https://digitaleschule.gv.at/.
[232] See: https://digitaleschule.gv.at/gutesiegel-lernapps/.
[233] See: https://eduthek.at/schulmaterialien.
[234] Cyprus Confederation of Disability Organisations, 'Marginalisation of learners with disabilities', 31 December 2020, https://tinyurl.com/jmr7ldnc.
[235] Cyprus, Letter of the Ombudsman of the Protection of Children's Rights to the Ministry of Education and the Ministry of Health 7 July 2020.

an 'Advisory Committee for the use of Digital Technology in education, digital applications and distance education'.[236] One of the members of the Committee is an expert in technology and disability. The Committee is expected to provide feedback on the Digital Education Policy document, which is currently in preparation. During the last meeting of the minister with the Committee on 12 April 2021, the inclusion of children with disabilities in digitally enhanced learning and distance education was mentioned, albeit with few details. This only highlighted the importance of ensuring digital education for children with disabilities.[237]

One of the central objectives of the Czech Government's *Digital Education Strategy 2020*, approved on 12 November 2014, is to reduce inequalities. However, it does not make any reference to disability, special educational needs or inclusion.[238] A disability perspective is absent from the Strategy, as are measures which would address digital inclusion and emerging limitations in the accessibility of digital technologies for learners with disabilities.

In contrast with the above examples, in France, the national strategy for digital inclusion emphasises that digitalisation can be helpful to compensate for impairment. The measures developed or planned are regarded as facilitators of professional, educational, cultural and social inclusion.[239] The French Government has invested significantly in digital technology, with a view to making schools more disability inclusive. Nevertheless, the complexity of some of the e-resources for teaching offered by designers generates some barriers to their use. The lack of skills related to accessible, adaptable and inclusive design among the different actors in the value chain, from the design of information to the design of the media used to deliver it, may remain a barrier to accessible and inclusive digitalisation.[240]

In Hungary, the *Digital Education Strategy of Hungary*,[241] published in 2017, has a horizontal pillar dedicated to 'Accessibility for persons with disabilities in education and training'. The strategy defines goals and tools to create equal opportunities for students with disabilities. It aims to guarantee equal access. The strategy identifies

[236] Cyprus, 'First Meeting of the Advisory Committee for the use of Digital Technology in education, digital applications and distance education', 27 October 2020, available at: https://www.pio.gov.cy/%CE%B1%CE%BD%CE%B1%CE%BA%CE%BF%CE%B9%CE%BD%CF%89%CE%B8%CE%AD%CE%BD%CF%84%CE%B1-%CE%AC%CF%81%CE%B8%CF%81%CE%BF.html?id=16503#flat.

[237] Cyprus, 'Announcement of the Meeting between the Minister of Education Meeting and the Advisory Committee for the use of Digital Technology in education, digital applications and distance education', 12 April 2021, available at: http://enimerosi.moec.gov.cy/archeia/1/ypp12114a.

[238] Czechia, *Digital Education Strategy 2020*, available at: https://www.msmt.cz/uploads/DigiStrategie.pdf.

[239] France, Secretary of State for Digital Affairs, Pour une France connectée, Plan national pour un numérique inclusif (For a connected France: National plan for inclusive digitalisation), press kit, 13 September 2018, https://societenumerique.gouv.fr/plannational/, p. 18.

[240] France, CNNum, L'accessibilité numérique, entre nécessité et opportunité: *Une obligation légale vis-à-vis des citoyens, Un levier stratégique pour les acteurs (Digital accessibility, between necessity and opportunity: a strategic issue and a legal duty),* available at: https://cnnumerique.fr/nos-travaux/accessibilite-numerique-entre-necessite-et-opportunite.

[241] Hungary (2016), *Digital Education Strategy of Hungary*, available at: https://digitalisjoletprogram.hu/files/d4/6b/d46bf17fdef3c9b5c1d38bd6db64c2a7.pdf.

two main areas for action regarding accessibility: accessibility to physical elements (e.g. hardware), and the operability of digital services and software.[242]

In Italy, the Ministry of Education, University and Research adopted the *National Digital School Plan* in 2015.[243] The plan launched an overall innovation strategy for Italian schools with a view to repositioning the educational system for the digital era. The plan emphasises the role of technologies in removing barriers and facilitating inclusive education in mainstream schools. This was reaffirmed in a Ministerial Decree of June 2020: *School Plan 2020-2021 – 'Document for the planning of school, educational and training activities in all institutions of the national education system'*.[244] This requires schools to integrate the Three-Year Plan of the Educational Offer with the School Plan for Integrated Digital Education. Each school is therefore called upon to identify ways to redesign their teaching activities, with a particular regard to the specific needs of pupils with disabilities, pupils with specific learning disabilities and those with other special educational needs. This action is supported by guidelines on integrated digital education that pay specific attention to students with disabilities and with specific learning disabilities.[245]

The Romanian Government is, at the time of writing, in the process of adopting the *Strategy on the Digitalisation of Education in Romania – SMART-Edu*.[246] The draft strategy focuses on the development of digital skills by pupils and students, and on initial and continuous training of teachers in digital education. The draft strategy makes a variety of references to people with disabilities. It states that the COVID-19 pandemic resulted in the deepening of the digital divide, isolation and discrimination,[247] for pupils and students with disabilities, and especially for those with hearing and visual impairments and those who are on the autistic spectrum. It acknowledges the importance of supporting the development of digital skills by all children, including children with disabilities, and it underlines that this must be done while pursuing the promotion of inclusion, diversity and protecting mental health.[248] In terms of practical measures, the draft strategy proposes to develop and implement an accessible digital literacy programme for students with disabilities,[249] and to create a digital lesson

[242] Hungary (2016), *Digital Education Strategy of Hungary*, available at: https://digitalisjoletprogram.hu/files/d4/6b/d46bf17fdef3c9b5c1d38bd6db64c2a7.pdf, p. 144.
[243] Italy (2015), *National Digital School Plan*, available at: https://www.miur.gov.it/scuola-digitale.
[244] See: https://www.miur.gov.it/documents/20182/2467413/Le+linee+guida.pdf/4e4bb411-1f90-9502-f01e-d8841a949429.
[245] See: https://www.miur.gov.it/documents/20182/0/ALL.+A+_+Linee_Guida_DDI_.pdf/f0eeb0b4-bb7e-1d8e-4809-a359a8a7512f.
Romania, Ministry of Education and Research, (2020), *Strategy on the Digitalisation of Education in Romania – SMART-Edu (draft*), available at: https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf.
[247] Romania, Ministry of Education and Research, (2020), *Strategy on the Digitalisation of Education in Romania – SMART-Edu (draft*), available at: https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf, p. 21.
[248] Romania, Ministry of Education and Research, (2020), *Strategy on the Digitalisation of Education in Romania – SMART-Edu (draft*), available at: https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf, p. 21.
[249] Romania, Ministry of Education and Research, (2020), *Strategy on the Digitalisation of Education in Romania – SMART-Edu (draft*), available at: https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf, p. 22.

platform adapted to the needs of students and teachers with disabilities.[250] While broadly welcoming the draft strategy, the EDE country report for Romania notes how the draft strategy appears to focus more on the needs of people with certain types of disabilities, mentioning specifically only physical disability, hearing impairments and autistic spectrum disorder. It also mostly addresses access to online education, disregarding, to a certain extent, the possibility of using digitalisation to promote inclusion in the community and physical participation in courses. Moreover, when providing examples of jobs to which people with disabilities could aspire, the strategy mentions only low-skilled professions. Regarding funding, the strategy relies heavily on EU funds. The EDE country expert for Romania notes that this could pose risks to the long-term sustainability of the work, if funding is not matched by domestic public investment. Regarding higher education, the draft strategy identifies a need to set up online learning centres in each higher education institution to carry out specific activities, including the implementation of assistive technologies to facilitate participation in online education for students with disabilities.[251]

In Slovakia, the '*Concept of informatisation and digitalisation of the education sector with the view to 2020*', which was approved in 2014, included a focus on improvements in accessibility of educational content for pupils with disabilities. The *Concluding evaluation report*[252] *of the National Disability Programme for the years 2014-2020*[253] contains an evaluation of the measures aimed at making educational content accessible for pupils with disabilities for the years 2018 and 2019. The Ministry of Education reported that its goal to increase the accessibility of alternative and innovative learning forms and methods was met through a range of methods, including greater use of tablets, interactive whiteboards, digital textbooks, multimedia classroom, online educational programmes, interactive programme and e-learning.

The Spanish Government's *Strategy on Artificial Intelligence* argues that:

> The use of intelligent systems would allow the transformation of Spanish education based on different technologies, guaranteeing an inclusive education, renewed and adapted to the needs of students and teachers according to the preferences, knowledge and individual evolution of the student … The key aspect

[250] Romania, Ministry of Education and Research, (2020), *Strategy on the Digitalisation of Education in Romania – SMART-Edu (draft*), available at: https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf, p. 66.

[251] Romania, Ministry of Education and Research, (2020), *Strategy on the Digitalisation of Education in Romania – SMART-Edu (draft*), available at: https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf, pp. 64-65.

[252] Slovakia, Ministry of Labour, Social Affairs and Family of the Slovak Republic, Záverečná správa o plnení opatrení vyplývajúcich z Národného programu rozvoja životných podmienok osôb so zdravotným postihnutím na roky 2014 – 2020 (Concluding evaluation report of the National Disability Programme for the years 2014-2020), available at: https://www.employment.gov.sk/sk/rodina-socialna-pomoc/tazke-zdravotne-postihnutie/kontaktne-miesto-prava-osob-so-zdravotnym-postihnutim/.

[253] Slovakia, Ministry of Labour, Social Affairs and Family of the Slovak Republic (2014), Národný program rozvoja životných podmienok osôb so zdravotným postihnutím na roky 2014–2020 (National Disability Programme for years 2014-2020), available at: https://www.employment.gov.sk/files/slovensky/rodina-socialna-pomoc/tazke-zdravotne-postihnutie/narodny-program-rozvoja-zivotnych-podmienok-osob-so-zdravotnym-postihnutim-roky-2014-2020.pdf.

> is that AI techniques enable the implementation of new educational models oriented to personalized learning. Secondly, it would allow educational and training centres to identify those students who require more support. This could address aspects such as the assessment and identification of high competencies in students (predictive AI models), the treatment of students with functional diversity (learning analytics, adapted AI-based systems), new tutoring models (intelligent tutoring systems), recommendation and feedback systems; prediction of early failure and detection of anomalous students through automatic learning systems and the assessment of competencies.[254]

The Swedish Government adopted a *National Digitalisation Strategy for the Schools System* in 2017.[255] The strategy addresses accessibility in education and states: 'The education, and the teaching in the educational system must be accessible to all'.

Based on the EDE country reports, strategies and plans concerning digitalisation in school-level education include the most extensive focus on people with disabilities. This focus contrasts with that found in other fields, such as health. The strategies often refer to digitalisation as a way to diversify teaching methods and to remove accessibility barriers faced by children and young people with disabilities. The COVID-19 pandemic and the resulting sudden switch to remote online learning has accelerated innovation in this area, and spotlighted significant accessibility challenges, such as the inaccessibility of online learning platforms and digital learning materials, and reliance on parental rather than professional support with learning.

4.2.3.6 Artificial Intelligence

Based on evidence collated by the EDE country experts, strategies and plans concerning artificial intelligence (AI) often do not refer to people with disabilities or their rights. Where they do, there remains a lack of breadth and depth concerning how the opportunities and challenges of AI will be harnessed or addressed.

For example, the Dutch Government published a *Strategic Action Plan for Artificial Intelligence* to strengthen the Netherlands' competitiveness in artificial intelligence in the global market.[256] The action plan aims to ensure that artificial intelligence is deployed in such a way that human rights are respected and defended; that all citizens are included in the development of AI; that consumers' rights are protected; and that the safety of citizens is guaranteed. However, there is no specific mention of people with disabilities.[257]

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[254] Spain, *National strategy for artificial intelligence*, p. 29, available at: https://cenid.es/wp-content/uploads/2020/10/Estrategia_Inteligencia_Artificial_IDI.pdf.

[255] Sweden (2017), *National Digitalisation Strategy for the Schools System*, available at: https://www.regeringen.se/informationsmaterial/2017/10/regeringen-beslutar-om-nationell-digitaliseringsstrategi-for-skolvasendet/.

[256] Netherlands, Ministry of Economic Affairs (2019), *Strategisch Actieplan voor Artificiele intelligentie* (*Strategic Action Plan for Artificial Intelligence*), available at: https://ec.europa.eu/knowledge4policy/ai-watch/netherlands-ai-strategy-report_en.

[257] Netherlands, Ministry for Economic Affairs (2019), *Strategisch Actieplan voor Artificiele intelligentie*, available at: https://ec.europa.eu/knowledge4policy/ai-watch/netherlands-ai-strategy-report_en, p. 42.

Iceland's policy on artificial intelligence was published by the Prime Minister's Office in April of 2021. It places an emphasis on what it refers to as 'diversity, equality, and fairness'. One example of this emphasis is the statement, albeit broad and not very specific, that AI needs to be accessible to everyone regardless of disability, in order to support diversity.[258]

Conversely, in Italy, the *National Strategy on Artificial Intelligence*[259] states: 'As part of the use of AI for sustainable development goals, particular attention will be envisaged to the possible uses of AI in facilitating the access of disabled people and of the most fragile subjects to digital services'.

In Poland, the strategic document *Policy for the development of Artificial Intelligence in Poland from 2020*,[260] adopted in December 2020, acknowledges that artificial intelligence will have different impacts on socially excluded people, though people with disabilities are not mentioned explicitly. While actions are planned relating to ethical analysis and counteracting the negative impact of digitalisation, these are not grounded within a human rights-based approach. Conversely, the document *Assumptions for the AI strategy in Poland: Ministry of Digitalisation Action Plan*, issued in 2018, refers to the CRPD, highlighting the importance of ensuring the accessibility of AI products, especially in the medical realm.[261]

Spain's *National Artificial Intelligence Strategy (ENIA)*, notes that the Government has launched an Action Plan aimed at reducing gender discrimination, promoting gender equality and narrowing the gender gap in science, promoting equality for persons with disabilities and combating social exclusion.[262]

Beyond these examples, the EDE country reports identified little evidence of consideration being given to the rights of people with disabilities in the context of artificial intelligence strategies and plans. This may result in discrimination and exclusion through the development and use of AI which fails to consider the situation and needs of persons with disabilities. The lack of attention to disability also represents a missed opportunity to harness AI to advance rights and opportunities for persons with disabilities in key life domains, such as education, or living independently and being included in the community.

4.2.3.7 Digital infrastructure

[258] Iceland, Prime Minister's Office (Forsætisráðuneytið) (2021), *Stefna Íslands um gervigreind* (*Iceland's policy on artificial intelligence*), available at: https://www.stjornarradid.is/library/01--Frettatengt---myndir-og-skrar/FOR/Fylgiskjol-i-frett/08.04.21_Stefna%20%C3%8Dslands%20um%20gervigreind_loka.pdf.

[259] Italy (2020), *National Strategy on Artificial Intelligence*, available at: https://www.mise.gov.it/images/stories/documenti/Strategia_Nazionale_AI_2020.pdf.

[260] Poland (2020), *Policy for the development of artificial intelligence in Poland from 2020*, available at: https://monitorpolski.gov.pl/M2021000002301.pdf.

[261] Poland (2018), *Assumptions for the AI strategy in Poland: Ministry of Digitalisation Action Plan*, available at: http://gov.pl/documents/31305/436699/Za%C5%82o%C5%BCenia_do_strategii_AI_w_Polsce_.pdf/222505de-d5e2-061e-cff3-935da04e351f?download=true.

[262] Spain, *National strategy for artificial intelligence*, available at: https://cenid.es/wp-content/uploads/2020/10/Estrategia_Inteligencia_Artificial_IDI.pdf.

Ensuring that both businesses and citizens are able to access reliable, high speed internet across geographies is a central focus for many Governments. However, with the exception of Poland and Spain, EDE country experts did not report that this was explicitly addressed in the context of advancing the rights of people with disabilities.

In Poland, the *Strategy for Responsible Development*,[263] adopted in 2017, positions communication based on advanced digital solutions as a catalyst for the inclusion of people with disabilities. The strategy argues that good mobile network coverage is a prerequisite for the reliable functioning of applications which support people with disabilities. This is because the applications, in order to be fully effective and efficient, require a good and reliable connection to a wireless network - both mobile and local. The same point is made in the *5G Strategy for Poland*.[264]

Similarly, in Spain, the *Strategy for the promotion of 5G technology* notes that the technology will be used to increase the assistance provided to ageing and disabled populations. The strategy also stresses that Spain must continue to consolidate its strength in 5G and contribute to European leadership. This must be done without leaving anyone behind and while attending to the specific needs of 'the most vulnerable'.[265]

The availability and affordability of high-speed internet access is a prerequisite for digital – and increasingly, social and economic – inclusion in all spheres of life. In the absence of universally available and affordable high-speed internet access, the intersectional nature of disability and poverty risks placing many people with disabilities on the wrong side of the digital divide. While numerous countries are focused on improving digital infrastructure, which will undoubtedly bring benefits to people with disabilities, it is perhaps concerning that the EDE country reports identified so few strategies and plans that regarded high-speed internet access as a means of advancing the rights of people with disabilities.

4.2.3.8 Conclusions

Although the EDE country reports identified promising examples of sector-specific or issue-specific strategies which include a disability perspective, and plans that either encompassed or specifically addressed the rights of people with disabilities, there is a lack of consistency in this respect across countries, and within and between different fields and areas of digital development. On the whole, it does not appear that the rights of persons with disabilities are routinely anchored in sector-specific or issue-specific digitalisation and digital transformation strategies and plans. This is true both in the context of non-discrimination, accessibility and inclusion, as well as with regard to a positive or specific focus within the strategies themselves. This presents a risk of deepening exclusion and inequality for people with disabilities in key areas of life, such

[263] Poland (2017), *Strategy for Responsible Development for the period up to 2020*, available at: https://www.gov.pl/web/fundusze-regiony/informacje-o-strategii-na-rzecz-odpowiedzialnego-rozwoju.

[264] Poland, *5G Strategy for Poland*, available at: https://www.gov.pl/web/cyfryzacja/strategia-5g-dla-polski.

[265] Spain, *Strategy for the promotion of 5G technology*, available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/Strategy-for-the-promotion-of-5G.pdf.

as health, training and employment, as well as entrenching the 'digital divide', as digital technologies permeate and revolutionise almost every area of our lives. As Professor Philip Alston commented in his report to the UN General Assembly:

> … astonishingly little attention has been paid to the ways in which new technologies might transform the welfare state for the better … the starting point should be on how existing or even expanded welfare budgets could be transformed through technology to ensure a higher standard of living for the vulnerable and disadvantaged, to devise new ways of caring for those who have been left behind, and more effective techniques for addressing the needs of those who are struggling to enter or re-enter the labour market. That would be the real digital welfare state revolution.[266]

4.2.4 The involvement of people with disabilities and their representative organisations in the development and monitoring of national digitalisation strategies and plans

EDE country experts were asked to identify whether people with disabilities, or their representative organisations, had been involved in the elaboration of national strategies and plans on digitalisation and digital transformation.

It appears from the available evidence that there has been no such formal involvement in any European country covered by this report, although the strategies and plans were often the subject of public consultation, and people with disabilities and their representative organisations *may* have contributed and influenced their development through this route.

There are, however, examples of organisations of persons with disabilities being involved in monitoring accessibility in the context of digitalisation, or in the implementation of specific programmes flowing from national strategies and plans.

For example, in Denmark, the Agency for Digitisation established an advisory board in 2020 to advise on the legal framework for digital administration. The board is composed of 15 members, including representatives of organisations of people with disabilities. In addition to this formal co-operation body, the umbrella body Disabled People's Organisations Denmark (DPOD) is reported to enjoy good co-operation with the Agency for Digitisation and to hold meetings on various topics, including, most recently, on coronavirus passports. DPOD also sits on the committee and advisory board for web accessibility. The topic is covered in detail on the website of the Agency for Digitisation.[267]

In Greece, it is anticipated that the National Authority for Accessibility[268] will be instrumental in monitoring the implementation of digital governance and other projects aligned with the national digital strategy, including with respect to compliance with e-

[266] See information on the *Report of the Special rapporteur on extreme poverty and human rights*, October 2019: https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25156.
[267] See: https://digst.dk/digital-service/webtilgaengelighed/.
[268] See draft legislation, voted on 23 February 2021, https://www.hellenicparliament.gr/UserFiles/18a4e643-1429-4e6b-a317-d7c6a29adabf/11578912.pdf.

accessibility standards. Representatives appointed by disabled persons' organisations participate in the National Authority for Accessibility, alongside Government officials, including the General Secretary of Digital Governance, and technical experts.

In Slovenia, *Digital Slovenia 2020* set a goal of improving 'e-inclusion', and stressed that, in order to do so in line with international standards, the Government should conduct an analysis of the situation in the country prior to proposing new legislation and instituting e-accessibility in the public sector. This analysis should be done in cooperation with representative disability organisations.[269] In addition, the National Council of Disability Organisations (NSIOS) secured funds from the European Social Catalyst Fund for a project in the area of digitalisation and digital transformation. The project aims to develop tools for measuring digital accessibility of Government and public bodies' websites in accordance with the Accessibility of Websites and Mobile Applications Act of 2018.[270] The project involves different stakeholders: governmental and public bodies and institutions, students of the Faculty of Electro Engineering from the University of Ljubljana, disabled people with different impairments, and non-governmental experts in digital accessibility. The project plans to produce annual statistics on the public sector websites which comply with the Accessibility of Websites and Mobile Applications Act. The methodology for measuring website accessibility will be developed for five EU Member States, including Slovenia.

Finally, with respect to implementation, the Spanish Government has established the Consultative Council for Digital Transformation.[271] This is a public-private entity tasked with facilitating dialogue between the different economic and social agents regarding digital transformation. The Spanish Committee of Representatives of Persons with Disabilities (CERMI) is a member of this council.

While these examples are positive, there was little evidence of involvement in the other EDE country reports. Where involvement exists, it is centred on monitoring the implementation of plans for digitalisation and digital transformation, not on the development and elaboration of plans.

4.3 How government strategies on disability address digitalisation and digital transformation

4.3.1 Introduction

This section provides a synthesis of evidence from the EDE country reports concerning the extent and nature of the inclusion of digitalisation and digital transformation in national disability strategies, or sub-strategies derived from national disability strategies. It presents examples by thematic area, covering:

[269] Slovenia, *Digitalna Slovenija 2020 – Strategija razvoja informacijske družbe do leta 2020*, available at: https://www.gov.si/assets/ministrstva/MJU/DID/Strategija-razvoja-informacijske-druzbe-2020.pdf.

[270] Slovenia, Accessibility of Websites and Mobile Applications Act (*Zakon o dostopnosti spletišč in mobilnih aplikacij*), *Official Gazette of the Republic of Slovenia*, No. 30/2018, available at: Zakon o dostopnosti spletišč in mobilnih aplikacij (ZDSMA) (pisrs.si).

[271] Spain, Order ETD / 920/2020, of September 28, creating and regulating the Consultative Council for Digital Transformation, available at: https://www.boe.es/eli/es/o/2020/09/28/etd920/dof/spa/pdf.

I. Accessibility of Government information, communication and websites;
II. Access to culture and digital media;
III. Employment and skills;
IV. Independent living, long-term care and rehabilitation;
V. Education;
VI. Transport;
VII. Data sharing and analytics.

The summaries below present the full extent to which digitalisation and digital transformation are addressed in these strategic documents, according to the EDE country studies. This means that all the relevant examples of actions identified by the EDE country experts for this study are reported below, and no other relevant initiatives or actions were identified.

4.3.2 Accessibility of Government information, communication and websites

The majority of national disability strategies that reference digitalisation do so in the context of accessibility and, in particular, the accessibility of Government-produced digital information and communication, including websites. This reflects the findings concerning Government digitalisation and digital transformation strategies presented in section 4.2.2 above.

This is the case in Czechia, where the *National Plan for the Promotion of Equal Opportunities for Persons with Disabilities 2021–2025* aims to make eGovernment more accessible;[272] in Denmark, where the *Danish Disability Policy Statement 2018* focuses on the accessibility of websites of public bodies and mobile applications;[273] in Greece, where the national disability action plan is focused on the accessibility of digital public services, including public websites and mobile applications; in Cyprus, where accessibility is one of the principles stated in the first *National Disability Strategy 2018-2028*, which aims to provide access to a natural and structured environment, transport and information through the provisions of reasonable accommodations, adaptations and the implementation of universal design ('design for all');[274] in Hungary, where the only mention of digitalisation in the national disability strategy concerns the accessibility of public websites; in Iceland, where the *Parliamentary Resolution on Policy and Action Plan on the Affairs of Disabled People for the years 2017–2021*[275] mentions digitalisation only in the context of web accessibility; in Malta, where the draft

[272] Czechia, Government Board for Persons with Disabilities (2020), *National Plan for the Promotion of Equal Opportunities for Persons with Disabilities 2021–2025*, approved by Czech Government Resolution No. 761 of 20 July 2020, available at: https://www.vlada.cz/assets/ppov/vvozp/aktuality/National-Plan-for-the-Promotion-of-Equal-Opportunities-for-Persons-with-Disabilities-2021_2025.pdf.

[273] 'Digitalstyrelsen har gennemført 42 tilsyn i 2020, som har udløst påbud til 29 forskellige myndigheder for grove overtrædelser af loven' ('The Danish Digital Agency has carried out 42 inspections in 2020, which have triggered injunctions to 29 different authorities for serious violations of the law'). (Version 2, 19.04.21).

[274] Cyprus, *National Disability Strategy 2018-2028*, available at: https://tinyurl.com/7e7ve6fc.

[275] Parliament of Iceland (Alþingi) (2017), Parliamentary resolution on policy and action plan on the affairs of disabled people for the years 2017–2021 (*Þingsályktun um stefnu og framkvæmdaáætlun í málefnum fatlaðs fólks fyrir árin 2017–2021*), available at: https://www.althingi.is/altext/146/s/1000.html.

National Disability Strategy includes measures on website accessibility;[276] the Netherlands, where the national plan to implement the UNCRPD (2019)[277] mentions digitalisation as a means to make Government services more accessible, including by making all Government websites fully accessible for people with disabilities; in Poland, where the *Accessibility Plus Programme*[278] aims to provide accessibility for public portals and websites; and in Slovenia, where the *Disability Action Programme 2014-2021* is focused on accessible information and communication and e-accessibility.[279]

These various plans and initiatives exist largely to fully transpose and implement the EU Directive on the accessibility of public sector websites and mobile applications.[280]

4.3.3 Access to culture and the media

A small number of national disability strategies and associated strategies address access to culture and the media via digital means.

In Czechia, the *National Plan for the Promotion of Equal Opportunities for Persons with Disabilities 2021–2025* includes measures to support the digitisation of 'national cultural heritage' to enable remote access by people with disabilities. [281] Similarly, in Cyprus, the National Disability Action Plan includes various actions under the responsibility of the Ministry of Transport, Communication and Works as well as the Ministry of Internal Affairs and the Deputy Ministry of Tourism, for the accessibility of museum digital information and cultural heritage sites, as well as accessibility of information broadcasted by radio and television.[282]

The Polish EDE study reports that the *Accessibility Plus Programme* is promoting accessible multimedia content, including through proposing to amend the Broadcasting Act to oblige broadcasters to provide more audio-description and live subtitles.[283]

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[276] Malta (2015), Parliamentary Secretariat for Rights of Persons with Disability and Active Ageing, National Commission Persons with Disability and The Focal Point Office, *Consultation Document: The Malta National Disability Strategy*, available at: https://activeageing.gov.mt/en/Pages/Malta-National-Disability-Strategy.aspx.

[277] The implementation plan is called 'Onbeperkt Meedoen' (unlimited participation); see: https://www.rijksoverheid.nl/onderwerpen/rechten-van-mensen-met-een-handicap/programma-onbeperkt-meedoen.

[278] Poland, *Accessibility Plus 2018-2025*, available at: https://www.funduszeeuropejskie.gov.pl/media/72628/Dostepnosc_angielski.pdf.

[279] Slovenia, *Disability Action Programme 2014-2021* (*Akcijski program za invalide 2014-2021*), available at: https://www.gov.si/assets/ministrstva/MDDSZ/Invalidi/API-2014-2021/API_2014_2021.pdf.

[280] Directive 2016/2102/EU of the European Parliament and of the Council of 26 October 2016.

[281] Czechia, Government Board for Persons with Disabilities (2020), *National Plan for the Promotion of Equal Opportunities for Persons with Disabilities 2021–2025*, approved by Czech Government Resolution No. 761 of 20 July 2020, available at: https://www.vlada.cz/assets/ppov/vvozp/aktuality/National-Plan-for-the-Promotion-of-Equal-Opportunities-for-Persons-with-Disabilities-2021_2025.pdf.

[282] See Cyprus, Radio and Television Organisations Law 1998 to 2020 (N.7(I)/1998) (Article 30B, accessibility for persons with disabilities), available at: http://www.cylaw.org/nomoi/enop/non-ind/1998_1_7/full.html.

[283] Poland, *Accessibility Plus 2018-2025*, available at: https://www.funduszeeuropejskie.gov.pl/media/72628/Dostepnosc_angielski.pdf.

The Slovakian *National Disability Programme 2021-2030*[284] aims to improve access to cultural life for people with disabilities, including through actions to make periodical and non-periodical publications (including digital textbooks) accessible for persons with visual impairment; cultural events accessible for persons with visual impairment and for persons with hearing impairment; and Slovak films accessible for persons with visual impairment and for persons with hearing impairment via the introduction of hidden subtitles during live broadcasting.

The Slovenian EDE study reports that the *Disability Action Programme 2014-2021*[285] sets a goal concerning the accessibility of cultural events. The aim is to increase the number of digitalised and online accessible content which is adapted to the needs of different groups of people with disabilities.

While not cited in a strategy, in its 2020 press kit, the French Inter-Ministerial Committee for Disability (Comité interministériel du handicap, CIH) announced the launch of a collaborative digital app called 'accès libre' (free access), aimed at providing information about the level of accessibility of private and public buildings. The app provides information about transportation to specific locations, parking possibilities, the state and the slope of the ground, the width of doors and other access features. As for culture, the app addresses physical access (as a spectator or audience member), as well as digital access using tools such as adapted e-books and digitally accessible public spaces.[286]

4.3.4 Employment and skills

Based on the evidence collected by the EDE country experts, only a small number of national disability strategies and sub-strategies propose measures concerning digital technology and employment.

Regarding digital skills, the Bulgarian national disability strategy includes plans for specialised training for people with disabilities. The training is to focus on the acquisition of digital skills to improve employability and productivity among people with disabilities who are already in paid work.[287] Similarly, the Czech *National Plan for the Promotion of Equal Opportunities for Persons with Disabilities 2021–2025* promotes accessible opportunities for lifelong learning to facilitate new knowledge and skills for engagement in employment, focused on courses to develop digital literacy.[288] The

[284] Slovakia, Ministry of Labour, Social Affairs and Family of the Slovak Republic (2021), Národný program rozvoja životných podmienok osôb so zdravotným postihnutím na roky 2021 – 2030. (National Disability Programme 2021-2030), https://www.employment.gov.sk/sk/rodina-socialna-pomoc/tazke-zdravotne-postihnutie/kontaktne-miesto-prava-osob-so-zdravotnym-postihnutim/.

[285] Slovakia, *Akcijski program za invalide 2014-2021* (*Disability Action Programme 2014-2021*), available at: https://www.gov.si/assets/ministrstva/MDDSZ/Invalidi/API-2014-2021/API_2014_2021.pdf.

[286] France, Secretary of State for Digital Affairs, Pour une France connectée, Plan national pour un numérique inclusif (For a connected France: National plan for inclusive digitalisation), press kit, 13 September 2018, https://societenumerique.gouv.fr/plannational/, p. 18.

[287] Bulgaria, Council of Ministers, National Strategy for People with Disabilities (2021-2030), p. 29.

[288] Czechia, Government Board for Persons with Disabilities (2020), *National Plan for the Promotion of Equal Opportunities for Persons with Disabilities 2021–2025*, approved by Czech Government Resolution No. 761 of 20 July 2020, available at:

national disability action plan for Greece briefly mentions the creation of 'accessible digital content'[289] for education, as well as for wide-scale ICT training of persons with disabilities. This is to be embedded in the National Digital Academy and 15 digital centres across Greece, which aim to enhance the digital skills of the general population, including through specialised training programmes for specific social groups, such as persons with disabilities.[290]

With respect to the potential for digital technologies to enable people with disabilities to access and participate more fully in employment, the Belgian Minister for Civil Service and the Federal Government[291] is investing EUR 500 000 to provide better support for civil servants with disabilities when they work remotely using technology. This includes adapted workstations, keyboards and subtitling of videoconferencing.

A specific strategy to improve integration in the labour market for people with disabilities through digitalisation has been developed in the Netherlands by the UWV. The UWV is an agency commissioned by the Ministry of Social Affairs and Employment (SZW) to implement employee insurance schemes, including through carrying out disability assessment and deciding on entitlement to benefits, as well as providing labour market and data services.[292] This strategy aims to develop innovative digital technology to enable people with disabilities to undertake paid employment. To take this forward, a Coalition for Technology and Inclusion was established in 2018 to 'coordinate and support the development and application of technology for an inclusive labour market'.[293] Representatives of employers' organisations, the UWV, the Ministry of Social Affairs, some universities and a national council of recipients of unemployment and disability benefits are part of the coalition. It has launched numerous initiatives, including some which aim to support people with intellectual disabilities. This group is increasingly being pushed out of the labour market as working environments become more technologically advanced and digitalised.[294]

Finally, in Poland, the *Strategy for Persons with Disabilities 2021-2030* includes plans to make online searches for jobs in the governmental administration more accessible.[295]

https://www.vlada.cz/assets/ppov/vvozp/aktuality/National-Plan-for-the-Promotion-of-Equal-Opportunities-for-Persons-with-Disabilities-2021_2025.pdf.

289 Greece, Ministry of Interior (2020), *National action plan for the rights of persons with disabilities*, available at: https://primeminister.gr/wp-content/uploads/2020/12/2020-ethniko-sxedio-drasis-amea.pdf, p. 25.

290 Greece, Ministry of Interior (2020), National action plan for the rights of persons with disabilities, p. 29.

291 See: https://www.petradesutter.be/minister_de_sutter_maakt_500_000_euro_vrij_voor_telewerkende_ambtenaren_met_handicap.

292 See: https://www.uwv.nl/overuwv/english/index.aspx.

293 For information on the Dutch Coalition for Technology and Inclusion (Coalitie voor technologie en inclusie), see: https://www.technologievoorinclusie.nl/overcti/.

294 See: https://www.technologievoorinclusie.nl/challenge/.

295 Poland (2021), *Strategy for Persons with Disabilities (2021-2030)*, available at: http://www.niepelnosprawni.gov.pl/download/Uchwala-Nr-27-Rady-Ministrow-w-sprawie-przyjecia-Strategii-1614284683.pdf?utm_campaign=pfron&utm_source=df&utm_medium=download.

Overall, digitalisation and digital transformation are notable for being largely absent from strategies and plans concerning employment and people with disabilities, save in the area of digital skills. Only the Dutch EDE report includes an example of measures to address the potentially negative impact of automation on people with intellectual disabilities, who work disproportionately in 'low skilled' sectors. None of the EDE country reports identified examples of strategies and plans that addressed the potential impact of algorithmic discrimination via automated recruitment processes. In addition, very few strategies and plans explore the potential of new digital technologies to remove barriers to people with disabilities to find, maintain and progress in paid employment.

4.3.5 Independent living, long-term care and rehabilitation

Ireland and the Netherlands are the only countries covered by the EDE study which appear to have explicitly identified a role for digital technologies in the context of strategies and plans concerning the shift from institutional care to independent living. A small number of other strategies and plans also do this implicitly in the context of social services reform, long-term care and rehabilitation.

Ireland's national policy document on the transition from institutional care to independent living, *Time to Move on from Congregated Settings*,[296] notes how smart technology can support someone to remain independent within their own home, and how it should be included within an in-home model of support. Innovative options to support independent living that rely on technology are seen as a way of minimising reliance on staff, and they can widen people's choices and enable them to be independent. The policy report recommends establishing a fund to make provision for adaptations and assistive technology[297] to maximise the scope for independence. The Community Living Transition Planning Toolkit[298] refers to the practical support, including new technology and access to assisted technology, that is needed pre-transition to build capacity and to support an individual to move out of congregated living settings.

In the Netherlands, a *Technological Innovation Action Plan* for the long-term care sector[299] has been developed under the broader national disability strategy. The action plan is aimed at identifying technological innovations for seven chosen themes: social contact; self-reliance; day structure; being understood; safety; self-reliance within the

[296] Ireland, Health Service Executive (2011), *Time to Move on from Congregated Settings: A Strategy for Community Inclusion*, available at: https://www.hse.ie/eng/services/list/4/disability/congregatedsettings/time-to-move-on-from-congregated-settings-%E2%80%93-a-strategy-for-community-inclusion.pdf.

[297] Ireland, Health Service Executive (2011), *Time to Move on from Congregated Settings: A Strategy for Community Inclusion*, available at: https://www.hse.ie/eng/services/list/4/disability/congregatedsettings/time-to-move-on-from-congregated-settings-%E2%80%93-a-strategy-for-community-inclusion.pdf, 22.

[298] Ireland, Health Service Executive, Community Living Transition Planning Toolkit, available at: https://www.hse.ie/eng/services/list/4/disability/congregatedsettings/community-living-transition-planning-toolkit-nov-2018.pdf, p. 18.

[299] Netherlands (2021), *Future agenda: care and support for people with disabilities* (*Toekomstagenda: zorg en ondersteuning voor mensen met een beperking*), available at: https://www.rijksoverheid.nl/documenten/publicaties/2021/04/30/toekomstagenda-zorg-en-ondersteuning-voor-mensen-met-een-beperking.

home environment; sleeping; and COVID-19 related problems. The purpose is to enable people with disabilities to have a better quality of life and more autonomy, and to provide for more efficient care. The plan proposes to: commission research on technological innovation; fund care providers to carry out projects developing innovations within their care institutions; and consult people with disabilities, their families and workers in order to identify promising new technologies.

In Bulgaria, the *National Strategy for People with Disabilities (2021–2030)*[300] envisages the introduction of digitalisation in social services, including tele-assistance and various forms of electronic tools and resources.[301] Regarding healthcare for people with disabilities, the strategy aims to improve mechanisms for providing medical devices and technical aids, including individual prostheses and orthoses, and other auxiliary devices and technologies, designed for habilitation and rehabilitation of people with disabilities.[302]

In Latvia, the *Plan to promote equal opportunities for persons with disabilities for 2021-2023*[303] includes measures to develop an app through which people can check the availability of support services and service providers.

In contrast, EDE country experts have identified a number of strategies on the transition from institutional care to independent living that appear to make no reference to the potential role of digital technologies. For example, while the Czech *National Strategy for Development of Social Services 2016–2025* is focused on deinstitutionalisation, and recognises that the inadequate supply and availability of community-based services and low quality of social services undermine the freedom of people with disabilities to choose where and with whom to live, digitalisation and digital transformation are not addressed in the strategy as potential solutions.[304] In the Republic of Serbia, a draft *Deinstitutionalisation Strategy for the period 2021 – 2026*, which is open for public consultation, does not mention digitalisation or digital transformation.[305] Similarly, the Government of Slovakia has recently consulted on a strategy on the deinstitutionalisation of social services, which also makes no reference to digital technologies.[306]

[300] Bulgaria, Council of Ministers, *National Strategy for People with Disabilities (2021-2030*), available at: https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1342, p. 16.
[301] Bulgaria, Council of Ministers, *National Strategy for People with Disabilities (2021-2030)*, available at: https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1342, p. 38.
[302] Bulgaria, Council of Ministers, *National Strategy for People with Disabilities (2021-2030)*, available at: https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1342, p.26.
[303] Latvia, Ministry of Welfare (2021), Plāns personu ar invaliditāti vienlīdzīgu iespēju veicināšanai 2021.-2023 (Plan to promote equal opportunities for persons with disabilities for 2021-2023), available at: https://www.lm.gov.lv/lv/lm-dokumentu-projekti-0.
[304] See also: https://deinstitutionalisationdotcom.files.wordpress.com/2020/05/eeg-di-report-2020-1.pdf.
[305] See 'Deinstitutionalisation strategy for the period from 2021-2026: public consultation begins', available (in Serbian) at: https://www.komorasz.rs/strategija-deinstitucionalizacije-za-period-od-2021-2026-godine-pocetak-javne-rasprave/.
[306] Slovakia, Ministry of Labour, Social Affairs and Family (2021), Národná stratégia deinštitucionalizácie systému sociálnych služieb a náhradnej starostlivosti (Strategy on deinstitutionalisation of the social services system and foster care in Slovakia), available at: https://www.slov-lex.sk/legislativne-procesy/-/SK/dokumenty/LP-2021-106.

Overall, the potential for digital technologies to facilitate the transition from institutional care to independent living – including through data analytics; digital platforms that empower people with disabilities to fashion and commission their own support; and smart homes or robotics – seems, on the basis of the evidence collected by the EDE country experts, to be significantly under-explored in relevant national strategies and plans.

4.3.6 Education

EDE country experts identified limited references to digital technology in the context of education across national disability strategies. To the extent that references are made, they concern the accessibility of digital educational materials and adaptative technology.

The national disability action plan for Greece briefly mentions the creation of 'accessible digital content'[307] for education, as does the new Slovakian *National Disability Programme for 2021-2030*,[308] which includes measures on the accessibility of educational websites and electronic documents in accordance with the accessibility rules applicable to public administration information systems.

Ireland's *National Disability Inclusion Strategy (2017-2021)* (NDIS)[309] commits to ensuring that schools can use information and communications technology (ICT) as tools for inclusive learning. This is to be done through guidance, advice and support on the use of accessible ICT and digital learning tools for teaching, learning and assessment for students with special educational needs.[310]

The Polish Government plans to expand the range of accessible e-materials available to children and young people with disabilities, including by making school textbooks available to deaf and blind students through e-resources and in appropriate formats adapted to their needs.[311]

Two national disability strategies make reference to assistive technologies in the education context.

In Cyprus, the national disability action plans have been issued to implement the *National Disability Strategy 2018-2028*.[312] The Ministry of Education, Culture, Sports

[307] Greece, Ministry of Interior (2020), *National action plan for the rights of persons with disabilities*, available at: https://primeminister.gr/wp-content/uploads/2020/12/2020-ethniko-sxedio-drasis-amea.pdf, p. 25.

[308] Slovakia, Ministry of Labour, Social Affairs and Family of the Slovak Republic (2021), Národný program rozvoja životných podmienok osôb so zdravotným postihnutím na roky 2021 – 2030. (National Disability Programme for 2021-2030), available at: https://www.employment.gov.sk/sk/rodina-socialna-pomoc/tazke-zdravotne-postihnutie/kontaktne-miesto-prava-osob-so-zdravotnym-postihnutim/.

[309] Ireland, *National Disability Inclusion Strategy (2017-2021)*, available at: https://www.gov.ie/en/publication/8072c0-national-disability-inclusion-strategy-2017-2021/,p 22.

[310] Ireland, *National Disability Inclusion Strategy (2017-2021)*, available at: https://www.gov.ie/en/publication/8072c0-national-disability-inclusion-strategy-2017-2021/, p. 24.

[311] See: www.epodreczniki.pl.

[312] Cyprus, *Second National Disability Action Plan 2018-2020*, available at: https://tinyurl.com/cf4p6dtd.

and Youth is responsible for action 28, which involves the provision of educational equipment and assistive equipment for students with disabilities.[313]

In Luxembourg, the *Second National Action Plan* on disability notes that pupils with special educational needs sometimes receive assistive technologies at home, and that these have proved successful and could also be used in the school environment. An exchange between school and non-school stakeholders as well as parents, family assistants and external experts is proposed to facilitate sharing – in full compliance with the applicable data protection rules – of good support practices.[314]

As with employment, the general absence of any reference to digital technologies in the educational context in national disability strategies is concerning. This is the case both with respect to the potential for the creation of new barriers and discrimination, such as in relation to online learning or digital testing, and the general failure to promote innovation in the field of digital technologies to support children and adults with disabilities to learn and to participate in educational life.

4.3.7 Transport

Only two EDE country reports identified national disability strategies that make the connection between digital technology and transport.

In Cyprus, various actions flowing from the *Second National Disability Action Plan* address digital technology in the context of improving transport accessibility, including through upgrading of the country's online public transport app to make it more accessible; audio description to assist passengers with disabilities at the national airports; and upgrading bus stops in city centres to become smart bus stops, with audio-visual announcements and live information.[315]

In Malta, the draft *National Disability Strategy* includes measures to install the equipment needed to ensure that persons with sensory disabilities can make use of Malta international airport[316] independently.

Transport is a field where digital technology is playing an increasing role, from journey planning and live travel information through to the development of automated vehicles. It is perhaps concerning, therefore, that the EDE country experts uncovered so few measures addressing digitalisation in the transport context in the national disability strategies, sub-strategies and plans.

[313] Details are provided in the ANED country reports for Cyprus: *Disability assessment* (2018) and *Social protection* (2016), available at: https://www.disability-europe.net/country/cyprus.

[314] See Shahabi, S. and Limbach-Reich, A. (2019), 'Luxembourg Fact Sheet on Social Care & Support Services Sector for Persons with Disabilities' (part of a series of country fact sheets by EASPD - coordinated and edited by Policy Impact Lab), available at: https://www.easpd.eu/sites/default/files/sites/default/files/Publications/countryreports1/easpd-luxembourg_fact_sheet.pdf.

[315] Cyprus, *Second National Disability Action Plan 2018-2020*, available at: https://tinyurl.com/cf4p6dtd.

[316] See: https://www.maltairport.com.

4.3.8 Data sharing and analytics

Data sharing and analytics are a central theme in a number of national digitalisation strategies. Strategies often include a focus on health and social welfare, which has clear implications – both positive and potentially negative – for the rights of people with disabilities. Data sharing and analytics, including via the development of algorithms and machine learning, present many opportunities to better design and personalise public services; to reduce the burden of assessments and reassessments for different services and supports; and to achieve efficiencies that permit resources to be diverted from administration to supporting people to live independently. Data sharing and analytics also pose numerous risks, including risks to privacy and for discrimination via automated decision-making.

However, based on the EDE country reports, data sharing and analytics are addressed in national disability strategies and plans in only two countries.

In Greece, data collection and the use of data for policy-making in the field of disability are envisaged to be facilitated by digital transformation and by 'mapping disability in the current information systems'. This is not elaborated any further in the *National Disability Action Plan*.[317]

In Latvia, the *Plan to promote equal opportunities for persons with disabilities for 2021-2023*[318] proposes the exchange of digital data between agencies conducting assessments and those providing services to persons with disabilities, such as the State Employment Agency.

4.3.9 Conclusion

The evidence identified by the EDE country experts suggests that website accessibility is the primary focus of national disability strategies, at least as far as digitalisation is concerned. This is done largely to implement the EU Directive on the accessibility of public sector websites. Beyond web accessibility, there is little reference to the need to ensure that digitalisation and digital transformation in key fields proceed in a manner that is disability inclusive, nor are there practical measures planned to achieve this goal. The potential for digitalisation and digital transformation to be at the forefront of strategies and plans to advance the rights of people with disabilities in key life domains and sectors is not recognised.

Given the scale and pace of digitalisation and digital transformation in every area of life, this omission, if the evidence is accurate, paints a concerning picture. The potential for digitalisation and digital transformation to either entrench or create new barriers and forms of discrimination and exclusion is significant. For example, as the Polish EDE report notes:

[317] Greece, Ministry of Interior (acting as national coordination mechanism for the implementation of UNCRPD (Law 4488/2017, Article 69) (2020), *National action plan for the rights of persons with disabilities* p.14. https://primeminister.gr/wp-content/uploads/2020/12/2020-ethniko-sxedio-drasis-amea.pdf.

[318] Latvia, Ministry of Welfare (2021), Plāns personu ar invaliditāti vienlīdzīgu iespēju veicināšanai 2021.-2023 (Plan to promote equal opportunities for persons with disabilities for 2021-2023), available at: https://www.lm.gov.lv/lv/lm-dokumentu-projekti-0.

> …what is not being tackled is…actions aimed at counteracting the algorithm bias. Namely, the concern that the algorithms will become a root of a system that privileges the interests of those already having strong positions in the societal power structures. Moreover, disability rights informed discussions on artificial intelligence bias continue expressing existing concerns - that have been central to disability affirmative policies - like for example consent, privacy, surveillance, representation, and visions of normalcy in the context of often asymmetric power relations.[319]

Preventing such discrimination from emerging demands foresight, planning and preparation.

At the same time, the opportunities presented by digitalisation and digital transformation to overcome disabling barriers, and to up-end entrenched discrimination and inequalities, are significant. However, this will happen only with the right incentives and investment. Areas such as employment, education, transport and mobility, and the transition from institutional care to independent living, should be addressed in this respect. Nevertheless, there is little evidence in the EDE country reports that such incentives or investment are routinely happening.

4.4 Promoting disability inclusion through funding, education and training

4.4.1 Introduction

This section looks beyond strategies and plans to explore evidence of practical steps to promote disability-inclusive digitalisation and digital transformation. It focuses on funding; education of digital professionals; training of accessibility and inclusion professionals; and training of people with disabilities.

4.4.2 Funding

The EDE country reports identified significant investment in digitalisation and digital transformation across European countries. However, only a minority of the country reports identified specific or targeted conditions or objectives attached to such funding with respect to promoting disability rights, inclusion or accessibility. There were also few examples of initiatives that specifically focused on the rights of people with disabilities, or where people with disabilities could confidently be identified as beneficiaries.

4.4.2.1 Funding and procurement criteria and conditions to advance the rights of people with disabilities

A small number of EDE country reports identified references to the rights of people with disabilities, or to accessibility, in the context of the criteria or conditions related to the funding of projects concerning digital technologies.

[319] Whittaker, M. et al, (2018), *Disability, bias and AI*, available at: https://ainowinstitute.org/disabilitybiasai-2019.pdf.

In some instances this reflects regulation of European Structural and Investment Funds. For example, in Croatia, all activities within the 'Operational Programme Competitiveness and Cohesion'[320] must take into account gender equality, non-discrimination and sustainable development as horizontal principles.[321] While there were many projects funded through this programme that focused on digital transformation, digital accessibility was not a primary objective, but rather a principle which project beneficiaries should follow while pursuing the main project objectives. For example, within the category 'Generic investment in production in SMEs', funds were awarded to a company named Vidi-to.[322] The goal of the company's project was to improve its web pages, and increasing accessibility was one of the principles underlying that activity.

In Greece, any public sector ICT project, regardless of funding source, is reviewed and pre-approved by the Ministry of Digital Governance to ensure alignment with the *Digital Transformation Bible 2020-2025*, which includes e-accessibility as an explicit strategic goal. In addition, 'universal design for ensuring accessibility of electronic services, webpages and applications from any device, for persons with disabilities' is a key criterion for evaluating and selecting new project proposals for funding.[323] Furthermore, at its own initiative, the Greek Government has committed to updating national procurement legislation to promote compliance with EU Directive 2019/882 (the European Accessibility Act); the accessibility requirements for products and services; and the national accessibility standard (ELOT 1439:2013).[324] The National Accessibility Authority, with the active involvement of representatives of disabled persons' organisations, is a key independent body responsible for monitoring the compliance of procurement with the Directive.

In Italy, In the field of public procurement, Article 4 of the Stanca Law (Law 4 of 9 January 2004) states that accessibility requirements are essential in the procedures carried out by public administrations. If the accessibility requirements are not met, public contracts for the development and modification of websites and mobile applications are void. The purpose of the regulation is to create an accessible digital environment using public procurement as a lever for change.

The Maltese Foundation for IT Accessibility (FITA), established by the Malta Information Technology Agency (MITA) and the Maltese Commission for the Rights of Persons with Disability in 2000, is the main body that provides services related to

[320] Croatia (2014), 'Operational Programme Competitiveness and Cohesion 2014 – 2020'.
[321] Croatia, Ministry of Regional Development and EU Funds (2016), Upute za prijavitelje i korisnike operativnog programa Konkurentnost i kohezija o provedbi horizontalnih načela (Guidelines for applicants and beneficiaries of the Operational Programme Competitiveness and Cohesion on the implementation of horizontal principles), available at: https://strukturnifondovi.hr/wp-content/uploads/2017/03/Upute-za-prijavitelje-horizontalna.pdf.
[322] Croatia, Ministry of Regional Development and EU Funds (2020), 'Popis operacija' ('List of operation'), available at: https://strukturnifondovi.hr/wp-content/uploads/2020/12/Popis-operacija-OPKK-2014-2020_30112020.xlsx.
[323] Greece, Ministry of Digital Governance (2020), *Digital Transformation Bible*, available at: http://www.opengov.gr/digitalandbrief/wp-content/uploads/downloads/2020/12/digitalstrategy.pdf, p. 53.
[324] Greece, Ministry of Interior (2020), *National action plan for the rights of persons with disabilities*, available at: https://primeminister.gr/wp-content/uploads/2020/12/2020-ethniko-sxedio-drasis-amea.pdf, p. 48.

digital inclusion in Malta.[325] FITA has successfully requested that greater emphasis be placed on accessibility as a criterion for the evaluation of project funding applications. As a result of these requests, arrangements have been put in place to provide funds for digitalisation efforts to be disability inclusive. These funds are targeted at private enterprises and provide subsidies to support the creation of accessible websites.[326]

In Poland, the extension of the programme *Digital Poland 2014 - 2020* for 2021-27 is currently undergoing public consultation and the consultation paper states: "All projects will be implemented in accordance with the principles of enhancing the quality of life and ensuring the independence of citizens who, face limitations in everyday life due to health, age, or disability. Accessibility will be realized by applying universal design principles and standards, for example in terms of digital accessibility of products."

The Swedish Post and Telecom Agency (PTS), which is responsible for ensuring that everyone, including people with disabilities, has access to digital communications,[327] organises innovation competitions which promote disability inclusion, as well as funding development projects. A prerequisite of funded projects is that they contribute to long-term digital inclusion of people with disabilities.

Conversely, the EDE country report on Czechia notes that while digital transformation is to be partially funded via EU funding through the *National Recovery Plan*, it is unclear whether, and how, a disability perspective is to be addressed. [328] The call for funding proposals for the Technology Support Programme (within the implementation of the *Operational Programme Enterprise and Innovation for Competitiveness 2014-2020*, announced in December 2020, is aimed at supporting the growth and competitiveness of small-scale private businesses through digital transformation and contributing to the development of the regions.[329] Despite the potential of the programme to promote digital inclusion, a disability perspective was not included in the call, whether in terms of particular requirements, conditions or expectations.

In Denmark, Disabled People's Organisations Denmark, in partnership with Microsoft, prepared the report *Accessibility for all*, which shows that awareness of the EU standard for digital accessibility is very low, and that accessibility is not mentioned in a third of the public tenders concerning digitalisation.[330]

4.4.2.2 Dedicated funding to support disability-inclusive digitalisation and digital transformation

[325] For information about FITA, see: https://fitamalta.eu/news-page-2/about-fita/.
[326] Personal communication from Mr Stanley Debono, FITA CEO, 26 April 2021.
[327] See: https://www.regeringen.se/49aa12/contentassets/0571a7504d49428292a6ab114e4b0263/nationellt-mal-och-inriktning-for-funktionshinderspolitiken-prop-2016-17_188.pdf.
[328] For information on the Czech *National Recovery Plan*, see: https://www.enovation.cz/narodni-plan-obnovy?gclid=CjwKCAjwnPOEBhA0EiwA609RebLNo62D0clZTh3AtLRDqDFJCiU9K2WYv8WA4gtSLp7xxq8j9tzX3BoCQTcQAvD_BwE.
[329] See: https://www.mpo.cz/cz/podnikani/dotace-a-podpora-podnikani/oppik-2014-2020/vyzvy-op-pik-2020/vyzva-xiii--programu-podpory-technologie--257106/.
[330] See: https://news.microsoft.com/da-dk/tilgaengelighed/.

A small number of promising initiatives were identified by the EDE country experts involving the financing of projects aimed specifically at bringing about accessible and inclusive digital technologies to benefit people with disabilities, or to advance the rights of people with disabilities in particular life domains.

In France, in 2020, the French Inter-Ministerial Committee for Disability launched a national research programme for technical innovation dedicated to everyday living and autonomy. The programme is called 'Staying Independent' (*maintien en autonomie*) and it supports communication, learning, moving and living at home.[331]

In Lithuania, the Agency for Science, Innovation and Technology, the main governmental institution responsible for the implementation of innovation policy in Lithuania, has funded new disability-related digital technologies, including an intuitively controlled wheelchair robot,[332] the prototype of a smart white cane with integrated ultrasonic and vibromotor systems[333] and the development of smart pads to increase the integration of visually impaired people in public spaces. According to information on 2014-2021 investments in Lithuania of European Union funds, there were 21 digitalisation projects directly related to people with disabilities.[334]

In Malta, funding has been made available by the Government to support disability-inclusive digitalisation initiatives. The funding is targeted at private enterprises, and provides subsidies to support the creation of accessible websites.[335] The funding is provided through the 'Business Re-Engineering and Transformation Scheme', which started in November 2020 and is due to end in December 2023. Under the scheme, enterprises can be awarded a one-off maximum payment of EUR 5 000, covering 50 % of eligible costs.[336]

In Poland, the *Accessibility Plus Programme for 2018-2025* has provided funding to establish universal design labs, at selected technical universities and research institutes, in order to carry out innovative projects, scientific research and development work. The National Research and Development Centre (NCBiR) provides support for research and development work that is part of the Accessibility Plus programme. NCBiR activities for 2019 also comprised the launch of the 'Accessibility Research Programme – Things are for People',[337] which included a national funding programme for research on accessibility to support the design of ergonomic and cost-effective

[331] France, Press kit dated 16th November 2020, https://handicap.gouv.fr/presse/dossiers-de-presse/article/comite-interministeriel-du-handicap-2020.
[332] See public announcement about intuitively controlled wheelchair robot in Latvia: https://mita.lrv.lt/lt/naujienos/lietuviu-komanda-sukure-unikalu-intuityviai-valdoma-vezimeli-robota-neigaliesiems.
[333] See project information for Lithuania: https://www.esinvesticijos.lt/lt/finansavimas/paraiskos_ir_projektai/ismanios-baltosios-lazdeles-su-integruotomis-ultragarso-ir-vibromotoru-sistemomis-prototipo-sukurimas.
[334] Statistical information about investment in Lithuania by EU funds is available at: https://www.esinvesticijos.lt/lt/finansavimas/paraiskos_ir_projektai.
[335] Personal communication from Mr Stanley Debono, FITA CEO, 26 April 2021.
[336] Malta Enterprise, 'Business Re-Engineering and Transformation Scheme', http://maltaenterprise.com/reengineering-and-transformation.
[337] For details of Poland's Accessibility Research programme, see: https://archiwum.ncbr.gov.pl/aktualne-konkursy/szczegoly-konkursu/competition/konkurs-rzeczy-sa-dla-ludzi/.

methods of adapting products to meet the specific needs of users, and the application of new technologies (e.g. applications to teach computer programming to persons with disabilities).[338] In the first call for proposals, 107 proposals were submitted and 18 projects were selected for funding.[339] The programme covers both digital and non-digital accessibility solutions and tools.

In Romania, the National Authority for the Rights of Persons with Disabilities, Children and Adoptions (ANDPDCA), in partnership with the National Agency for Employment, is currently implementing the project '*Facilitating the inclusion of people with disabilities in the labour market*', which is co-financed through the Human Capital Operational Programme 2014-2020.[340] The project includes carrying out a campaign to inform potential users about the availability and advantages of purchasing assistive products. Moreover, vouchers worth up to EUR 5 000 to purchase assistive products are awarded to people with disabilities who fulfil the following requirements: they have a disability attested by a certificate; they are unemployed and are currently searching for a job; and are aged 18-65 years old.[341]

In Slovakia, the operational programmes for the European Structural and Investment Funds (ESIF) include calls for projects directed at the integration of people with disabilities which use digital technologies. For example, one call for projects under the Operational Programme Human Resources specifically addressed the development of new devices, including funding for the development of special software for children with autism.[342]

As previously mentioned under section 4.2.4 above, in Slovenia, the National Council of Disability Organisation (NSIOS) secured funding from the European Social Catalyst Fund for a project in the area of digitalisation and digital transformation. The project aims to develop tools for measuring digital accessibility of governmental institutions and public bodies' websites in accordance with the Accessibility of Websites and

[338] For details of the scope of the programme, see: https://archiwum.ncbr.gov.pl/fileadmin/Krajowe/rzecz_sa_dla_ludzi/3._Zakres_tematyczny_konkursu_Rzsdl.pdf.

[339] For a list of funded projects, see: https://www.ncbr.gov.pl/fileadmin/user_upload/import/other/lista_rankingowa_pozytywnie_ocenionych_wnioskow_pp.pdf.

[340] Romania, National Authority for the Rights of Persons with Disabilities, Children and Adoptions, 'Facilitarea inserției pe piața muncii a persoanelor cu dizabilități' (Facilitating the inclusion of people with disabilities in the labour market), press release, 31 March 2021, available (in Romanian) at: http://andpdca.gov.ro/w/wp-content/uploads/2021/03/Comunicat-presa-Martie-2021-31_03.pdf.

[341] Romania, National Authority for the Rights of Persons with Disabilities, Children and Adoptions, 'Facilitarea inserției pe piața muncii a persoanelor cu dizabilități', press release, 31 March 2021, available (in Romanian) at: http://andpdca.gov.ro/w/wp-content/uploads/2021/03/Comunicat-presa-Martie-2021-31_03.pdf.

[342] Slovakia, Implementing Agency of the Ministry of Labour, Social Affairs and Family of the Slovak Republic (2017), 'Vývoj nových zariadení podporujúcich sociálnu integráciu osôb so zdravotným postihnutím' (Development of new devices supporting social integration of people with disabilities), available at: https://ia.gov.sk/sk/dopytovo-orientovane-projekty/vyzvy/op-lz-dop-20174.1.html.

Mobile Applications Act of 2018.[343] The methodology for measuring digital accessibility will be developed for five EU Member States, including Slovenia.

The overall findings from this EDE study are that Government-funded digitalisation initiatives that focus on addressing issues connected with the rights of people with disabilities are, though welcome, largely rare and ad hoc.

4.4.3 Training of digital professionals

The EDE country experts were asked to identify evidence of whether and how the rights of people with disabilities, and connected themes, formed part of the initial or ongoing education and professional development of digital professionals. Only a small number of ad hoc examples were identified.

In France, a survey carried out by the National Digital Council (Conseil national du numérique, CNNum) highlighted the lack of training of digital professionals on accessibility. Of the designers interviewed, 43 % reported that they were unaware of the existence of disability-accessibility rules in law; 62 % were unaware of French rules regarding the accessibility of online public services; only 5 % felt that vocational training was meeting their digital accessibility skills needs; and only 9 % felt that initial training was covering accessibility requirements.[344]

In Greece, the *Bible for Digital Transformation* makes explicit reference to plans to promote the inclusion of training on accessibility regarding the design and programming of webpages and digital applications in higher education courses. However, this is not elaborated any further.[345]

In Luxembourg, the *Second National Action Plan* (2019) on the implementation of the Convention on the Rights of Persons with Disabilities recognises that the inaccessibility of new information and communication technology systems is often a result of a lack of knowledge among ICT professionals. It states that information sessions and training will be organised for ICT professionals and those supporting people with disabilities.[346] However, the EDE country experts were unable to establish if this has been implemented.

[343] Slovenia, Accessibility of Websites and Mobile Applications Act (*Zakon o dostopnosti spletišč in mobilnih aplikacij*), *Official Gazette of the Republic of Slovenia*, No. 30/2018, available at: Zakon o dostopnosti spletišč in mobilnih aplikacij (ZDSMA) (pisrs.si).

[344] CNNum, *Accessibilité numérique, entre nécessité et opportunité*: Une obligation légale vis-à-vis des citoyens, Un levier stratégique pour les acteurs *(Digital accessibility, between necessity and opportunity:* a strategic issue and a legal duty*)*, available at: https://cnnumerique.fr/publication_rapport_accessibilite_numerique.

[345] Greece, Ministry of Digital Governance (2020), *Digital Transformation Bible*, available at: http://www.opengov.gr/digitalandbrief/wp-content/uploads/downloads/2020/12/digitalstrategy.pdf, pp. 154-155.

[346] Luxembourg, Ministry of Family and Integration (2019), Second National Action Plan for CRPD in Luxembourg (Plan d'action national de mise en oeuvre de la Convention relative aux droits des personnes handicapées 2019-2024), available at: https://mfamigr.gouvernement.lu/fr/publications/plan-strategie/handicap.html.

In Slovenia, the Accessibility of Websites and Mobile Applications Act (30/2018)[347] stipulates that the Ministry of Public Administration will organise training programmes for Government employees who develop websites and mobile applications. The training is related to the creation, management and the update of websites and mobile applications. In the preparation and implementation of training programmes, the Ministry of Public Administration is required to cooperate with representative disability organisations, as defined in the Law on Disability Organisations.

A number of EDE country reports noted that specific higher education courses connected to digital technologies include modules on disability inclusion and accessibility. For example, the Irish EDE country study reports that 'evidence of diversity, disability and accessibility is visible at higher education level in modules pertaining to artificial intelligence and ethics. However, this is not consistent across higher education institutions'.[348] The Hungarian EDE country study reports that the curriculum from one university's IT faculty[349] includes multiple topics on disability and accessibility. This includes a BA-level course on 'User interface design', which addresses the theory and practice of web accessibility design, and an MA-level course on 'Software ergonomics', which includes topics on web accessibility. Another university[350] offers a web design curriculum that includes web accessibility topics for all IT professionals. In Cyprus, the undergraduate programme of Multimedia and Graphic Arts at the Cyprus University of Technology offers modules on 'Human-centred Design' and 'Design for all'.[351] In addition, the European University Cyprus offers specialised 'Disability and Technology' modules in the MA Education Sciences[352] and BSc Occupational Therapy[353] programmes.

Based on the evidence collated by the EDE country experts, it appears that, where professional education, training and development addresses the rights of people with disabilities and associated themes, it does so in an ad hoc way and at the initiative of individual education institutions. In that respect, the response to a letter from the Polish Ombudsman to the Minister for Science and Higher Education in 2019 is relevant. The Ombudsman urged the ministry to support the inclusion of a broad range of topics related to universal design in the higher education of those who shape the environment. The ministry responded:

[347] Slovenia, Accessibility of Websites and Mobile Applications Act, *Official Gazette of the Republic of Slovenia*, No. 30/2018, available at: Zakon o dostopnosti spletišč in mobilnih aplikacij (ZDSMA) (pisrs.si).

[348] See: http://www.nuigalway.ie/courses/taught-postgraduate-courses/computer-science-artificial-intelligence.html#course_outline.

[349] Based on a personal interview with Dr. Cecília Sikné Lányi, Faculty Of Information Technology, Department of Electrical Engineering and Information Systems, University of Pannonia, 2021.

[350] Based on a personal interview with Dr. Róbert Mingesz, Institute of Informatics, University of Szeged, 2021.

[351] See Multimedia and Graphic Arts at Cyprus University of Technology curricula: https://www.cut.ac.cy/faculties/aac/mga/degrees/undergraduate-programmes/?languageId=1.

[352] See MA Education Sciences: Special and Inclusive Education at European University Cyprus curricula: https://euc.ac.cy/en/programs/master-special-inclusive-education-online/#tab-program-of-study.

[353] See: BSc Occupational Therapy at European University Cyprus curricula: https://euc.ac.cy/en/programs/bachelor-occupational-therapy/#tab-program-of-study.

In relation to other fields of study, such as for example, construction, urban planning, interior design, information technology, design, industrial design, the Minister of Science and Higher Education is not competent to determine a model education in the form of education standards. The universities shape their didactic offer and study programmes on their own. At the same time, the universities have the possibility of supplementing the curricula with an additional element, so that each student achieves the assumed learning outcomes. Therefore, there are no obstacles for the studies to be enriched with the principles of universal design, which are important from the point of view of all users of the designed objects - also people with disabilities. These contents can also be realized by universities as part of post-graduate studies. Decisions in this regard are within the sphere of autonomy of universities. University authorities also decide on the level of detail of this content and its optionality.[354]

The findings from the EDE country studies reveal there would, therefore, be significant benefits were Governments to offer strategic leadership and support for such training on a wider scale.

4.4.4 The education and training of accessibility and inclusion professionals

The EDE country experts were asked to identify evidence of digitalisation and digital transformation being addressed in the professional or ongoing training of accessibility and inclusion professionals. Accessibility and inclusion professionals are individuals who specifically promote and support the inclusion of people with disabilities in spheres such as transport and the built environment, rehabilitation, social work, education and employment. Relevant professionals include social workers, teachers and architects. Evidence concerning this issue proved hard to gather. Much of what the country experts did identify concerned ad hoc courses and initiatives, rather than programmes operating at a strategic level.

In France, it is reported that teacher training in disability and support for children with disabilities in the use of digital technology remains challenging. [355] By contrast, the Greek EDE study reports that the theme of special education and new technologies are well integrated in undergraduate and postgraduate academic courses in the country, including through a module on mainstream pedagogic studies;[356] research departments;[357] and ongoing professional development courses offered by higher education institutes.[358]

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[354] See: Minister of Science and Higher Education (2019), Letter to the Higher Commissioner for Human Rights, https://bip.brpo.gov.pl/sites/default/files/Odpowied%C5%BA%20MNiSzW%2014%20sierpnia%202019%20%20%20.pdf.

[355] CNNum, *Accessibilité numérique, entre nécessité et opportunité*: Une obligation légale vis-à-vis des citoyens, Un levier stratégique pour les acteurs *(Digital accessibility, between necessity and opportunity:* a strategic issue and a legal duty*)*, available at: https://cnnumerique.fr/publication_rapport_accessibilite_numerique.

[356] See, for instance, the curriculum for undergraduate studies in Philosophy and Pedagogy at the Aristotle University of Thessaloniki: https://qa.auth.gr/el/x/class/1/600119241.

[357] See, for instance, University of Thessalia Workshop of ICT applications in Education and Special Education: https://www.sed.uth.gr/index.php/gr/research-activities/labs/103-sedict-lab.

[358] See, for instance, University of Macedonia Centre for Training and Lifelong Learning Education and Special Education courses: https://kedivim.uom.gr/education/.

Hungary's largest BA-level social work degree programme includes various courses which offer a basic understanding of digital inclusion and accessibility. Students learn about digital accessibility in the broader context of accessibility, as well as about relevant digital devices in courses on rehabilitation, psychosocial disability, and elderly care.[359]

In the field of education, the Portuguese EDE study reports that the Action Plan for Schools' Digital Development[360] aims to train teachers, as they are key actors in the digital transition. The action plan uses as a reference the *European Framework for the Digital Competence of Educators*,[361] in which accessibility and inclusion are regarded as vital elements of the digital transformation.

At the strategic level, in Poland, training for accessibility professionals is to be formalised following the development of the qualification 'Implementing accessibility in an organisation', announced on 14 April 2020.[362] The holder of the qualification will be responsible for implementing accessibility and ensuring compliance with legislation and good practice in an organisation, including compliance with architectural, digital and information and communication standards. The qualification implies that the person can, among other things:

- list and discuss different forms of accessibility, including architectural, digital, information and communication accessibility;
- create an accessibility improvement plan for the organisation, covering all areas, including websites, applications, digital documents;
- draft the organisation's accessibility statement in the areas of architecture, digital, information and communication and transport, among others.

The evidence identified by the EDE country researchers, summarised above, suggests that education and training of accessibility and inclusion professionals which addresses digitalisation and digital transformation is provided only on an ad hoc basis. Such training seems to be offered in only a limited way. This was also the case with regard to the training offered to digital professionals discussed above.

4.4.5 Training of people with disabilities in digital skills

Finally, EDE country experts were asked to identify training opportunities offered to people with disabilities to improve their digital skills.

[359] Based on a personal interview with Zoltán Háberman, Department of Social Work, Institute of Social Studies, Faculty of Social Sciences, Eötvös Loránd University, Budapest, 2021.

[360] Portugal, 'Action Plan for the Schools' Digital Development', available at: https://www.dge.mec.pt/pcdd/pcdd.html.

[361] Punie, Y. (editor), Redecker, C. (2017), *European Framework for the Digital Competence of Educators: DigCompEdu*, EUR 28775 EN, Publications Office of the European Union, Luxembourg, available at: https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/european-framework-digital-competence-educators-digcompedu.

[362] See announcement of the Minister of Funds and Regional Policy of 14 April 2020, on the inclusion of the market qualification 'Implementing accessibility in an organisation', at: http://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WMP20200000380.

Beyond the national strategies identified in sections 4.2.3.5 and 4.3.4 above, some ad hoc examples were identified by EDE country experts of relevant training targeted at people with disabilities. Some concern vocational training, while others centre on general competencies in using digital technologies.

For example, in France, specific programmes intended to provide persons with autism with competences in back-end or front-end data science are offered by training organisations and promoted by *Pôle emploi*, the national employment agency.[2] In Portugal, the Superior School of Education at the Polytechnic Institute of Santarem launched the 'Digital Literacy for the Labour Market' programme[363] in 2018. It seeks to train people with intellectual disabilities for inclusion in the labour market.

Other training programmes identified by the EDE country experts were provided by organisations of people with disabilities. For example, the Croatian Association of Organisations of Persons with Intellectual Disabilities is implementing the project Information Workshops for Persons with Intellectual Disabilities.[364] The aim of the project is to include people with intellectual disabilities in all activities of modern society through the acquisition of basic skills and knowledge in the use of computers, in order to master new knowledge that will help them in employment in the open labour market. The Finnish Association of People with Physical Disabilities (also known as Invalidiliitto) implemented a project entitled '*Participation through peer advice on digitalisation' (Osallisuutta digivertaisneuvonnan avulla*) in 2018. In the context of this project, the association trained its member organisations of persons with physical disabilities and funded the promotion of peer support in digitalisation.[365]

In Slovakia, several different courses focus on supporting people with visual impairments to develop digital skills. For example, the Slovak Blind and Partially Sighted Union (ÚNSS), leads the Erasmus+ project EDI 'From education to inclusion', which started in September 2019 trains visually impaired people on information accessibility and self-advocacy in this area.[366]

Despite widespread recognition of the growing importance of digital skills, the EDE country reports provide little evidence of the targeting of people with disabilities by, or their participation in, such training programmes.

[363] For information on the 'Digital Literacy for the Labour Market' programme, see: http://w3.ese.ipsantarem.pt/literaciadigital/.

[364] Croatian Association of Organisations of Persons with Intellectual Disabilities (2019), IT Workshops for Persons with Intellectual Disabilities (*Informatičke radionice za osobe s intelektualnim teškoćama*), http://www.savezosit.hr/informaticke-radionice-za-osobe-s-intelektualnim-teskocama/.

[365] Finnish Association of People with Physical Disabilities (Invalidiliitto), 'Digitalisaatio edistää vammaisten ihmisten osallisuutta' (Digitalisation promotes participation of persons with disabilities), 14 November 2018, available at: https://www.invalidiliitto.fi/ajankohtaista/digitalisaatio-edistaa-vammaisten-ihmisten-osallisuutta.

[366] Slovak Blind and Partially Sighted Union, 'Chcete sa vzdelávať? Hľadáme práve vás!' (Do you want to get trained? We are looking just for you!), https://unss.sk/edi-from-education-to-inclusion/.

5 Opportunities and challenges presented by digitalisation and digital transformation

5.1 Introduction

The EDE country experts were asked to identify any analysis or evidence from non-governmental actors concerning the perceived opportunities and challenges to the rights of people with disabilities of digitalisation and digital transformation. Such evidence includes academic studies and reports by disabled persons' organisations.

It is difficult to provide a consistent or universally applicable account of the potential benefits that new and emerging technologies offer, and the challenges that they pose, regarding the rights of people with disabilities. A range of factors mediate whether new digital technologies pose a challenge or an opportunity. These include the general level of digital development in a country, and regions within that country; the diversity of people with disabilities and the barriers they face; the intersection of disability with other characteristics, such as age, or socioeconomic status; and the fact that the same technologies can lead simultaneously – deliberately or otherwise – to positive or negative outcomes for persons with disabilities, depending on how they are deployed or experienced. For example, as the Nordic Welfare Centre has said:

Modern society places great hope in digital solutions in the provision of public and commercial services and as a tool in people's everyday lives. The 'smart city' is one where we have mobile apps and computerized systems to assist, not only with communication but with orientation, budgeting, exercise, information, citizen participation, deliveries, shopping, and other activities. 'Smart' solutions can be helpful for people with disabilities, but they also highlight the diversity of this group. People with disabilities include those whose lives are improved by digitalisation and those who are further excluded owing to inability to push a small button, read or understand instructions on a screen or hear automatic spoken messages.[367]

Nevertheless, reflecting the exclusion and inequality experienced more generally by people with disabilities, evidence collected by the EDE experts does point to people with disabilities experiencing digital exclusion. For example, the Romanian EDE country study refers to the findings of a study by the Romanian Ministry of Labour and Social Protection that most people with disabilities in Romania do not use the internet to access information and services and, of those who do use it, a significant proportion experience difficulties.[368] Even during the COVID-19 pandemic, when online access to services became even more important, most people with disabilities in Romania were found to have not used the internet in a given month. This was particularly marked among people with disabilities living in rural areas and those aged over 65.[369]

[367] See: http://pub.nordregio.org/the-right-to-access-the-city/#35736.

[368] Romania, Ministry of Labour and Social Protection and the World Bank, (2020), *Diagnoza situației persoanelor cu dizabilități în România* (*Diagnosis of the situation of people with disabilities in Romania*), available (in Romanian) at: http://andpdca.gov.ro/w/wp-content/uploads/2020/12/Diagnoza-situatiei-persoanelor-cu-dizabilitati-in-Romania-2020-RO.pdf, pp. 57-63.

[369] Romania, Ministry of Labour and Social Protection and the World Bank (2020), *Diagnoza situației persoanelor cu dizabilități în România*, available (in Romanian) at: http://andpdca.gov.ro/w/wp-

In the Republic of Serbia, data from 2016 showed that 64 % of the population in Serbia had access to the internet, yet more than 90 % of persons with disabilities did not use a computer or access the internet.[370]

Based on the evidence presented by the EDE country experts, the opportunities and challenges of new and emerging technologies are explored below by emerging themes.

5.2 Cross-cutting challenges

5.2.1 Introduction

The EDE country reports point to three cross-cutting thematic challenges regarding digitalisation and digital transformation. These challenges concern: affordability and financial inclusion; acquisition of digital skills; and the digital infrastructure. The challenges are not exclusively experienced by people with disabilities, nor do they all relate *directly* to disability, but the evidence presented suggests that they are both disproportionately encountered and acutely experienced by some people with disabilities, especially when disability intersects with other factors, including poverty and where people live. The three challenges are explored further below.

5.2.2 Affordability and financial inclusion

The unaffordability of digital technologies for some people with disabilities is a recurrent theme in a number of the EDE country reports.

In Belgium, GRIP (Gelijke Rechten voor Iedere Persoon met een handicap), an organisation of people with disabilities, has drawn attention to the significant gap in internet usage between people with and without disabilities for several years. In 2016, it reported that:

> …On the question of whether people with disabilities have used the internet in the last 3 months, 34 % (1 in 3) answered negative. For individuals without a disability, only 18 % did not use internet in the same period. The difference between the two is 16 percentage points…[371]

The Finnish EDE country report notes the high levels of digital exclusion facing people with disabilities,[372] many of whom, in addition to experiencing disability-related barriers, also face poverty.[373] The report notes how this prevents many people with

content/uploads/2020/12/Diagnoza-situatiei-persoanelor-cu-dizabilitati-in-Romania-2020-RO.pdf, pp. 57-63.

[370] SHARE Foundation, *SHARE@WORK 2016 – Мониторинг дигиталних права и слобода у Србији* (*Monitoring of digital rights and freedoms in Serbia*), May 2017, available (in Serbian) at: https://labs.rs/Documents/Monitoring_digitalnih_prava_i_sloboda_izvestajza_2016_srb.pdf. See: https://cdn.digisecure.be/grip/20178914185011_inclusiespiegel-2016.pdf.

[372] Finland, Ministry of Finance (2017) *Digituen toimintamalliehdotus* (*Action model of digital support*). available at: https://api.hankeikkuna.fi/asiakirjat/2c278a11-3503-448d-803b-14adb2c9c681/27b3f7a8-f6f2-4fc6-b078-485d58003b54/JULKAISU_20181218092000.PDF.

[373] Björkberg, E. et al. (2019), 'Miten vammaisten ihmisten oikeudet toteutuvat Suomessa?' (How human rights of persons with disabilities are realised in Finland?), Finnish Disability Forum,

disabilities from purchasing the equipment and services, including devices and fast internet connection, needed to access the digital environment.

The EDE country report on Malta notes that the president of the Muscular Dystrophy Group of Malta has said that people with disabilities do not always have the necessary finances to procure the digital technologies that could support them. The report notes that Aġenzija Sapport (a division of the Ministry of Social Policy established to 'enhance the quality of life of persons with disability through innovative personalised support, expertise, and advocacy')[374] provides some financial contribution towards purchasing digital technologies. This is done through the Empowerment Scheme. However, the amounts available are small when compared with the costs of such devices.[375]

The Polish EDE country study reports that digital exclusion remains relatively high in Poland, and that persons with disabilities are among the social groups who are the most affected, along with older people, persons living in rural areas, women of pre-pension age and unemployed people.[376] According to the report *Digital exclusion during a pandemic. Access to and use of the Internet and computer in selected social groups*, the COVID-19 pandemic has amplified this exclusion, as most activities were moved to online spaces, leaving significant numbers of persons with disabilities without access.[377]

An annual survey concerning internet use in Sweden shows that the proportion of people with disabilities who use the internet rarely, or not at all, is twice as high as the rate among the general population.[378] An overview of research on digital exclusion carried out by Sweden's Digitalisation Council argues that the digital divide is perhaps primarily a matter of socio-economic status, because 'without access to broadband or digital systems, one ends up in exclusion in the digital society, and access to broadband and digital technologies costs money. People who for various reasons are in a vulnerable financial situation find it difficult to pay for expensive digital equipment, software, and subscriptions'.[379] The report goes on to note that 'If you cannot support yourself in any other way or meet the standards for a reasonable standard of living, you will receive financial assistance in Sweden, which according to the national standard for financial assistance designed by the National Board of Health and Welfare includes (the cost of paying for) newspapers and telephone. However, it is

available at: https://vammaisfoorumi.fi/wp-content/uploads/2019/09/RAPORTTI-Työelämä-ja-köyhyys.pdf.

374 See: https://sapport.gov.mt.

375 Written interview with Ms Rita Vella, President of the Muscular Dystrophy Group of Malta, 22 April 2021.

376 Duplaga, M. (2017), 'Digital divide among people with disabilities: Analysis of data from a nationwide study for determinants of Internet use and activities performed online'. PLOS ONE 12(6): e0179825, available at: https://doi.org/10.1371/journal.pone.0179825.

377 Consumer Federation (2021), *Digital exclusion during a pandemic*, available at: http://www.federacja-konsumentow.org.pl/p,1689,dad1c,raport-fk--wykluczenie-cyfrowe.pdf.

378 See: https://svenskarnaochinternet.se/rapporter/digitalt-utanforskap-2020/.

379 See: https://digitaliseringsradet.se/media/1317/bilaga-1-digitalt-utanfoerskap-en-forskningsoeversikt_liu_slutversion.pdf.

unclear whether the cost of a smartphone with an internet connection, or a computer and internet connection are also included in this calculation of costs'.[380]

The Swedish EDE country study also references a report of a workshop run by Funktionsrätt Stockholm with its member associations in the spring of 2019. The report states: 'People have different prior knowledge and financial conditions – but also different conditions for what kind of technology and communication they can handle. People with functional variation (another concept for disabilities, the authors remark) often have poorer finances than the rest of the population and live more often without any financial buffer. Buying a new computer or mobile phone can then be an obstacle when apps place high demands on performance or only work on a certain platform. When it comes to technical safety, there are risks with using older technology. Old software that is no longer updated by the manufacturer or operator is more susceptible to cybercrime. For those who cannot afford their own WIFI, an open network can be attractive, but security is worse. The "cashless society" can also contribute to exclusion when demands for payment cards or digital payment methods become increasingly common. This affects people who for various reasons have no opportunity to use anything other than cash'.[381]

These findings raise important questions about the degree to which the cost of participating fully in an increasingly digital world is factored into measures of poverty, and the adequacy of social security and social protection measures, including in terms of covering the costs specifically associated with participating fully in society as a person with disability.

5.2.3 Digital skills

The opportunity to benefit fully from digital technologies also depends on people's knowledge, experience and ability to make use of the available technologies. The EU Digital Competency Framework identifies essential digital skills, without which people may experience digital exclusion. These skills are: information and data literacy; communication and collaboration; digital content creation; safety; and problem solving.

A recurrent challenge raised across several EDE country reports suggests either that people with disabilities have not had the opportunities to develop digital skills, or that they face a mixture of intrinsic or accessibility challenges to acquiring such skills.

In Austria, in an exploratory study on the impact of digitalisation on the vocational inclusion of persons with disabilities, experts emphasised that 'many Austrians with disabilities, especially those middle aged or older, lack digital training and basic computer literacy. Programmes to address this shortcoming are growing more strategically important in Austria.'[382]

[380] See: https://digitaliseringsradet.se/media/1317/bilaga-1-digitalt-utanfoerskap-en-forskningsoeversikt_liu_slutversion.pdf.

[381] See: https://funktionsrattstockholmslan.se/wp-content/uploads/2019/05/Vi-revolutionerar-digitaliseringen.pdf.

[382] BMASGK (2018), Final Report - The impact of digitalisation on labour market inclusion of people with disabilities. Lessons from two case studies on Austria and platform work, available (in English) at: https://www.sozialministerium.at/dam/jcr:aa76c330-38bc-47de-a4fc-c5db46e30bc7/Final%20Report%20-

A survey in Belgium, focused on adults with intellectual disabilities, found that:

> …35 % of the participants often experience difficulties using a smartphone or computer, and 57 % find it difficult to adjust settings. Furthermore, 54 % indicate that they cannot solve a question or problem when using a smartphone or computer themselves and 58 % say they need help when trying out something new….As far as arranging practical matters online, the results show that (slightly) more than half of the respondents (previously) have no difficulties finding their way online (54 %), making online payments (53 %), or to look up the timetable for public transport online (62 %). On the other hand, a majority of the respondents (previously) report having difficulties buying a ticket for public transport online (63 %), finding job vacancies online (64 %) or applying for a job online (81 %). When a respondent experiences a question or problem, 54 % say they cannot solve it themselves, 82 % say they can go to friends, family or acquaintances…[383]

The EDE study from Iceland reports that, in addition to physical and financial barriers to accessing digital technology, some people with disabilities face challenges in knowing how to use it. It notes that Iceland's digital strategy, '*Digital Iceland*',[384] is focused on the general public and lacks a disability perspective.

The Irish EDE country study reports that, while Ireland has been proactive in trying to close the digital divide through wide-ranging initiatives, key barriers to digital inclusion remain. In addition to affordability, co-ordination difficulties in relation to physical impairments impacting on the use of phones and laptops/tablets; living in areas with low internet connectivity; and a low level of digital literacy are identified as barriers to closing the digital divide.[385]

The EDE country report from Luxembourg suggests that, while some people with disabilities may benefit from digitalisation, particularly in the context of education and employment, the situation is more challenging for people with 'cognitive impairments and mental disorders.' It reports that participation in digital environments and services, and the ability to participate equally in all social systems with the help of digital technologies, remain limited. Training programmes for people with disabilities on new technologies are not always accessible and do not make sufficient use of accessible language.[386]

%20The%20impact%20of%20digitalisation%20on%20labour%20market%20inclusion%20of%20people%20with%20disabilities.pdf, p. 24f.

383 Anrijs, S., Ponnet, K., Neerinckx, H., Drooghmans, N., Vandries, T., & Nijs D. (2020), ICT-bezit en -gebruik van Vlamingen die begeleid wonen onder het Vlaams Agentschap voor Personen met een Handicap: Bevindingen van een verkennend vragenlijstonderzoek (Possession and use of ICT by Flemish people in assisted living under the Flemish Agency for Persons with Disabilities: Findings of an exploratory study), Universiteit Gent.

384 Iceland, Digital Iceland (Stafrænt Ísland) initiative; see: https://island.is/stafraent-island.

385 Disability Federation of Ireland (2020), Impact of COVID-19 on people with disabilities and the *disability sector*, available at: https://www.disability-federation.ie/assets/files/pdf/dfi_submission_impact_of_covid-19_on_people_with_disabilities_and_the_disability_sector_290620_1.pdf, p.7.

386 Advisory Commission on Human Rights (La Commission consultative des Droits de l'Homme, CCDH),https://ccdh.public.lu/dam-assets/rapports_d%27activités/2020/Rapport-d-activites-2020.pdf.

A survey by the Swedish Agency for Participation found that over 40 % of people with disabilities stated that they would like to use digital services more if they were given the opportunity. The largest obstacles to use experienced were low digital knowledge of the user; inaccessible services; and services which were too expensive.[387]

A theme throughout the reports of the EDE country experts is a lack of focused attention on enhancing the digital skills of people with disabilities, whether to the end of enhancing employment opportunities or simply improving people's ability to navigate and competently harness the opportunities offered by digital technologies. Failure to take action to enhance the digital skills of people with disabilities in the face of rapid digitalisation and digital transformation risks entrenching existing inequalities, as well as failing to prevent further inequalities which may emerge over the coming years.

5.2.4 Digital infrastructure

In some instances, the lack of digital infrastructure impedes access to digital technologies for people with disabilities. This problem has been brought to the fore during the COVID-19 pandemic.

For example, the Croatian Ombudsman for Persons with Disabilities has noted several cases where a lack of general infrastructure, most often the unavailability of high-quality internet connection, led to difficulties for persons with disabilities. Most of the recent cases were related to education since, due to the COVID-19 pandemic, significant parts of education at all levels have been conducted, partially or completely, online. Students who did not have an adequate internet connection, who mostly lived in smaller places or rural areas, could not participate in education in the same way as other students and were constantly facing technical problems. [388]

The EDE study from Germany reports that, in nursing homes and institutions for older people, residents encounter hurdles when trying to use the internet, as few facilities offer free wifi or digital devices for the use of residents.[389]

In Poland, improving high-speed internet access has been identified as particularly important for the rights of people with disabilities in the report *(Dis)abled in the 5G network*. The report was published by the National Institute for Telecommunications in cooperation with the Integration Foundation.[390] The report concludes that high-speed mobile networks will improve the daily lives of many people, including '(1) high-speed

[387] See: https://www.mfd.se/vart-uppdrag/publikationer/rapport/rivkraft-21--bristande-tillganglighet/ and https://www.mfd.se/resultat-och-uppfoljning/undersokningspanel/.

[388] Croatia, Ombudsman for Persons with Disabilities (2021), *Izvješće o radu Pravobraniteljice za osobe s invaliditetom za 2020. godinu* (*Report of the Ombudsman for 2020*), available at: https://posi.hr/wp-content/uploads/2021/04/Izvjesce-o-radu-Pravobranitelja-za-osobe-s-invaliditetom-za-2020.-godinu.pdf.

[389] See BAGSO (German National Association of Senior Citizens' Organisations) (2020), Digitale Grundversorgung in Alten- und Pflegeheimen sicherstellen (Ensuring basic digital services in old people's and nursing homes), available at: https://www.bagso.de/fileadmin/user_upload/bagso/06_Veroeffentlichungen/2020/Stellungnahme_Digitale_Grundversorgung_in_Pflegeheimen.pdf, pp. 1-2.

[390] Poland, National Institute for Telecommunications and Integration Foundation, *The (Dis)abled in the 5G network*, https://www.gov.pl/web/cyfryzacja/niepelnosprawni-w-sieci-5g--raport-il-pib.

video transmission for sign language users, (2) applications and assistive devices based on artificial intelligence and the Internet of Things (IoT) for, among others, people with limited vision functions, and (3) transport autonomisation'.

In conclusion, in common with other citizens, people with disabilities will be able to avail themselves fully of the opportunities presented by new digital technologies only if high-speed internet access is available to them, either via broadband or 5G technologies. Conversely, in the absence of such connectivity, people will find themselves experiencing social and economic exclusion.

5.3 Opportunities and challenges identified in specific life domains and fields

5.3.1 Introduction

In addition to the cross-cutting themes outlined above, the EDE country reports identified evidence pertaining to perceived opportunities and challenges of digitalisation and digital transitions in key sectors and life domains, including employment, independent living and education and learning. These are addressed below.

5.3.2 Employment

New and emerging technologies hold the potential to open up employment to some people with disabilities. They can do this by removing barriers, opening up the range of jobs that people may be able to perform, and by creating new forms of work. At the same time, new technologies may shut off opportunities by automating jobs in many so called 'low-skilled' sectors and fields where people with disabilities, who are disproportionately without formal skills and qualifications, may otherwise have found employment. In addition, new jobs linked to digitalisation and digital transformation may demand digital skills that many people with disabilities do not possess, and automated recruitment processes may codify and reinforce disability-based bias and discrimination. Such issues were addressed in a number of EDE country reports, as noted below.

In a recent response to the Icelandic Government's document, *Iceland's policy on artificial intelligence*, the National Association of People with Intellectual Disabilities (Þroskahjálp) raised a number of concerns, noting that people with disabilities are already marginalised in the labour market and that AI could increase this marginalisation further. The organisation's concerns related to, among other things, the potential of AI to discriminate against job applicants with known impairments via automated selection processes.[391]

Similarly, the EDE report from Luxembourg notes how anticipated efficiencies and cost reductions are a driver of digitalisation, with a view to automating work and reducing staff numbers. This is likely to adversely impact low-skilled workers, including workers

[391] Iceland, (National Association of People with Intellectual Disabilities (Þroskahjálp) (2021), 'Umsögn Landssamtakanna Þroskahjálpar um stefnu um gervigreind' ('Þroskahjálp's opinion on the policy on artificial intelligence'), available at: https://www.throskahjalp.is/static/files/umsogn-landssamtakanna-throskahjalpar-um-stefnu-um-gervigreind.pdf.

with disabilities in particular. The report notes that increasing numbers of people with disabilities registered with the National Employment Agency (ADEM) are less educated than the rest of the working population, and have relatively low employment rates, equating to a level of unemployment six times higher than the average.[392]

In Spain, CERMI has also raised concerns about the risk of AI systems that can identify and eventually discriminate against people with disabilities, or which are based on or fed by data that include stereotypes, biases and prejudices regarding disability.[393] The Spanish report *An inclusive digital economy for people with disabilities*[394] states:

> ... the digital scenario brings unprecedented opportunities for the inclusion of people with disabilities, who still face major obstacles in this regard, into the labour market. Digital tools and platforms are powerful enablers to remove disability-related barriers, offering people with disabilities many job opportunities. Nonetheless, it also brings to the fore the challenges that digitalisation implies for the inclusion of people with disabilities, such as the significant digital gaps that remain between people with disabilities and those without disabilities. The lack of digital skills and the shortcomings in the accessibility of digital tools are the primary barriers encountered by people with disabilities.

The COVID-19 pandemic has spotlighted both the potential of digital technologies to open up employment to people with disabilities, and the future risks. The Italian EDE report notes how, during the acute phase of the pandemic, some legislative measures required people with disabilities to adopt home or remote working arrangements, which were sometimes inaccessible, leading to discrimination. It has been suggested by some disability activists that these experiences foretell the risks of labour market exclusion that people with disabilities may face in the future if efforts are not made to ensure that digitalisation is inclusive.[395]

Civil society organisations in Poland see opportunities to harness digital tools to address the disability employment gap, including through remote working, but this will be achieved only via a concerted effort to address the digital skills gap.

Optimising the opportunities presented by digital technologies, while averting their potential harm to the employment prospects and experiences of people with disabilities, requires focused leadership and concerted, preventive action at all levels.

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[392] Mellouet, S. (2019), 'Handicap et entreprises : un « bilan emploi » en demi-teinte', available at: https://www.fondation-idea.lu/2019/02/22/handicap-et-entreprises-un-bilan-emploi-en-demi-teinte/.

[393] Information available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/participacion_publica/audiencia/ficheros/Respuestas.zip.

[394] Disability Hub Europe (2021), *An inclusive digital economy for people with disabilities*, available at: https://biblioteca.fundaciononce.es/publicacion/descarga/nojs/f9ed82f1adeda2046bcc718963afb649, p.36.

[395] See Servidori, A., 'Ministero per la Disabilità e Inclusione Digitale', (blog post), 23 February 2021, available at: https://www.startmag.it/blog/ministero-per-la-disabilita-e-inclusione-digitale/.

5.3.3 Independent living

As with employment, new and emerging technologies linked to digitalisation and digital transformation are perceived to hold great potential to support more people with disabilities to live independently and to be included in the community. Conversely, automation of care and support, remote monitoring, artificial intelligence and the internet of things are also considered to pose risks to people's autonomy and inclusion in society, such as through depriving people of human contact, or subjecting people to digital surveillance, monitoring and daily routines that undermine autonomy. The opportunities and risks posed to independent living by (new) technologies, digitalisation and digital transformation were referred to in a number of EDE country reports, as noted below.

A recent study in Belgium explores the situation of people with disabilities and considers the advantages of digital technology for supporting people with an intellectual disability to live independently. The respondents, who had intellectual disabilities, identified the following advantages:

> …The biggest advantage is being able to talk to whoever and when you want to (ticked by 71.3 % of the respondents), as well as that it is easier to say things digitally than in physical contact (50 % of the respondents)……The three most popular reasons for using a smartphone or computer are: communicating with known people (80 respondents ticked this reason) and looking up information and arranging practical matters (72 respondents ticked this reason), followed by relaxation or playing games, watching a movie or short video and listening to music (checked by 69 respondents).[396]

In Poland, opportunities are foreseen for digital technology regarding processes related to disability assessment and disability-specific services, such as issuing of documents such as parking cards; applying for recalculation of disability benefits; and other disability-specific processes. Online application processes have the potential make such processes easier.[397] However, the realisation of this potential could be undermined by the fragmentation of agencies and lack of unified data systems. Similarly, the Cypriot EDE country study reports that a major challenge to making effective use of digital technologies to enhance disability accessibility and support in Cyprus relates to 'The absence of a unified social service system and the lack of coordination between services'.[398] The fragmented nature of social services prevents the creation of a unified digital system to provide information and disability-related support.

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[396] Anrijs, S., Ponnet, K., Neerinckx, H., Drooghmans, N., Vandries, T., & Nijs D. (2020), ICT-bezit en -gebruik van Vlamingen die begeleid wonen onder het Vlaams Agentschap voor Personen met een Handicap: Bevindingen van een verkennend vragenlijstonderzoek (Possession and use of ICT by Flemish people in assisted living under the Flemish Agency for Persons with Disabilities: Findings of an exploratory study), University of Gent, p. 12.

[397] 'E-droga do urzędu wyboista dla najsłabszych' ('The e-route to the office is bumpy for the weakest'), *Prawo.pl*, 28 August 2019, available at: https://www.prawo.pl/samorzad/e-uslugi-dla-niepelnosprawnych-cyfryzacja-administracji-bariery,463597.html.

[398] Eurofound (2020), *Impact of digitalisation on social services*, available at: https://op.europa.eu/en/publication-detail/-/publication/fb81ac6f-85d1-11ea-bf12-01aa75ed71a1, p. 27.

The Swedish Participation Authority (SPA) argues that technology can have a positive impact on the lives of people with disabilities if used properly, as it can open up opportunities for accessible care and for a more independent life.[399] For example, the SPA points to the potential of technology to enable people to take care of personal hygiene more independently, or to have greater control over who is allowed to enter their home.

Some EDE country reports highlight concerns that have been expressed about the introduction of digital technologies in the fields of care and support.

The Finnish Association of People with Physical Disabilities (Invalidiliitto) argues that persons with disabilities, and particularly older persons with disabilities, have been left behind in the development of digitalisation, and this has led to increased loneliness.[400]

The Dutch EDE country report highlights a perceived risk that the trend to provide more online care and support in place of actual personal support, and the use of digital surveillance (for instance, during sleeping times in residential group homes), will lead to a reduction in human contact.[401]

The EDE report from Slovakia suggests that a digital divide may relate to whether people with disabilities live in institutions or in the community. The report notes how the lack of access to digital devices among people living in institutional care was revealed by the COVID-19 pandemic. To address this, the Association of Social Services Providers delivered around 550 tablets to residential care homes to enable communication between residents and their families and friends.[402]

The lack of involvement of people with disabilities in decisions pertaining to the development and application of digital technologies is highlighted in the EDE country reports from the Netherlands and Spain.

The Dutch EDE country report notes how, in consultations on the digital strategy for the long-term care sector, people with disabilities did not express the need for new technologies, despite the technologies being enthusiastically introduced by managers of care providers, suggesting that those drawing on care and support were not centrally involved in decisions to introduce such technologies.[403]

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[399] See: https://www.mfd.se/verktyg/arbeta-med-digital-teknik/valfardsteknik-bade-arbetssatt-och-verktyg/.

[400] Finnish Association of People with Physical Disabilities (Invalidiliitto) (2020), 'Digitalisaatio edistää vammaisten ihmisten osallisuutta', 14 November 2018, available at https://www.invalidiliitto.fi/ajankohtaista/digitalisaatio-edistaa-vammaisten-ihmisten-osallisuutta.

[401] The dilemmas have been described in a report by the Vrije Universiteit (VU) Amsterdam: Niemeijer, A., Depla, M., Frederiks, b. and Hertogh, C. (2012), *Toezichthoudende domotica. Een handreiking voor zorginstellingen*, (*Domotic surveillance: guidelines for care providers*).

[402] Asociácia poskytovateľov sociálnych služieb v SR (Association of social services providers in the SR), 'Projekt „Tablet zo srdca', 14 May 2020, available at: https://apssvsr.sk/aktuality/projekt-tablet-zo-srdca-je-tu/.

[403] Netherlands (2021), *Future agenda: care and support for people with disabilities* (*Toekomstagenda: zorg en ondersteuning voor mensen met een beperking*), available at: https://www.rijksoverheid.nl/documenten/publicaties/2021/04/30/toekomstagenda-zorg-en-ondersteuning-voor-mensen-met-een-beperking.

In Spain, CERMI has noted that artificial intelligence offers opportunities to advance the rights of people with disabilities in relation to inclusion, accessibility and independent living. For example, AI systems can facilitate access to information and communication in all media and formats; facilitate decision-making; and be integrated into robots that facilitate personal assistance. At the same time, CERMI notes risks associated with AI systems that are standardised, rather than personalised, and which: do not take into account the needs, opinion and diversity of people with disabilities; do not allow the participation or decision-making of persons with disabilities, by themselves or through their representative organisations; and create systems aimed at persons with disabilities that are not tested and validated for use by persons with disabilities themselves.[404]

The opportunities and risks of digital technologies need to be fully considered in the context of the transition from institutional care to independent living. While there is huge potential for technology linked to digitalisation and digital transformation to help overcome barriers that have proved challenging to this transition in many countries to date, there is equally the risk of replacing the physical walls, human supervision and segregation and isolation of institutions, with digital 'walls', remote monitoring and isolation from human interaction, albeit with individuals geographically situated 'in the community'.

5.3.4 Education and learning

Education is also a field in which digital technology is recognised as presenting both significant opportunities for, and challenges to, the rights of people with disabilities, as illustrated by some of the EDE country reports.

The Croatian Association of Youth and Students with Disabilities, for example, points out that the increased focus on the online environment (during the COVID-19 pandemic) has brought a number of benefits for students with disabilities. These include more accessible teaching materials; the ability to attend online consultations rather than waiting in line; and lectures that can be watched from home. All these developments have helped students with disabilities a lot, as well as other students.[405] In contrast, the Italian EDE country report suggests that the move to e-learning during the pandemic has revealed the scale of the digital divide, with e-learning for many pupils with disabilities being inaccessible and leading to discrimination.[406]

Following its examination of Greece, the UN Committee on the Rights of Persons with Disabilities concluded that:

[404] Information available at: https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/participacion_publica/audiencia/ficheros/Respuestas.zip.

[405] Croatian Association of Youth and Students with Disabilities (2020), 'Coronavirus and students with disabilities' *('*Korona i studenti s invaliditetom'*),* available at: https://www.savezsumsi.hr/index.php/novosti/91-istrazili/311-korona-i-studenti-s-invaliditetom.

[406] See Vivaldi, E. and Addis, P.*, European Semester 2020-2021 country fiche on disability equality – Italy*, available at: https://op.europa.eu/en/publication-detail/-/publication/e0678c0a-a71b-11eb-9585-01aa75ed71a1/language-en.

34 (b) Schools and universities lack accessible and inclusive environments, buildings, educational material, services, equipment, information and communication technologies, as well as individualised support provided to students with disabilities.

The Committee recommended that the State Party:

35 (b) Ensure the accessibility of school and university environments, in line with the Convention, by promoting universal design, the provision of specific measures and individualised support, such as accessible and adapted materials, inclusive curricula, inclusive information and communication technologies for pupils and students with disabilities, and digital pedagogy.[407]

In Slovakia, the closure of schools during the COVID-19 pandemic exposed the digital divide between children with and without disabilities in the educational context.[408] In particular, the Institute of Educational Policy found that in spring 2020, a large share of pupils with disabilities who attend special primary schools, especially those with intellectual disabilities, had no or very limited access to distance education during the school closure due to COVID-19 lockdown.

The COVID-19 pandemic accelerated the use of, and innovation around, digital technologies in the educational context. In doing so, it has revealed significant barriers to children and young people with disabilities using digital technologies, which must be resolved if digital technologies are to be an enabler of inclusive education rather than creating further barriers.

5.4 Conclusion

Overall, the findings of the EDE country reports suggest that there is a dearth of independent analysis of the opportunities and risks posed by digitalisation and digital transformation in respect of the rights of people with disabilities, and that this is not an area of primary focus for organisations of people with disabilities. Given the rapid and accelerating pace of digitalisation and digital transformation, this lack of focus is, in and of itself, a cause for concern.

[407] UN Committee on the Rights of Persons with Disabilities (2019), *Concluding Observations on the initial report of Greece*, CRPD/C/GRC/CO/1, available at: http://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=6QkG1d%2fPPRiCAqhKb7yhskOcZ9cO6iPa1r3wEJzoMtZPRlsn2F8be6qzYChDHrmBTMH%2bqHKEyy9lkIKsnfl7vYm%2b%2fX3mXiOTCPBgssnHiOpTdzNgr31DcGr9iV91p4N2.

[408] For more details, see the EDE country report on COVID-19 for Slovakia.

6 Conclusions and recommendations

6.1 Concluding remarks

With or without Government engagement or direction, digitalisation and digital transformation are transforming the way that we live and relate to one another, learn, work, consume and access public services at a rapid pace. Digital technologies hold the potential to open up the world and to empower people with disabilities. They also hold the potential to reinforce existing patterns of social and economic exclusion and human rights violations, as well as generating new ones.

While the internet of things, robotics and remote monitoring using artificial intelligence may present manifold opportunities to support people to live independently, the automation of care and support also risks leaving some people both isolated and subject to new forms of control. Moreover, many ethical issues need to be carefully considered to ensure opportunities outweigh unforeseen risks.

New technologies may help to remove or navigate barriers – for example, by opening up more employment opportunities – but, at the same time, they may introduce new patterns of discrimination via automated recruitment processes, or by limiting people to remote working only or ending 'low-skilled' work altogether as such work is increasingly automated.

The challenge for strategists, policymakers and legislators, funders and regulators and others is to bend the arc of digital transformation towards justice and equality for persons with disabilities.

The evidence that EDE has obtained and analysed suggests that, to date, the rights of people with disabilities have enjoyed only marginal attention in the elaboration of national or sector-specific digitalisation strategies and programmes. There is no evidence that people with disabilities or their representative organisations have been meaningfully involved in the development of such strategies and programmes. At the same time, beyond the important matter of website accessibility, digitalisation and digital transformation are generally peripheral to national disability strategies and sub-strategies. This is despite evidence pointing to current and likely growing digital exclusion and the risk of new patterns of discrimination, some of which have been spotlighted by the large-scale shift to online platforms during the COVID-19 pandemic. Further, the new opportunities that digital technologies potentially offer to address longstanding challenges, such as affecting the shift from institutional care to independent living, educational inclusion and narrowing the employment gap, appear underexplored in national strategies and programmes.

The intersections between disability, poverty and age are of particular importance for understanding and responding to digital exclusion faced by people with disabilities. Further, location plays a big role in determining the quality, availability and affordability of high-speed internet access, with people in rural areas far less likely to have such access than those in urban areas.

At the level of implementation, the study found few examples of funding criteria concerning digitalisation which address the rights of people with disabilities. There was

similarly few examples of dedicated funding programmes aimed at advancing the possibility for people with disabilities to access digital technologies or to harness digital technologies to advance pre-existing goals around employment, education or independent living.

With respect to independent analysis, it is worth noting that issues connected to digital exclusion and people with disabilities do not appear to be a primary focus of organisations of people with disabilities, over and above web accessibility. This may just be a matter of prioritisation, but it could equally suggest a lack of awareness, understanding and foresight concerning the revolutionary potential of digital technologies to transform every area of life in the not-too-distant future, and the emergent gaps in consideration of the rights of people with disabilities among those leading this change.

6.2 Recommendations

The evidence collated for this EDE report strongly suggests that far more concerted effort and action is required to protect, promote and ensure the rights of people with disabilities, at three levels:

- Harnessing the opportunities of digitalisation and digital transformation to advance the rights of people with disabilities across all areas of life, including through measures to ensure digital inclusion and by employing digital technologies to address specific challenges.

- Predicting and taking steps to avert risks to the rights of people with disabilities arising from new and emerging digital technologies.

- Preparing individuals, including people with disabilities and their representative organisations, for the opportunities and challenges presented by digitalisation and digital transformation.

Below, we address specific recommendations addressed to different actors: the European Commission; states; and disabled persons' organisations. For the first two actors, recommendations are grouped under three headings: policy and strategy; funding; capacity building and co-design. More general recommendations are made with regard to disabled persons' organisations. The recommendations are first presented in bullet-point form and are then elaborated on in more detail.

6.2.1 To the European Commission

6.2.1.1 Policy and strategy

It is recommended that the Commission should:

- Be aware that action taken by the European Commission, and other EU institutions, including the adoption of legislation and targeted funding instruments, can be a powerful catalyst for action which promotes a disability-inclusive approach to digitalisation and digital transformation at Member State

level. The country reports revealed how much impact EU action was having in this field and, perhaps rather surprisingly, how little action was being taken at the national level in the absence of EU action. If this continues to be the case, reflection at EU level is needed on how to use scarce resources (including funding and the possibility to adopt binding legislation) and what the priorities for future action should be, taking account of the fact Member States may be unlikely to take action in the absence of EU initiatives.

- Ensure that the European strategies and actions described in chapter 3 of this study are implemented in a disability-inclusive manner, and explicitly consider disability-related issues in implementation, monitoring and evaluation, even if this is not presently foreseen.

- Utilise the new EU Strategy for the Rights of Persons with Disabilities to provide an overarching framework within which the various other European Commission plans and strategies identified in chapter 3 of this study are implemented in a disability-inclusive way. The Commission's Task Force on Equality, which strives to ensure the mainstreaming of disability throughout all policy areas, should play an important role in this respect. In addition, the Commission should use the Better Regulation toolbox to enhance disability-inclusiveness when implementing the plans and strategies and ensure the coherent inclusion and assessment of disability matters in impact assessments and evaluations of these strategies and plans.

- Address digitalisation and digital transformation in the monitoring framework and new disability indicators to be developed under the new EU Strategy for the Rights of Persons with Disabilities .

- Recognise and respond to the intersectional nature of digital exclusion and disadvantage experienced by persons with disabilities who are older, live in poverty and/or live in remote/rural areas through appropriate actions.

This study has found evidence that national strategies and plans are likely to address the important area of web accessibility, even if other areas which are relevant from a disability perspective remain under-developed, or indeed wholly unaddressed. It is submitted that a key driver for this focus on web accessibility is the 2016 EU Directive on the accessibility of public sector websites. Member States have been required to establish rules to ensure public sector web accessibility and, in some cases, may have extended these requirements to the private sector. Moreover, Member States are now obliged to transpose the more recent European Accessibility Act, which addresses, among other areas, accessibility of the web pages of some private sector organisations which operate in the internal market and all ecommerce websites. The impact of EU action was also manifested in some Member States through the use of such funding to support digitalisation and digital transformations in a disability-inclusive manner. This is in line with the requirements of the EU Structural and Investment Funds. These EU instruments, and the related action of Member States, reveal the potential impact that EU legislation can have in this area.

Given the many areas where, in the absence of EU legislation and action, Member States seem to be not addressing digitalisation from a disability or otherwise inclusive perspective, the impact of the many (recently adopted) EU action plans and strategies identified in chapter 3 of this report is potentially very important. Many of these EU action plans and strategies, as noted in chapter 3, do refer to disability – although the precise action to be taken by the European Commission is often not described or identified. It is also quite clear that EU action, including funding criteria under the Structural and Investment Funds, influences the action by Member States in this area. Therefore, the way in which the Commission operationalises the many relevant action plans and strategies will be highly important. There is clearly scope for adopting a disability-inclusive implementation of those plans and strategies, and the various references to disability and persons with disability in those documents open the door to this. However, this will not happen automatically, and action and monitoring by the relevant Commission DGs and units will be vital.

The EU Strategy for the Rights of Persons with Disabilities offers the possibility of providing an overarching framework within which the various plans and strategies can be implemented in a disability inclusive way. Such an approach should help to ensure synergy between the various planned actions and avoid a situation where individual actions are 'siloed' and implemented in an uncoordinated way. The actions foreseen in the regarding monitoring and reporting will be important in this context. Actions such as improved data collection and the dashboard reflecting progress in implementation at the EU and Member State level should address aspects relating to digitalisation and digital transformations. In this respect, the development of the monitoring framework (2021) and of new disability indicators (2023) foreseen in the EU Strategy for the Rights of Persons with Disabilities are particularly important. The collection of disaggregated data, including data regarding the situation of men and women with disabilities, and data identifying the situation of people with disabilities of different ages as well as with different kinds of impairments, is important to map the impact of digitalisation and digital transformation on people with disabilities. Among other things, data is needed to identify the extent of the digital divide (in terms of both access to equipment and broadband and digital skills) experienced by different groups of persons with disabilities.

Lastly, this report has noted how digital exclusion can not only relate to disability, but often also intersects with other characteristics which people with disabilities have, such as age, poverty and living in a rural area or being geographically isolated. Any policy measures adopted at the EU level must recognise the way in which intersectional characteristics impact on how persons with disabilities experience digitalisation and digital transformations. The EU Strategy for the Rights of Persons with Disabilities allows for attention to be addressed to such factors. One of its stated goals is to promote 'an intersectional perspective, addressing specific barriers faced by persons with disabilities who are at the intersection of identities (gender, racial, ethnic, sexual, religious), or in a difficult socioeconomic or other vulnerable situation.'[409]

6.2.1.2 Funding

[409] European Commission, Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030, Brussels, 3 March 2021, COM(2021) 101 final, p. 6.

It is recommended that the Commission should:

- (Continue to) ensure fulfilment of the enabling conditions and ensure that all funded projects comply with the CRPD and harmonised accessibility requirements relevant to digitalisation, and support Member States in this respect. This should include addressing digitalisation and digital transformation in a disability-inclusive manner and ensuring accessibility.

- (Continue to) require that published research and findings resulting from EU-funded projects which address digitalisation and digital transformation and which include a disability perspective, including addressing accessibility are open access. This will facilitate capacity building and upskilling of ICT professionals and others, who will have easy access to up-to-date material.

- Require researchers and other recipients of EU funding to publish short accessible versions of their publications regarding issues which concern disability and digitalisation and digital transformation.

- (Continue to) utilise key funds, such as the Digital Europe Programme, Horizon Europe, Next Generation EU and the European Structural and Investment Funds to support disability-inclusive digitalisation, accessibility and digital transformation, bridging the digital gap and increasing digital competences of persons with disabilities, ensuring connectivity for all people and particularly those in marginalised communities, with low income and/or in rural settings.

- Encourage and support Member States to comply with the disability-specific requirements found in the Common Provisions Regulation (2021/1060), as well as monitoring compliance and taking remedial action where needed.

This report has noted that EU funding is sometimes used to support developments, projects and training regarding digitalisation and digital transformation which explicitly target persons with disabilities or disability-related issues, such as web accessibility, in the Member States. The Commission should continue to utilise EU funding to this end, and encourage Member States to do so, and should ensure relevant conditionalities are attached to funding. This applies to major funding programmes, such as the European Structural and Investment Funds and Horizon Europe (research programme), as well as smaller programmes, and the Next Generation EU COVID-19 recovery fund. In this respect, Member States should be encouraged to include bodies responsible for the rights of persons with disabilities in the relevant partnerships established under Article 8 of the Common Provisions Regulation (2021/1060). Member States should also be supported to ensure that managing authorities establish and apply selection criteria and procedures which are non-discriminatory and ensure accessibility to persons with disabilities (Article 73, Common Provisions Regulation (2021/1060)).

General conditionalities, principles and requirements related to EU funding should (continue to) require that projects supported by EU funds demonstrate that they are disability inclusive. Publications (partially) funded through EU funding concerning disability, accessibility and digitalisation and digital transformation should be open

access, as is now the case for research funded under Horizon Europe. Moreover, academics and other recipients of funding working on digitalisation and digital transformation and disability should be required to publish short accessible versions of their publications. These publications should be accessible in that they are easy to read/understand for non-academics as well as meeting disability accessibility criteria. In this respect, the Member States and the Commission should take appropriate steps to prevent any discrimination based on disability during the preparation, implementation, monitoring, reporting and evaluation of relevant EU funding programmes, and should ensure that accessibility for persons with disabilities is taken into account in the preparation and implementation of such programmes. These issues are also regarded as horizontal principles under Article 9(3) of the Common Provisions Regulation (2021/1060).

A number of EU funding programmes have particular potential to address disability-related issues in the context of digitalisation and digital transformation, including:

- the Digital Europe Programme.
- the Horizon Europe Fund, which funds research projects related to, *inter alia*, digitalisation; technologies and health care; and healthy ageing.
- the European Social Fund, which funds projects related to, *inter alia*, employment and training.
- the European Regional Development Fund, which funds projects related to, *inter alia*, rural development and infrastructure.

6.2.1.3 Capacity building and co-design involving disabled persons' organisations

It is recommended that the Commission should:

- Require that digitalisation projects explicitly involve disabled persons' organisation as co-partners. Where this is not feasible, the Commission should nevertheless require that disabled persons' organisations are still involved in the project, for example as members of an advisory panel, are consulted when defining specific goals of the project and are involved in monitoring progress. Representatives of disabled persons' organisations should receive adequate compensation for this work.
- Fund projects which have the explicit goal of capacity building of disabled persons' organisations in this area, and of building the digital skills of persons with disabilities.
- Fund the development and publication of open-access tools and resources on disability-inclusive digitalisation.
- Fund projects which have the explicit goal of building the capacity of digitalisation professionals in accessibility and disability-inclusive digitalisation.

- Fund the development and publication of open-access tools and resources on accessibility and disability-inclusive digitalisation.

Capacity building is essential for a number of groups in the context of disability and digitalisation/digital transformation.

This study has revealed that disabled persons' organisations are frequently not involved in policy development or the development of new digital technologies. At the same time, the study has noted that the creation of new digital technologies which are disability inclusive, or disability specific, can contribute to, for example, independent living, education and employment of persons with disabilities. One of the barriers to the involvement of disabled persons' organisations in developing new digital technologies and planning for their use is a lack of knowledge and capacity regarding digitalisation. A second barrier is the lack of willingness of researchers and developers to work with disabled persons' organisations, especially when they must first engage in capacity building with such organisations.

The EU can support the development of relevant capacity building of disabled persons' organisations in a number of ways through its funding programmes, including, as noted above, requiring that academics and scientists who receive EU funding to work on digitalisation publish short accessible versions of their findings that are fully open access. Disabled persons' organisations should be able to draw on these resources to participate in the co-design of accessible digital technologies.

Following on from this, the EU should also require that digitalisation projects explicitly involve disabled persons' organisations as co-partners if they are to receive funding, as well as funding projects which have the explicit goal of capacity building of disabled persons' organisations in this area.

Capacity building is also required for digital designers and developers. In order to support designers and developers to work in a disability-accessible way, the EU should use its funding programmes to support the development and publication of open access tools and resources which provide support in, for example, embedding accessible design in new digital technologies.

6.2.2 To States

6.2.2.1 Policy and strategy

It is recommended that states should:

- Ensure that digital strategies and plans and their implementation are disability inclusive, including by recognising the intersection of disability with age, social and economic exclusion and geography in the context of addressing digital exclusion and accessibility.

- Ensure actions to implement digital strategies comply with state-of-the-art accessibility standards.

- Fully explore and invest in the potential opportunities of digital technologies in the context of strategies, plans and initiatives to advance the rights of people with disabilities, including with respect to inclusive education, employment, transport and the transition from institutional care to independent living.

- Address digitalisation and digital transformation in monitoring frameworks and indicators concerning the implementation of National Disability Strategies

- Ensure that existing programmes to improve digital skills, both for the purposes of everyday living and to take advantage of the growing digital economy, are accessible and targeted at people with disabilities.

- Recognise and respond to the intersectional nature of digital exclusion and disadvantage experienced by persons with disabilities who are older, live in poverty and/or live in remote/rural areas through appropriate actions

This study has found that, while addressing digital exclusion is often a priority of national digitalisation strategies and plans, the particular barriers and risks faced by people with disabilities are often given little dedicated attention, save with respect to accessibility. Article 4(1) of the United Nations Convention on the Rights of Persons with Disabilities requires States Parties 'to adopt all appropriate legislative, administrative and other measures for the implementation of the rights recognized in the present Convention', and this obligation extends to the development and implementation of digitalisation strategies and plans. Further, the intersection of disability with age, socioeconomic disadvantage and/or geography is unaddressed in existing national digitalisation strategies which have been identified for this study. This not only risks entrenching the digital exclusion endured by people with disabilities, but also risks undermining the efficacy of strategies and plans to address digital exclusion generally. Mainstreaming consideration of the rights of people with disabilities into digital strategies and plans hence offers a way to enhance their efficacy and impact. Closely involving people with disabilities and disabled persons' organisations in the development, implementation and monitoring of plans provides the most effective way to do so and is explored in section 6.2.2.3 below.

This study has also found that, on the whole, the potential of digital technologies to advance the rights of people with disabilities, including in fields that have sometimes struggled to transform, such as inclusive education, employment and independent living, and the particular risks that digital technologies could pose to people with disabilities, are not addressed in national disability strategies or associated strategies and plans. As well as representing missed opportunities to harness digital technologies to overcome what sometimes seem to be intractable challenges, this oversight means that there is a risk that the fast pace of digital transformation could render strategies and plans conceived for a more analogue world increasingly obsolete. For example, the increased use of artificial intelligence and automation in the context of job recruitment could lead to patterns of disability discrimination that are hard to challenge legally due to the opacity of algorithmic decision-making and issues of accountability. States should look deeply at the opportunities that digitalisation presents for people with disabilities, and the risks that it poses to their rights, across all spheres of life, and begin the process of adjusting policy and strategy accordingly.

Finally, most countries in this study emphasise the importance of citizens acquiring digital skills, including basic digital competencies necessary for everyday life and more advanced skills through which states can develop competitive economies and through which future employment and prosperity can be secured. States should adopt measures to increase the skills of people with disabilities through targeted drives to increase participation and measures to ensure accessibility and inclusivity of learning.

6.2.2.2 Funding

It is recommended that states should:

- Make full use of the possibilities provided by EU public procurement law, as well as funding criteria and processes, to ensure accessibility and disability inclusivity with respect to digitalisation and digital transformation or projects and initiatives which rely upon digital technologies and as a catalyst for innovation, as well as ensuring that digital products and services purchased by public bodies are accessible and inclusive.

- Develop ways to incentivise and support innovation, including through financial investment, with respect to accessible digital technologies in fields such as independent living, where consumer markets may be under-developed (while clearly denoting areas in which increased digitalisation cannot be used as an alternative to in-person support). EU funding should be utilised in this respect.

- Fund and promote research to support disability-inclusive digitalisation, digital accessibility and digital transformation and with respect to developing the role of digital technologies across key fields of social change necessary to advance the rights of people with disabilities. EU funding should be utilised in this respect.

State and EU funding plays a decisive role in shaping the development and implementation of digitalisation and digital transformation. States can harness their financial leverage, including through the allocation of EU funding, to promote disability-inclusive digital technology, innovation in the development of digital technologies in fields of key importance to the advancement of disability rights, and with respect to research.

States should consider including criterion for the selection and awarding of public funding for projects involving digitalisation, emulating measures developed and adopted in Greece, Malta and Sweden, as outlined in section 4.5.2.1.

States should also consider how to incentivise innovation in key fields, for example through innovation grants and competitions, such as those organised by the Swedish Post and Telecom Agency (PTS), as outlined in section 4.5.2.1.[410]

[410] See: https://www.regeringen.se/49aa12/contentassets/0571a7504d49428292a6ab114e4b0263/nationellt-mal-och-inriktning-for-funktionshinderspolitiken-prop-2016-17_188.pdf.

Finally, Article 4(1)(f) of the UN Convention on the Rights of Persons with Disabilities obliges States Parties to 'undertake or promote research and development of universally designed goods, services, equipment and facilities', while Article 4(1)(g) obliges States Parties to 'undertake or promote research and development of, and to promote the availability and use of new technologies, including information and communications technologies, mobility aids, devices and assistive technologies, suitable for persons with disabilities, giving priority to technologies at an affordable cost.' To these ends, states are recommended to prioritise supporting research and development with respect both to disability-inclusive and disability-specific digital technologies, including with the support of European Union funding as outlined in section 6.2.1.2 above.

6.2.2.3 Capacity building and co-design involving disabled persons' organisations

It is recommended that states should:

Engage meaningfully with people with disabilities and their representative organisations with respect to the further development, implementation and monitoring of strategies, plans and initiatives on digitalisation and digital transformation.

Support disabled persons' organisations to develop the capacity to engage meaningfully with the development, implementation and monitoring of digital technologies and accessibility of such technology.

Support persons with disabilities to gain digital skills, including on accessibility, and digitalisation professionals to gain accessibility competences both in the public and in the private sector.

As noted in section 6.2.1.3, this study has revealed that disabled persons' organisations are frequently not involved in policy development or in the development of new digital technologies, which is not in conformity with Article 4(3) of the UN Convention on the Rights of Persons with Disabilities. Article 4(3) of the CRPD provides that: 'In the development and implementation of legislation and policies to implement the present Convention, and in other decision-making processes concerning issues relating to persons with disabilities, States Parties shall closely consult with and actively involve persons with disabilities, including children with disabilities, through their representative organizations.'

All states should adopt measures to ensure the meaningful involvement of people with disabilities and their representative organisations in the elaboration and implementation of digitalisation strategies and plans. Promising practices to emulate were identified in the EDE country reports for Denmark, Greece, Slovenia and Spain and are outlined in section 4.2.4 of this report.

States can support the development of relevant capacity building of disabled persons' organisations in a number of ways through their funding programmes, including, as noted above, requiring that academics and scientists who receive state funding to work on digitalisation publish short accessible versions of their findings that are fully open access. Disabled persons' organisations should be able to draw on these resources to participate in the co-design of accessible digital technologies.

States should also require that digitalisation projects explicitly involve disabled persons' organisations as co-partners if they are to receive public funding, as well as fund projects which have the explicit goal of capacity building of disabled persons' organisations in this area.

6.2.3 To disabled persons' organisations (DPOs)

It is recommended that disabled persons' organisations should:

- Give greater priority to digitalisation and digital transformation, as well as digital accessibility, both in the context of supporting individual people with disabilities, and with respect to advocacy and influencing.

- Consider and plan action to build and share capacity and knowledge concerning the opportunities and risks of digitalisation and digital transformation.

As noted in section 6.1, digitalisation and digital transformation are expected to radically change all aspects of life as we know it, and at pace, over the coming years. Digital technology holds considerable potential to open up the world, or to further isolate and segregate to people with disabilities. This report has found that people with disabilities and their representative organisations are not routinely involved in the development of digitalisation strategies and plans, and that digitalisation is often peripheral to strategies and plans concerning the rights of people with disabilities.

The capacity to understand, navigate, foresee and influence developments in digital technology and the frameworks for regulating and funding their development will be fundamental for the work of organisations of people with disabilities in the future, including in their campaigns for human rights, and for social and economic inclusion.

It is advisable, therefore, that organisations of people with disabilities give greater priority to the development and sharing of knowledge and capacity concerning digitalisation and digital transformation, including via the formation of partnerships with academics working on digital technologies, consumer organisations, and organisations working on digital rights.

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