Digitalisation and digital transformation in Slovakia

Implications for persons with disabilities

human
european
consultancy

Digitalisation and digital transformation in Slovakia

Implications for persons with disabilities

Darina Ondrušová
Daniela Kešelová
Mária Machajdíková

Table of contents

1   Executive summary

In Slovakia, like in other EU countries, digitisation gains more and more attention, especially in relation to building up various e-government services for the citizens as well as enterprises, although less so in particularly referring to people with disabilities. The overarching document which reflects the issues of digitalization and digital transformation is the *Strategy of digital transformation to 2030, which was adopted in 2019. Among its priorities are support of digital transformation at schools to improve digital skills, improvements in the ability of public administration to use data in policymaking, and the development of artificial intelligence.*

Also, the Recovery and Resilience Plan of Slovakia puts digitisation high on its agenda. nearly all of its 18 components contain digital aspect. However, only few of them take into an account specifically people with disabilities or other disadvantaged groups. For instance, investments into the improvements in digital skills of elderly people by trainings and distribution of equipment sum up to EUR 69.4 million (for more details, see section 2.1). Similarly, in the area of education, efforts have been made to support production of educational content in formats which are accessible for pupils with disabilities. Other strategies, such as National Concept of digitalization of public administration, or Smart City strategies, do not directly address digital inclusion of people with disabilities, although they focus on building up user-friendly communication tools, which may also include accessible settings for people with disabilities. Still, the ways in which developing user-friendly environments considers accessibility for people with disabilities, lack transparency (for more details, see section 2.2).

The National Disability Programme for years 2021-2030 as the key disability strategy then contains several measures to especially ensure accessible information / communication in various areas, such as culture, education, and the emergency services. However, it does not focus on the research in new technologies, or training of the adults with disabilities in digital skills (for more details, see section 3.1).

Still, despite not being explicitly included in national strategies in relation to people with disabilities, digitalisation has already positively affected many areas of life of people with disabilities. For instance, in 2007, Matej Hrebenda Slovak Library for the Blind in Levoča has launched online digital library which enables readers to download audio-books into their computers / cell-phones at any time, without the need to visit the library in person (for more details, see section 5.1). Similarly, a screen-reader Corvus, an application created by the blind for the blind, has been developed in Slovakia for access of Android environment in smartphones, including special interface tailored for users with visual impairment, to support the transition of users with impairments from traditional cell-phones to touchscreen smartphones.

Besides that, there are several training opportunities in the use of assistive technologies for people with disabilities, although they vary to a great extent according to the type of disability. Especially people with visual impairment seem to have good access to these trainings (for more details, see section 4.4). These trainings are not slinked to any specific strategy in the context of digitalisation.

On the other hand, one of the key challenges in terms of digitisation and persons with disabilities is to ensure not only the accessibility of the websites and mobile applications of public sector bodies, but also private sector including e. g. electronic

banking, as has been addressed by European Accessibility Act[1] (for more details, see section 5.2).

Good practices

In the area of employment, it has been quite common to employ people with mostly physical disabilities or those hard of hearing at the security surveillance monitoring centres in many Slovak towns. The intention was to replace the policemen (who have to meet certain physical and psychological criteria within the recruitment procedure) whose presence could be more useful directly in the streets with people with disabilities to watch the cameras and monitor and detect potential criminal activities. This practice has been developed without being embedded in any strategy on digitalisation (for more details on security surveillance monitoring municipal projects, see section 5.1).

The ESIF funding has also contributed to the progress in digital inclusion of people with disabilities. In particular, one call for projects in the Operational programme Human Resources has specifically addressed the development of new devices which support social integration of people with disabilities. The total allocation was EUR 1 977 000. Likewise, within the Operational Programme Integrated Infrastructure, a call "Digital Inclusion" was open in September 2019 to support projects dealing with the development of digital skills of disadvantaged groups of people, as well as those dealing with the support of assisted life and tele-medicine (for more details, see section 4.1).

Recommendations

Based on the findings of this report, it seems necessary to set up systemic and transparent approach for ensuring digital inclusion of people with disabilities by involving the DPOs in policymaking related to digital transformation and strengthening their capacities for advocacy activities in this area. Furthermore, it is necessary to address inequal access of some groups of people with disabilities, especially pupils with disabilities and people living in institutions, to digital technologies, by improving the affordability of the assistive devices, and increasing training opportunities for the use of these equipment. Finally, trainings for digital professionals and accessibility professionals in digital inclusion should become more available in order to support adoption of accessible solutions especially in the new e-government apps. Training opportunities for professionals, as well as users with disabilities, should be addressed by strategies on digitalisation in order to support the availability of new technologies and the opportunities related to them for people with disabilities.

---

[1] European Commission: European Accessibility Act: https://ec.europa.eu/social/main.jsp?catId=1202.

2 Are government strategies and plans on digitalisation and digital transformation disability-inclusive?

2.1 Disability inclusion in generic strategies on digitalisation and digital transformation

Slovakia has in force few strategic documents dealing with digital transformation, which, however, consider disability perspective only to a small extent.

The Strategy of Digital Transformation to 2030
The overarching document which reflects the issues of digitalisation and digital transformation is the Strategy of digital transformation to 2030.[2] According to the Strategy (2019) the digital transformation refers to five fields: economy (industry); society and education; public administration; regional development; science, research and innovations.

The Strategy sets the pre-requisites of digital transformation. These include:

- human resources, specifically educated labour force able to work in digital era;
- infrastructure;
- regulation framework.

It also divides the process of digitalisation into five phases:

1. raising investments to equipment;
2. raising investments to building and premises;
3. changes in personnel and equipment operating costs;
4. changes in work fields structures due to new technologies;
5. increasing demand for new products and services and the impact on demand for jobs.

To implement the Strategy, the Action plan of digital transformation of Slovakia for years 2019-2020 was created.[3] Its measures refer to four strategic goals:

- to support digital transformation at schools and education to improve employability and to gain digital skills and competencies necessary for digital era;
- to lay the foundations for data and digital economy and for the digital transformation of the economy;
- to improve the ability of public administration to innovate and to use data in favour of citizens;
- to support the development of artificial intelligence.

The Action plan does not include the disability specific measures. However, from the disability perspective, the first strategic goal seems to be the most important as one of

---

[2] Ministry of Investments, Regional Development and Informatization of the Slovak Republic (2019), *Stratégia digitálnej transformácie Slovenska 2030* (Strategy of digital transformation of Slovakia 2030), https://www.mirri.gov.sk/sekcie/informatizacia/digitalna-transformacia/strategia-digitalnej-transformacie-slovenska-2030/index.html.

[3] Ministry of Investments, Regional Development and Informatization of the Slovak Republic (2019), *Akčný plán digitálnej transformácie Slovenska na roky 2019-2022* (Action plan on digital transformation of Slovakia for years 2019-2022), https://www.mirri.gov.sk/wp-content/uploads/2019/07/Akcny-plan-DTS_2019-2022.pdf.

its measures contains some of the disability issues. It is the measure 1.1.5 within the strategic goal "Education and digital skills".

The measure aims at elaboration of analysis of digital skills and competencies in Slovakia and at proposing the standards of digital literacy for citizens based on the Digital Competence Framework for Citizens. This national standard of digital literacy sets the digital competencies for study, work and life for all groups of citizens. The group of pupils with special educational needs is mentioned besides the other groups, such as pupils (generally), students, adults in economically active age and older population. Students, adult population or older population with disabilities are not specifically mentioned.

The measures within the second strategic goal 'Modernisation and labour market opening' do not contain disability specific issues.

The Concept of Smart Industry for Slovakia and its action plan
Another strategic document concerning digital transformation, the Concept of Smart Industry for Slovakia[4] was approved by the Government Resolution No. 490 from 26 October 2016.[5] It was prepared by the Ministry of Economy of the Slovak Republic in cooperation with the industry representatives to address the challenges and opportunities concerning Industry 4.0. Industry 4.0 is considered as the fourth industrial revolution, which is in fact the digital revolution. It is based on the use of cyber-physical systems.[6]

The Concept describes the target groups, overlap of innovations in other sectors (transportation, healthcare), prerequisites of successful implementation of the Smart Industry concept, necessary changes in legislation to implement the concept and ways of financing the implementation of innovations. It also describes the utilisation of Smart Industry in selected sectors (industry, energy, research, labour market, education and training).

Within the labour market and education and training, the Concept recommends to creating new educational content to train high-skilled workers in robotics, Internet of Things, open data, programming, Artificial Intelligence, privacy security and protection, creative design. In teacher's training it is important to gain and improve new knowledge and skills to be able to adjust to new technologies. Particularly new trends in technology should be part of informatics teachers' training.

The changes in education and training should be provided in cooperation with academics, education representatives at all education levels (including lifelong learning) and with the representatives of industry.

---

[4] Ministry of Economy of the Slovak Republic (2016), *Koncepcia inteligentného priemyslu pre Slovensko* (The Concept of Smart Industry for Slovakia), https://www.economy.gov.sk/inovacie/strategie-a-politiky/smart-industry.

[5] Government of the Slovak Republic (2016), *Uznesenie vlády č. 490 z 26. októbra 2016* (Government resolution No. 490 from 26 October 2016), https://rokovania.gov.sk/RVL/Resolution/16080/1.

[6] SOVA Group (2021), Čo je Industry 4.0.(What is Industry 4.0), https://industry4.sk/o-industry-4-0/co-je-industry-4-0/.

The Concept (2016) was going to be implemented by the *Action Plan of Smart Industry* (2018),[7] which was adopted by the Government Resolution No. 461 from 10 October 2018.[8] It defines following priority areas:

- research, development and innovation;
- IT security of Smart Industry implementation;
- labour market and education;
- reference architecture, standardisation and creation of technical standards;
- information and promotion.

Within the labour market and education, the Action Plan (2018) emphasises the importance of education at all levels, including lifelong learning. The education should prepare students and participants to be able to meet the new requirements in Smart Industry.

From the disability perspective the Action Plan refers to the necessity of meeting the individual needs in human resources development. Specifically, the Action Plan mentions the support of persons from vulnerable groups (in general) in their access to education to gain and retain employment. On the other hand, its measures do not refer to disability, or accessibility issues. Still, its measures 9 and 10 refer to lifelong learning and requalification projects and programmes reflecting individual educational and training needs of labour force, including jobseekers, to gain and improve skills for Smart Industry.

UN Agenda 2030 and Sustainable Development Goals (SDGs)
In 2019 Slovakia set out six national priorities for the implementation of the 2030 Agenda, which exhibit its tailor-made road towards a more resilient and sustainable society.

1. Education for life in dignity (SDGs 4, 8 and 10);
2. Transformation towards an environmentally sustainable and knowledge-based economy in the context of demographic change (SDGs 8, 9, 10 and 12);
3. Poverty reduction and social inclusion. (SDGs 1, 2 and 10);
4. Sustainability of settlements, regions and the countryside in the context of climate change, and incorporates (SDGs 6, 7, 11, 13 and 15);
5. Significance of rule of law, democracy and security (SDGs 5 and 16);
6. Good health (SDGs 3 and 10).[9]

Digitalisation is mentioned only in Priority 5 in context of cyber security. In 2018, Slovakia was ranked first on the National Cyber Security Index, highlighting the quality of cyber security legislation and protection of digital services and data. Here is also reported as a positive achievement the new National Concept for the Protection of

---

[7] Ministry of Economy of the Slovak Republic (2018), *Návrh akčného plánu inteligentného priemyslu* (The Proposal of the action plan of Smart Industry), https://www.economy.gov.sk/uploads/files/8U6RKSS5.pdf.

[8] Government of the Slovak Republic (2018), *Uznesenie vlády č. 461 z 10. októbra 2018* (Government resolution No. 461 from 10 October 2018), https://rokovania.gov.sk/RVL/Resolution/17305/1.

[9] Deputy Prime Minister's Office for Investments and Informatisation of the Slovak Republic (2019), *Voluntary National Review of the Slovak Republic on the Implementation of the 2030 Agenda for Sustainable Development*, https://sustainabledevelopment.un.org/content/documents/20131Agenda2030_VNR_Slovakia.pdf.

Children in the Digital Space and its Action Plan for 2020-2021. Children with disabilities are mentioned in the foreword as one of the actors in digital space, but with no specific goal focusing on this vulnerable group.[10] The Progress Report on National outcomes of national priorities for Agenda 2030 in 2020 states several projects in terms of digitalisation of public services (part of the Public administration reform) and mentions problems that municipalities, especially smaller ones, still do not have sufficient professional, technical and financial capacities to provide high-quality services they are expected to provide to their citizens. However, Progress Report does not refer to people with disabilities and digitalisation at all.[11]

The Recovery and Resilience Plan
A new facility that European Commission has introduced in May 2020 aims to mitigate the economic and social impact of the coronavirus pandemic and make European economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions. Slovakia has prepared its Recovery and Resilience Plan which was submitted for the review to the European Commission at the end of April 2021.[12] The Plan consists of 18 components and 66 reforms in 5 priority policy areas.[13]

Table 1: Priority areas of the Recovery and Resilience Plan and allocation, in million EUR

	Total	Thereof on Digital transition	Thereof on Green transition
Green economy (5 Components)	2 301	170	2 199
Education (5 Components)	892	235	114
Science, Research and Innovation (2 Components)	739	156	79
Health (3 Components)	1 553	43	311
Effective public administration and digitalisation (5 Components)	1 110	730	29
	6 575	**1 334**	**2 732**

Source: Ministry of Finance of the Slovak Republic (2021), Plán obnovy a odolnosti, (Recovery and Resilience Plan)

---

[10] National Coordination Centre for Resolving the Issues of Violence against Children (2020), *Národná koncepcia ochrany detí v digitálnom priestore* (National Strategy for the Child Protection in the Digital Space), https://detstvobeznasilia.gov.sk/web_data/content/upload/subsubsub/2/narodna-koncepcia-ochrany-deti-v-digitalnom-priestore-1.pdf and *Akčný plán na roky 2020–2021 vychádzajúci z Národnej koncepcie ochrany detí v digitálnom priestore* (2020), (Action Plan for 2020–2021 based on the National Strategy for the Child Protection in the Digital Space), https://detstvobeznasilia.gov.sk/web_data/content/upload/subsubsub/2/akcny-plan-na-roky-2020-2021-1.pdf.

[11] Ministry of Investments, Regional Development and Informatisation of the Slovak Republic (2020), *Správa o dosiahnutých výsledkoch v národných prioritách implementácie Agendy 2030*, (Implementation Report on National outcomes of national priorities for Agenda 2030), https://www.mirri.gov.sk/wp-content/uploads/2020/12/SK_Sprava_dosiahnute_vysledky_A2030.pdf.

[12] Press Agency of the Slovak Republic (2021), *Vláda schválila plán obnovy, reformy a investície za 6,6 miliardy eur* (The Government of the Slovak republic has approved Recovery and Resilience Plan), 28 April 2021, https://www.teraz.sk/ekonomika/plan-obnovy-sr-v-objeme-66-mld-eur-sc/545060-clanok.html.

[13] Ministry of Finance of the Slovak Republic (2021), *Plán obnovy a odolnosti* (Recovery and Resilience Plan) https://www.planobnovy.sk/files/dokumenty/cely_plan_obnovy.pdf.

Thanks to the focus on digital transformation, nearly all components contain digital aspect. However, only few of them take into an account specifically people with disabilities or other disadvantaged groups. Reforms supporting inclusive education describe broadly inclusion of pupils with disabilities as challenge. Another reform aims to increase digital skills of seniors by trainings and distribution of senior tablets. Investment in this activity sums up to EUR 69.4 million.

Web accessibility
From the perspective of web accessibility, Slovakia has regulated the accessibility of the web environment (websites) for people with disabilities since 2006. In 2019, the new Act No. 95/2019 Coll. on Public Administration Information Systems has been adopted, in line with the Decree 55/2014 Coll. on Standards for Public Administration Information Systems. The WCGA 2.1 recommendations and the EU Directive No. 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies are incorporated into this legislation.

2.2 Disability inclusion in focused or sector-specific strategies on digitalisation and digital transformation

Digitalisation in education from a disability perspective
The digitalisation in education sector has had long development. The programmes Milenium and Infovek were set in 1999. Their goal was to equip every primary and secondary school with computers and internet access within the horizon of five years.

These programmes were followed by the project "Electronisation of the educational system of regional education" (EVSRŠ).[14] It was implemented from 22 November 2013 to 30 September 2015. It was financed from EU structural funds within the Operational Programme "Information Society". The goal was to build a functional electronic educational system and the commissioning of electronic services. It was implemented in 7 regions in Slovakia (it was not implemented in the Bratislava region).[15] The schools received 5 680 interactive boards and notebooks, 20 000 tablets, 1 000 wifi-routers and 2 686 colour printers. Total of 1 026 schools were equipped by modern tablet classroom. The project included activities such as digital equipment in the classrooms, digitalisation of educational content and training of lectures to provide continuing education of teachers.[16]

From the disability perspective the digitalisation of educational content is the most relevant issue in the strategic documents related to education. As it is stated on the project website, the digital educational content does not cover the specific educational needs of pupils with disabilities.[17]

---

[14] Supreme Audit Office of the Slovak Republic (2020), *Digitalizácia vzdelávania zaostáva, chýbajú financie, rýchly internet i kvalifikovaní ľudia* (Digitalisation of education lags behind with lack of finances, fast internet and qualified people), https://www.nku.gov.sk/aktuality/-/asset_publisher/9A3u/content/digitalizacia-vzdelavania-zaostava-chybaju-financie-rychly-internet-i-kvalifikovani-ludia?inheritRedirect=false.

[15] Ministry of Education, Science, Research and Sport of the Slovak Republic, 'Digiškola - NP Elektronizácia vzdelávacieho systému regionálneho školstva' (Digiškola – The National Project Electronisation of education system of regional education), https://www.minedu.sk/digiskola-np-elektronizacia-vzdelavacieho-systemu-regionalneho-skolstva/.

[16] Digiškola (2014), 'O projekte' (About the project), http://digiskola.sk/o-projekte/.

[17] Digiškola (2014), 'DVO' (Digital education content), http://dvo.digiskola.sk/#.

The importance of digitalisation of the educational content for pupils with disabilities was emphasized later in the Concept of informatisation and digitalisation of the education sector with the view to 2020.[18] It was approved in 2014. The main goal was to define the needs and activities in informatisation and digitalisation of education system to raise the quality of institutions in the system and to provide them with suitable support from the Ministry. The Concept had five priority strategic areas. These are:

- infrastructure and equipment for informatisation and digitalisation in education system;
- electronic services of the education system at national and regional level;
- digital educational content;
- digital skills and competencies;
- intersectoral, interdepartmental and international cooperation.

As stated above, disability related issues refer to the strategic area "Digitalisation of educational content". From the disability perspective, within this area the Concept contained the measures focused on simplification of the process of content creation and distribution among pupils with disabilities, specifically on improvements in accessibility of educational content for pupils with disabilities.

Besides, the Concluding Evaluation Report[19] of the National Disability Programme for years 2014-2020[20] contains the evaluation of the Programme's measure aimed at making the educational content accessible for pupils with disabilities for years 2018 and 2019.

The Ministry of Education reported fulfilling this measure on increasing accessibility of alternative and innovative learning forms and methods by using tablets, interactive whiteboards, iPads, digital textbooks, multimedia classroom, online educational programmes, interactive programmes ACTIVISPIRE, ALF, educational software with worksheets, e-learning via aSc EduPage.

Digitalisation of public administration
In September 2016, the government has adopted National Concept of digitalization of public administration up to 2020,[21] with an aim to further support e-government in

---

[18] Ministry of Education, Science, Research and Sport of the Slovak Republic (2014), *Koncepcia informatizácie a digitalizácie rezortu školstva s výhľadom do roku 2020* (The Concept of informatisation and digitalisation of the education sector with the view to 2020), https://www.minedu.sk/koncepcia-informatizacie-a-digitalizacie-rezortu-skolstva-s-vyhladom-do-roku-2020/.

[19] 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 years 2014-2020), https://www.employment.gov.sk/sk/rodina-socialna-pomoc/tazke-zdravotne-postihnutie/kontaktne-miesto-prava-osob-so-zdravotnym-postihnutim/.

[20] 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), 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.

[21] Office of the vicepresident of the Government for Investments and Digitalisation (2016), *Národná koncepcia informatizácie verejnej správy 2016* (National Concept of Digitalisation of Public Administration 2016), http://www.informatizacia.sk/narodna-koncepcia-informatizacie-verejnej-spravy--2016-/22662c.

Slovakia. This document was based on the previous strategy from 2008, as well as the evaluation of the Operational Programme Information Society 2007-2013. While the strategy from 2008 was focusing mainly on communication between the citizens and public administration bodies, the concept from 2016 had an aim to also enable digital communication between different public administration bodies. The concept is based on several sets of principles: business principles, data principles, application principles, technology principles, and security principles. From a disability perspective, these principles do not explicitly refer to people with disabilities, but clearly, they aim at building user-friendly e-government. For instance, one of the application principles states that all information system services that are available via GUI interface shall also be available via open interface (i.e., they shall also be available for persons who cannot use graphic interface).[22]

Smart City strategies
At the local level, various cities and towns introduced the concept of Smart City. Within this concept the Ministry of Economy (MH SR) published the document focused on the support of innovative solutions in towns and cities in Slovakia to set the basis for the Smart City projects in the country. The document describes key topics of the Smart City concept and its implementation. It also brings an overview on the national and international good examples and an overview on financing of the Smart City activities at regional, national, interregional and international level.[23]

The components of Smart City concept do not contain disability specific measures. Only the measure "wider care of vulnerable groups" is included in the Smart City "Health" component. Moreover, the document emphasises the importance of accessible technology innovations for various groups of population so people can use them efficiently and effectively.[24]

The Smart City concept is mentioned in the strategic document of the town of Nitra "The Strategy of the town of Nitra accessibility for all[25]". The document summarises the outcomes of the pilot project "The strategy proposal for ensuring the accessibility for all", which was implemented within the Operational Programme Efficient Public Administration, together with the representatives of the Slovak Blind and Partially Sighted Union. The document describes the priorities and goals to be fulfilled to consider the town to be accessible. From the disability perspective, it emphasises the importance of accessibility of electronic communication systems in the Smart City for persons with disabilities. The document also deals with education issues in the field of accessibility. It should be included in the continuing education of interested employees

---

[22] Office of the Vicepresident of the Government for Investments and Digitalisation (2016).
[23] Ministry of Economy of the Slovak Republic, *Podpora inovatívnych riešení v slovenských mestách* (Support for innovative solutions in the cities and towns in Slovakia), https://www.mhsr.sk/inovacie/strategie-a-politiky/smart-cities.
[24] Hučková, M., Svoboda, M., et al. (2017), *Podpora inovatívnych riešení v slovenských mestách* (Support for innovative solutions in the cities and towns in Slovakia), Bratislava, Ministry of Economy of the Slovak Republic, p. 86. https://www.mhsr.sk/uploads/files/n5m7duxS.pdf.
[25] Ajdariová P., Hajduková M., Hóková T., Hrozenská M., Korček P., Lehocká I., Mamojka B., Měchura M., Šimová N. and Teplický P. (2019), *Stratégia prístupnosti mesta Nitry pre všetkých* (The Strategy of the town of Nitra accessibility for all), https://www.minv.sk/swift_data/source/rozvoj_obcianskej_spolocnosti/participacia/vystupy_np_parti /2020/april_jun/5_MS_2_2019_P0178_PP9_NITRA_Strategia%20zabezpecenia%20pristupnosti% 20mesta%20Nitry%20pre%20osoby%20so%20zdravotnym%20postihnutim,%20seniorov,%20dalsi e%20skupiny%20obyvatelov%20a%20navstevnikov_vratane_metodicka_prirucka.pdf.

and focused on discussions and workshops about the barrier issues, projects legislation and communication with persons with disabilities.

3   Do disability strategies address the potential of and challenges pertaining to digitalisation and digital transformation?

3.1   How digitalisation and digital transformation are addressed in the national disability strategy

The new National Disability Programme for years 2021-2030[26] aims at the ICT accessibility issues across various sectors. To be specific, in the field of education the measure focuses on accessibility of educational websites and electronic document in accordance with the accessibility rules applicable to public administration information systems. The measure was proposed by the Slovak Blind and Partially Sighted Union. The responsible authorities are the Ministry of Education, Science, Research and Sport of the SR (MŠVVaŠ SR) and the Ministry of Investments, Regional Development and Informatisation of the SR (MIRRI SR).

Secondly, the ICT accessibility issues are included in the cultural sector, as follows:

-    making periodical and non-periodical publications (including digital textbooks) accessible for persons with visual impairment in cooperation with Matej Hrebenda Slovak Library for the Blind in Levoča,
-    making cultural events accessible for persons with visual impairment and for persons with hearing impairment,
-    making Slovak films accessible for persons with visual impairment and for persons with hearing impairment and
-    introduction of hidden subtitles live broadcasting.

Thirdly, the MIRRI SR is the responsible authority for the measure related rather to public administration. The measure aims at prevention and elimination of barriers for persons with disabilities in access to information, information systems, communication with public administration and to e-services provided to the public.

Furthermore, the Ministry of Interior is the responsible authority for providing an alternative access to 112 emergency number services and threat information. The measure should be fulfilled by the introduction of mobile application or an equivalent tool to make emergency services and alert messages accessible for persons with disabilities, specifically for persons with hearing impairment.

3.2   How digitalisation and digital transformation are addressed in specific disability-related strategies

Slovakia does not have specific disability related strategies in the areas of education, employment, health, social policies or other areas.

Concerning deinstitutionalisation, in 2011 the Strategy for Deinstitutionalisation of the System of Social Services and Substitute Care in the Slovak Republic[27] was adopted

---

[26] 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 years 2021-2030), https://www.employment.gov.sk/sk/rodina-socialna-pomoc/tazke-zdravotne-postihnutie/kontaktne-miesto-prava-osob-so-zdravotnym-postihnutim/.

[27] Ministry of Labour, Social Affairs and Family (2011), *Národná stratégia deinštitucionalizácie systému sociálnych služieb a náhradnej starostlivosti* (Strategy on deinstitutionalisation of the

as a basic conceptual document for the process of deinstitutionalisation of social services. Currently, the new strategy has been published for public commenting, and its approval by the government is expected in the following weeks.[28] These strategies do not specifically address digital inclusion of people living in institutions. The new strategy briefly reflects on the impacts of the COVID-19 pandemic on deinstitutionalisation – on the one hand, this process was slowed down, on the other hand, the need for deinstitutionalisation and small safe communities became even more obvious. The strategy sets out mid-term priorities such as linking the provision of social and healthcare, and support of active life of people living in institutions.

---

social services system and foster care in Slovakia),
https://www.employment.gov.sk/files/legislativa/dokumenty-zoznamy-pod/strategia-deinstitucionalizacie-systemu-socialnych-sluzieb-nahradnej-starostlivosti-1.pdf.

[28] 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), https://www.slov-lex.sk/legislativne-procesy/-/SK/dokumenty/LP-2021-106.

4   Promoting disability inclusion through funding, education and training

4.1   How funding promotes disability-inclusive digitalisation and digital transformation

There are no special public sources dedicated to support and promote digital inclusion of people with disabilities. There is no defined responsible authority, uniform approach or goals in the field of digital skills development. Most of the resources are allocated through different responsible entities (Ministry of Labour, Social Affairs and Family of the Slovak Republic, Ministry of Education, Science, Research and Sport of the Slovak Republic and Ministry of Investments, Regional Development and Informatisation of the Slovak Republic) and mainly thanks to European funds. Some new investments are planned via Recovery and Resilience Plan (for more details, see section 2.2 of this report)

Within the ESIF funding, there were several projects and calls under the different Operational Programmes.

Operational programme Human Resources
One call for projects under the Operational Programme Human Resources has specifically addressed the development of new devices which support social integration of people with disabilities. The total allocation was of EUR 1 977 000. The call was open from 3 November 2017 to 15 October 2019. Altogether, 23 projects were granted funding within this call, including the development of special software for children with autism, or first aid bracelet.[29] According to public informational system on EU funds 5 projects were terminated before completion.[30]

In May 2020, implementation of another project has started, national project focused on universal design. However, this project only deals with the accessibility and universal design of buildings and public spaces.[31]

Operational programme Integrated infrastructure
Operational Programme Integrated Infrastructure covers one call "Digital Inclusion" and few national projects (e-Inclusion through a comprehensive electronic solution of the problem of parking for people with disabilities, Improving the digital skills of seniors and disadvantaged groups in public administration, National system for testing and certification of digital competencies – eSMART).

Call "Digital Inclusion" was opened in September 2019 to support two types of projects:

---

[29] 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), https://ia.gov.sk/sk/dopytovo-orientovane-projekty/vyzvy/op-lz-dop-20174.1.html.

[30] Information on project from the call are available here: https://www.itms2014.sk/prehlad-projektov/projekty?ff=09hr3pUY5g-TkZi2uKyGVP4ww2c_3qW_I2LA3NcQC0FqPhQF900dbUihckwENeIakJHmCvwd1XkK2uIKXLEgI1Rgg-KY52ZoEFkTRyZZBpuA5LMBbnT-sBTcgOVrTMs0hrQl-r7YcXb7zeBVr3PkQ4qwHjJy7IjhKahhsYpLzVJrzYHcSAYEUidQTDx6ymhzA9YdZwACfhtYrEqcjMOJH_xMQOQkGe3IPBtnNHJi83aevR47D3lawm3Nnnym9Ab5oKc4nVcjkNureDIcl2xzEkk.

[31] 'Projekty CEDA FAD STU' ('Information about national project Universal Design Support'). https://www.fa.stuba.sk/sk/pracoviska/ceda-vyskumne-a-skoliace-centrum-bezbarieroveho-navrhovania/projekty-ceda-fad-stu.html?page_id=3100.

1. Development of digital skills, simplified access to the Internet and development of digital market participation for disadvantaged groups. This type of projects should aim at enabling accessibility to digital content and / or services or creating conditions for active participation of disadvantaged people in the digital environment. The outcomes of the projects should achieve at least one of the following required effects:
    -   ensuring the availability of digital content in an appropriate format for disadvantaged groups;
    -   creating conditions for the use of digital services by disadvantaged groups;
    -   improving digital skills for the digital inclusion of disadvantaged groups.
2. Introduction of tools to support assisted life and telemedicine. This type of projects should increase and / or introduce the use of tools to support assisted life and / or telemedicine to achieve better quality of life. The outcomes of the projects must achieve at least one of the following required effects:
    -   staying in the home environment;
    -   earlier return home after hospitalisation, or to social services;
    -   in the provision of health or social care, unproductive or incidental procedures (e.g. transport of a patient to a doctor) are eliminated;
    -   the provision of social and health services is interconnected/integrated.[32]

Eligible applicants for this call were organizations of state administration, other public administration entities outside the Bratislava Region. A total of EUR 15 million was earmarked for the call. Four projects were supported within this call, as listed in table 2. All these projects are still in implementation; no outcomes can be evaluated yet.

Table 2: Projects supported within the call "Digital inclusion"[33]

Subject	Type of the main activity	Name of the project	Amount (EUR)
Trencin Self-governing region	2.	Active Assisted Living support in Trenčín region[34]	3 918 830.24
The Slovak University of Technology in Bratislava	2.	Universal telemedicine system for outpatient management of cardiovascular diseases[35]	3 507 898.00
National Health Information Centre	2.	Detail of the tHealth Project - extension of eHealth with telemedicine services[36]	4 716 891.79
The Technical University of Košice	1.	Digital inclusion in education - a platform for making information and educational materials accessible to the visually impaired[37]	2 604 197.74
			14 747 817.77

---

[32] For more information about the call see https://www.mirri.gov.sk/projekty/projekty-esif/operacny-program-integrovana-infrastruktura/prioritna-os-7-informacna-spolocnost/vyzvania-a-vyzvy/vyzva-c-opii-2019-7-9-dop-na-predkladanie-ziadosti-o-poskytnutie-nenavratneho-financneho-pris.html.

[33] Source: https://www.itms2014.sk/.

[34] For more information about the project see https://www.itms2014.sk/projekt?id=62afc100-c9b2-4e48-a79a-829372bfe951.

[35] For more information about the project see https://www.itms2014.sk/projekt?id=0b7fb586-9d15-4526-9850-d7f22216ebc8.

[36] For more information about the project see https://www.itms2014.sk/projekt?id=4f749336-edce-4ee0-bc83-8791cb07082b.

[37] For more information about the project see https://www.itms2014.sk/projekt?id=6ead64d3-c837-4fe9-83f2-a069eac668b0.

National project "e-Inclusion through a comprehensive electronic solution of the problem of parking for people with disabilities"[38] was supposed to be contracted for EUR 9 133 014.62.

Expenditures in the amount of EUR 834 093.28 were expected for the first phase, in which three cities should have be involved since 1 January 2021. Several umbrella DPOs and Commissionaire for the people with disabilities were actively participating in preparation of this project. The aim was to introduce an intelligent parking management system, showing the occupied/free parking spaces for persons with disabilities in one mobile application. Submitters of the proposal declared the ambition to prepare a convenient and efficient solution, so it needed be addressed centrally as far as possible and include parking spaces for as many cities and municipalities as possible. In order for navigation to parking spaces to make sense for people with disabilities, it would have been necessary to ensure that they search only for places currently vacant. Therefore, the plan was to install 5 500 sensors in the car parks, which would monitor whether the parking spaces were occupied or not. The solution was also planned to be open to cover private car parks, which would have had their own sensors. Tokens - active identification elements in the form of plastic cards - should also have become a part of the parking card for people with disabilities. There should have been a total of 110 000 of them, and would have greatly reduce the possibility to counterfeit, which is a serious problem today. However, its implementation was cancelled.[39] Similar project has been implemented in city of Trnava as a part of Smart City initiative.[40]

The Ministry of Investments, Regional Development and Informatisation has been preparing new national project „Improving the digital skills of seniors and disadvantaged groups in public administration". The aim of the project is to create conditions for increasing the level of digital skills of the population and mitigating the negative impacts of technology and digitization on society. According to the main outputs of the project, involvement of people with disabilities is in position of verification/test group of IT platforms of distance education, electronic testing, education management and evaluation of the impacts on respondents.[41] This project builds upon the achievements of the preceding similar national project "National system for testing and certification of digital competencies - eSMART" with allocation of EUR 8 441 935.48, which was terminated before completion in December 2020.[42] Besides that, the Value for Money Unit of the Ministry of Finance has done analyses that questioned the need for preparing new system instead of upgrading the existing software.[43]

---

[38] For more information about the project see https://www.zdruzeniedeus.sk/einkluzia-tzp or https://www.itapa.sk/data/att/7039.pdf.

[39] For more details about the cancellation of the project see https://www.itms2014.sk/projekt?id=6417e2fa-96eb-4a23-8187-78a00d2f7e32.

[40] For more information see https://smartcitiesklub.sk/v-smart-trnave-ludia-so-zdravotnym-postihnutim-parkuju-jednoduchsie/.

[41] For more information see https://www.partnerskadohoda.gov.sk/verejne-pripomienkovanie-narodneho-projektu-zlepsovanie-digitalnych-zrucnosti-seniorov-a-znevyhodnenych-skupin-vo-verejnej-sprave/.

[42] https://www.opii.gov.sk/opiiapp.php/Projekty/show?id=1669.

[43] Ministry of Finance of the Slovak Republic (2019), *Hodnota za peniaze projektu Digitálny ekosystém inklúzie* (Value for Money of the Project Digital Ecosystem of the Inclusion), https://www.mfsr.sk/files/archiv/83/DEI_UHP_hodnotenie_20190220_1030.pdf.

The cash benefits to purchase or repair assistive devices

The cash benefits to purchase or repair assistive devices, and benefits for training on the usage of these devices are regulated under the Act No. 447/2008, as amended.[44] These benefits are paid directly from the state budget. The devices to which these benefits can be related include e.g., laptop/computer, special computer programs, light indicator, colour indicator, watches for a blind person, reading magnifier. These cash-benefits are means-tested.

Table 3: Number of recipients of the cash benefit to purchase assistive device[45]

2020	For assistive device purchase	From that: women	For device use training	From that: women	For device adjustments	From that: women
Number of recipients	1 556	756	17	6	4	1
Total amount in EUR	1 823 730.48	817 695.16	18 541.98	6 571.15	2 502.10	807.50

The cut-off limit for the cash benefit to purchase a device is the sum of 5 times subsistence minimum.[46] Since July 2021, the subsistence minimum for a single person equals to EUR 214.83 (i.e., the income of a person with disabilities cannot exceed EUR 1 074.15). The subsistence minimum is being announced annually by the Decree of the Ministry of Labour, Social Affairs and Family.[47] Otherwise, the highest contributions can be provided when the income of a person is below 2 times of subsistence minimum, however, some small co-payments are still required. The cash payments are then continuously decreasing up to the income of 5 times of subsistence minimum.

This is especially disadvantageous for single persons with disabilities who have a paid job. For example, when a single person receives full disability pension (EUR 379.95),[48] and has a minimum wage (EUR 520),[49] his / her total income (EUR 899.95) equals to 4.2 times of the subsistence minimum, which is slightly below the cut-off limit of EUR 1 074.15. If this employed person earns average wage (in 2019, EUR 1 092),[50] then

---

[44] Act No. 447/2008 Coll. L. on direct payments for compensation of severe disabilities, as amended (*Zákon č. 447/2008 Z. z. o peňažných príspevkoch na kompenzáciu ťažkého zdravotného postihnutia)*, https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2008/447/20160102.

[45] Source: https://www.upsvr.gov.sk/statistiky/socialne-veci-statistiky/2020/2019-socialne-davky.html?page_id=971504.

[46] Act No. 447/2008 Col. L.

[47] Ministry of Labour, Social Affairs and Family (2020), 'Výška životného minima od 1. Júla 2020' (Subsistence minimum since 1. July 2020), https://www.employment.gov.sk/sk/rodina-socialna-pomoc/hmotna-nudza/zivotne-minimum/vyska-zivotneho-minima-od-1-jula-2020.html.

[48] Social Insurance Agency, 'Priemerná výška vyplácaných dôchodkov', (Average sum of pensions paid in January 2021), https://www.socpoist.sk/priemerna-vyska-vyplacanych-dochodkov--v-mesiacoch-/1600s.

[49] Ministry of Labour, Social Affairs and Family (2021), 'Minimálna mzda od 1. Januára 2021' (Minimum wage since 1. January 2021), https://www.employment.gov.sk/sk/praca-zamestnanost/vztah-zamestnanca-zamestnavatela/odmenovanie/minimalna-mzda/.

[50] Statistical Office of the Slovak Republic (2021), 'Average monthly wage of employee in economy of the SR in the 4th quarter of 2020', https://slovak.statistics.sk/wps/portal/ext/products/informationmessages/inf_sprava_detail/a5a48da9-31ac-4971-92be-1a723ca18c11/!ut/p/z1/tVFNc4IwFPwtPXiMLyHHBhCM6FrDqVC1VcukERKXIh5rB-u8bOr30oLWHvkvem9nd2c2ChBXIUjXZVVumsKtXe3JHsvc14IPp94mLcH1McjJ4WU3_waHmhDcufADGdD3Hw4j578xEjmNkgb_NfQYJMSl3rHURVfFI7dMpRVm6QynUHm6U6FsZNU6boVB9Vc-ng5pTq3LzKVkyslYMoUQliDifIseIUEcUtmigiEkJa-TrJ1hDdhV7-lreNg6-Miw1ffkEGnuszPsZYjD0bB64fzp0Zpdil34AbGpHxwK96IByWTZaeISzbn9nD4o8RfQwjkFlcdM9J0c

---

his / her income (EUR 1 612) is higher than the cut-off limit of EUR 1 074.15, and he / she is not eligible to receive any cash benefit to purchase or repair a device at all.

On the other hand, when the same person who earns minimum wage has an age dependent child, then his / her income cut-off limit equals to EUR 1 564,55 (5 x EUR 312.91).[51] In this case, the level of co-payment would be lower, since her total income of EUR 899.95 equals to 2.9 times of subsistence minimum. For this reason, the current mechanism of income assessment can also be a disincentive for persons with disabilities to get employed.

4.2 How disability inclusion is promoted through the education and training of digital professionals

Some study programmes at universities include disability and accessibility matters. For example, the Faculty of Engineering at the Technical University in Košice deals with these issues within the study programmes Orthotics and protetics, Biomedicine engineering and Automatisation and control of machines and processes.

The accessibility matters are taught in the subjects such as: Biomedicine engineering, rehabilitation engineering, assistive technologies for persons with disabilities, Analysis of human moves, Communication interfaces, Systems with artificial intelligence, Wireless monitoring and control, ICT for smart environment, Comprehensive methods and tools of automatisation of processes, products and services.[52]

The courses within the ongoing professional development for ICT professionals have been provided by the Slovak Blind and Partially Sighted Union. They mostly deal with issues related to website accessibility.[53] The courses are provided on request of public sector organisations and private companies for their staff.[54]

4.3 How digital inclusion and accessibility is addressed in the education and training of accessibility and inclusion professionals

The most systemic activity in this context is specialized courses for disability coordinators at universities, which were organised by the Access Centre at the Technical University in Košice, as well as the Support Centre for Students with Special Needs at Comenius University in Bratislava. Disability coordinators provide assistance and support to students with specific educational needs, although they are usually scholars at universities whose main responsibilities are related to the research and

---

VdLjimnAtmMadnU9p2bh0ng8nWyCq9a8uoYHWXtqFm74eDdE2nVanTDw2r_yi1LsJC0AvKN5Mh ZTK-nN2HT_a1jUI!/dz/d5/L2dBISEvZ0FBIS9nQSEh/.

[51] Ministry of Labour, Social Affairs and Family (2020), 'Výška životného minima od 1. Júla 2020' (Subsistence minimum since 1. July 2020), https://www.employment.gov.sk/sk/rodina-socialna-pomoc/hmotna-nudza/zivotne-minimum/vyska-zivotneho-minima-od-1-jula-2020.html

[52] This information is based on the e-mail communication for the purpose of this report with Prof. Dušan Šimšík, Director of the Access Centre at the Technical University of Košice, date 3 May 2021.

[53] Slovak Blind and Partially Sighted Union, 'Kurzy / prednášky / školenia prístupnosti webových strán ok a mobilných aplikácií' (Courses / lectures / training on website and mobile applications accessibility), https://unss.sk/kurzy-prednasky-skolenia-pristupnosti-webovych-stranok-a-mobilnych-aplikacii/.

[54] This information is based on the e-mail communication for the purpose of this report with Mr. Peter Teplický, The head of Centre of Technical and Informatic Services Department, Slovak Blind and Partially Sighted Union, date 6 May 2021.

teaching. Therefore, the aim of the courses was to improve their knowledge on the available support for students with disabilities in the area of assistive devices.

The activities related to the use of the ICT and digitalisation have been included in educational activities of the Access Centre in Košice almost since the Centre was established in 2000. The content of specialized course on assistive technologies was focused on the introduction to the use of the assistive technologies in the Access Centre for students with specific educational needs depending on their disability. The target group of the workshop included university coordinators, university teachers and wider academic public.

In November 2018 the Centre organised two presentations and workshops:

1. Presentation of assistive technologies and a workshop "De-barrierization of buildings and transfer of immobile persons": the participants had a possibility to test the assistive technologies in person.
2. Presentation of RoboBraille service: focused on presentation of service which transfers the text documents to accessible electronic format or to Braille. The target group included the NGO representatives of persons with visual impairment and the university libraries staff.[55]

4.4 How digital inclusion is addressed via the training of people with disabilities

There are several training opportunities in the use of assistive technologies for people with disabilities. These opportunities seem to be different for people with various types of disabilities. Especially people with visual impairment have several training options. They can either participate in a course "Information technologies for the Blind", which is organised by Rehabilitation Centre for the Visually Impaired in Levoča and lasts 10 months. This course is mostly attended by people who lost their sight as adults, or they have been visually impaired graduates of special secondary school for the blind, and they still want to improve their IT skills in order to increase their opportunities to find a job. Since 1993, when this course was opened for the first time, 44 participants completed this training successfully.[56] Another option is to get individual training by the Slovak Blind and Partially Sighted Union (ÚNSS),[57] which is the largest organisation of visually impaired persons in Slovakia, and which also provides various types of support and services to these people. Moreover, the Centre for Technical and Information Services which is operating within the ÚNSS, publishes e-magazine Blindrevue,[58] which contains up-to-date information and advice on the latest technologies, their upgrades and accessibility. The ÚNSS also covers training of people with visual impairment in digital skills within their project activities. For instance, within the Erasmus+ project EDI – From education to inclusion, which has started in

---

[55] This information is based on the e-mail communication for the purpose of this report with Prof. Dušan Šimšík, Director of the Access Centre at the Technical University of Košice, date 3 May 2021.

[56] Rehabilitation Centre for the Visually Impaired, 'Informačné technológie pre ZP' (Information technologies for visually impaired) https://www.rszp.sk/operator.html.

[57] Slovak Blind and Partially Sighted Union, 'Služby Centra technických a informačných služieb' (Services of Centre of technical and information services at the Slovak Blind and Partially Sighted Union), https://unss.sk/sluzby-unss-pre-ludi-so-zrakovym-postihnutim/.

[58] 'Blindrevue – IT technológie pre osoby so zrakovým postihnutím' (Blindrevue – IT technologies for persons with visual impairment), https://blindrevue.sk/.

September 2019, they are currently recruiting visually impaired people for the training on information accessibility and self-advocacy in this area, which will take place in June 2021.[59] Similarly, the Support Centre for Students with Special Needs at the Comenius University in Bratislava implements a project aimed at supporting the teaching of informatics for primary and lower secondary pupils with severe visual impairment. It focuses on the thematic area Algorithmic problem solving.[60]

Concerning people with autism, the situation seems quite different. As stated by Mr. Ivan Štubňa,[61] president of SPOSA – Community for Help to People with Autism,[62] this organisation has not provided any training on digital skills in the last five years. As he explained, high functioning people with autism usually do not need such training as they can easily learn these skills within their natural environment – home or school. On the contrary, low-functioning people with autism might be able to learn to use the ICT, but it seems challenging to motivate them to use these technologies for purposes beyond their interests – programmes in which they are interested in.

Similarly, the executive director of The Association for help to people with intellectual disabilities in the SR[63] stated that in the past this association has organised trainings of computer and internet skills for their members, but currently, the demand for such trainings is low.[64] No organisation in Slovakia provides specific systemic trainings on digital skills to people with intellectual disabilities.

---

[59] 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/.

[60] Support Centre for Students with Special Needs at the Comenius University in Bratislava (2019), 'Rozvoj algoritmického myslenia žiakov základnej školy s ťažkým zrakovým postihnutím' (Computing Education for the Blind), https://uniba.sk/o-univerzite/rektorat-uk/oddelenie-socialnych-sluzieb-a-poradenstva-ossp/centrum-podpory-studentov-so-specifickymi-potrebami-cps/projekty/aktualne-projekty/rozvoj-algoritmickeho-myslenia-ziakov-zakladnej-skoly-s-tazkym-zrakovym-postihnutim/.

[61] Email communication for the purpose of this report, 28 April 2021.

[62] 'SPOSA – Spoločnosť na pomoc osobám s autizmom' (Community for Help to People with Autism), https://www.sposa.sk/.

[63] 'ZPMP v SR – Združenie na pomoc ľuďom s mentálnym postihnutím' (Association for help to people with intellectual disabilities in the SR), http://www.zpmpvsr.sk/index.php?option=com_content&task=view&id=31.

[64] Email communication for the purpose of this report, 30 April 2021.

5 The opportunities and challenges presented by digitalisation and digital transformation to the rights of persons with disabilities

5.1 The most significant opportunities presented by digitalisation and digital transformation for persons with disabilities

Undoubtedly, digitalisation has already positively affected many areas of life of people with disabilities. For instance, in 2007, Matej Hrebenda Slovak Library for the Blind in Levoča has launched online digital library which enables readers to download audio-books into their computers / cell-phones at any time, without the need to visit the library in person.[65] Similarly, a screen-reader Corvus, an application created by the blind for the blind, has been developed in Slovakia for access of Android environment in smartphones, including special interface tailored for users with visual impairment, to support the transition of these users from traditional cell-phones to touchscreen smartphones.[66]

In the area of employment, it has been quite common to employ people with mostly physical disabilities or those hard of hearing at the security surveillance monitoring centres in many Slovak towns. The intention was to replace the policemen (who have to meet certain physical and psychological criteria within the recruitment procedure) whose presence could be more useful directly in the streets with people with disabilities to watch the cameras and monitor and detect potential criminal activities. Possibly the first town which decided to set up workplaces for people with disabilities at the security surveillance monitoring centre was Nové Zámky back in 2005. Six people with physical impairment were recruited to monitor the views from the surveillance cameras and in case of suspect activities inform the police. As a surveillance system grew and three new surveillance cameras were added in January 2010, eight new part-time workplaces for people with disabilities were created.[67]

However, currently, there has not been any systemic debate of the DPOs on the opportunities of digitisation for people with disabilities. As mentioned in section 2.1 of this report, most concerns of the DPOs in relation to digitisation have to do with ensuring the accessibility of webpages / online applications, especially those run by national and municipal administration. In this context, there would be an opportunity for co-operation with newly created (in September 2020) state joint stock company Slovensko IT, which has an aim to propose and introduce new solutions for better communication between citizens and enterprises with the government and municipalities. So far, the issue of accessibility for citizens with disabilities has not been addressed in their official statements,[68] although they employ at least one accessibility expert who has e. g. tested the accessibility of COVID-automat app.[69]

---

[65] 'Matej Hrebenda Slovak Library for the Blind in Levoča – about us', https://www.skn.sk/en/about-us.

[66] 'About Corvus', https://www.corvuskit.com/en/zakladna-stranka/about-corvus.

[67] 'Kamerový systém budú sledovať zdravotne postihnutí' (Video Surveillance system will be monitored by people with disabilities), http://www.kysuce.sk/cl/23533/kamerovy-system-budu-sledovat-zdravotne-postihnuti.html.

[68] 'Slovensko IT – homepage', https://slovenskoit.sk/.

[69] Email communication for the purpose of this report with Mr. Peter Teplický, director of Centre of technical and information services at the Slovak Blind and Partially Sighted Union, from 6 May 2021.

Similarly, scholar works of specialised departments at universities, especially the Access Centre at the Technical University of Košice, focus on the development of new technologies addressing particular challenges of people with disabilities rather than discussing new opportunities concerning digitisation for people with disabilities.[70]

5.2 The most significant challenges faced by persons with disabilities in relation to digitalisation and digital transformation

It has to be noted that there are very few analyses focusing on the digital divides in relation to people with disabilities. One divide is the access of pupils with disabilities to online education, as it turned out during the COVID-19 pandemic.[71] In particular, the Institute of Educational Policy found out that in spring 2020, a large share of pupils with disabilities, especially those with intellectual disabilities who attend special primary schools, had no or very limited access to the distance education during the school closure due to COVID-19 lockdown. Approx. 3 100 pupils with disabilities at special primary schools (18.1 %) did not join any form of distance education. Their connection to distance education varied by the type of disability. Among pupils with autism 4.4 % did not connect to distance education while 21.2 % stayed out among pupils with intellectual disability. The other group of pupils was educated, but not online, because of lack of internet access or computer skills. These pupils received homework on paper to their homes and were contacted by teachers individually, e.g., by phone. In particular, 11 000 (63.6 %) of pupils with disabilities at special primary schools (almost the two thirds) were educated in this way. Again, their share was the highest among pupils with intellectual disabilities (73.1 %).[72]

Another divide may be presumed between people with disabilities living in institutions in comparison to those in their home environment. Although there is no exact evidence comparing the availability of assistive devices in these two groups, it seems that people with disabilities living in institutions, including those below the age of 65, have limited access to the equipments for online communication. In particular, during the pandemic, Association of social services providers delivered around 550 tablets to residential care homes to enable communication of their clients with their close persons. Several private companies were involved in the project who donated the tablets and association secured their distribution to clients of residential care homes.[73]

---

[70] See for example: Rákay, R., Višňovský, M., Galajdová, A. and Šimšík, D. (2015), 'Testing properties of E-health system based on Arduino' in: *Journal of Automation and Control*, Vol. 3, No. 3, pp. 122-126. ISSN 2372-3033.
Galajdová, A. and Šimšík, D. (2015), 'Experimental testing of wireless sensors network functionality'. in: *Journal of Automation and Control*, Vol. 3, No. 3, pp. 53-57. ISSN 2372-3033.
Šimšík, D., Galajdová, A., Rákay, R. and Onofrejová, D. (2015), Embedded sensors in monitoring of human daily activities. in: *Journal of Automation and Control*, Vol. 3, No. 3, pp. 48-52. ISSN 2372-3033.

[71] For more details, see EDE country report on COVID-19 for Slovakia.

[72] Ostertágová, A. and Čokyna, J. (2020), *Hlavné zistenia z dotazníkového prieskumu v základných a stredných školách o priebehu dištančnej výučby v školskom roku 2019/2020. Komentár 2/2020* (Main survey outcomes at primary and secondary schools on the process of distance education in the school year 2019/2020. Commentary 2/2020), Inštitút vzdelávacej politiky, https://www.minedu.sk/data/att/17338.pdf.

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

The third divide has to do with the affordability of the assistive devices especially for employed people with disabilities due to the current cut-off income limits for the cash benefits to purchase these devices (for more details, see section 4.1).

Finally, as already mentioned in section 2.1, one of the key challenges in terms of digitisation and persons with disabilities is to ensure not only the accessibility of the websites and mobile applications of public sector bodies, but also private sector including e. g. electronic banking, which is often not accessible in spite of the fact that it has been required or more beneficial to use electronic banking in payments to the public administration.

6 Conclusions and recommendations

6.1 Conclusions

To conclude, digital transformation has already brought many positive developments for people with disabilities, including better access to higher education and the labour market, or better access to public administration services.

However, current initiatives in the area of digitalisation in Slovakia seem to be limited on web-accessibility monitoring or other ad-hoc assessments, rather than discussing potential risks and opportunities of digital transformation for people with disabilities from a broader perspective. It seems that even the DPOs lack capacities for advocacy activities in this area, as some of them do not even provide training for their members on using the ICT. Training opportunities for digital professionals and accessibility professionals in digital inclusion also seem to be rather limited.

Furthermore, as mentioned in section 5.2, not all people with disabilities are able to benefit from digital transformation on an equal basis with others. Especially pupils with disabilities and people living in institutions have limited opportunities for online communication.

In addressing these challenges, the ESIF funding may be of a great significance, especially in relation to the accessibility of e-government services, and the development of new technologies in the area of education, employment, and independent living.

6.2 Recommendations

Based on the findings of this report, following recommendations can be made:

- The government together with the organisations of people with disabilities should set up systemic and transparent approach for ensuring digital inclusion of people with disabilities.
- The government should address inequal access of some groups of people with disabilities, especially pupils with disabilities and people living in institutions, to digital technologies, by improving the affordability of the assistive devices, and increasing training opportunities for the use of these equipments. For this purpose, the government should also consider digital inclusion in related strategies, such as the national strategy of deinstitutionalisation.
- The government should increase availability of trainings for digital professionals and accessibility professionals in digital inclusion, by supporting the creation and implementation of such training programmes.