Digitalisation and digital transformation in Estonia

Implications for persons with disabilities

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Implications for persons with disabilities

Liili Abuladze
Lauri Leppik
Luule Sakkeus

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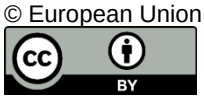

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1 Executive summary

The new strategy of the digital society 2030[1] as well as the development strategy 'Estonia 2035'[2] are the main national strategies drafted on this topic. The latter includes clearly stated purposes and indicators for the country's development, among them also for improving education and employment opportunities for people with disabilities, and improving the care system, using innovative and more integrated technological solutions.

Such strategies include a few generic statements on disability inclusiveness, which is often related to other government objectives in other main development strategies. The E-Health Vision 2025[3] (from 2014) already stated the need to improve information and e-systems in the health and care field, and also using more telemedicine and tele-care. However, these ideas have mostly originated from the need to cope in a context of limited (and not as qualified) work force availability, the dimensions of equal opportunities or independent living opportunities for people with disabilities have been acknowledged during more recent strategy development periods.

The green book (a discussion paper) on increasing the usage of technology for supporting coping and welfare at home[4] is a good example of including different civil society representatives (incl. those representing people with disabilities, older people, tech developers, social and health care specialists, etc.) in mapping and developing ideas. This was used as an input for the new Welfare Development Plan 2023- 2030.[5] The green book identifies the target group sizes, the main challenges and possible solutions for technological take-up in improving the welfare of people with disabilities.

The Welfare Development Plan 2016 – 2023 already mentioned the problem of cross-usage of data not being efficient (in the context of labour policy regarding people with disabilities), so the problem has been acknowledged already years ago on the state level. A similar statement has been copied to the following strategies, but often times this remains the only and a very generic statement.

The national process of harmonisation of the EU web-accessibility directive is well under way, and the respective ministerial working group included representatives of the Estonian Chamber of Disabled People and the Estonian Federation of the Blind. On the negative side, regular data is not presented by the state (Statistical Office) on digital divide by disability status. Also, a minority of the websites of the governmental agencies and only 1 % of the websites of local municipalities complied with the WCAG standards (as of latest available data from 2015).

1 Estonian Digital Society 2030 https://mkm.ee/sites/default/files/eesti_digiuhiskond_2030.pdf.
2 Estonia 2035 https://valitsus.ee/media/3926/download.
3 E-Health Vision 2025 https://www.sm.ee/sites/default/files/content-editors/eesmargid_ja_tegevused/Eesti_e_tervise_strateegia/e-tervise_visioon2025-v0.pdf.
4 The green book (discussion paper) on increasing the usage of technology for supporting coping and welfare at home https://www.sm.ee/sites/default/files/news-related-files/roheline_raamat_tehnoloogiakasutuse_suurendamine_inimese_igapaevase_toimetuleku_ja_heaolu_toetamiseks_kodus.pdf.
5 The Welfare Development Plan 2016 – 2023 https://www.sm.ee/sites/default/files/content-editors/eesmargid_ja_tegevused/welfare_development_plan_2016-2023.pdf.

Good practices

The shadow report of the Estonian Chamber of Disabled People (ECDP) on the implementation of the UN CRPD mentioned the national process of harmonisation of the EU web-accessibility directive as a positive development. Respective ministerial working group, which elaborated amendments to the Public Information Act, included representatives of the Estonian Chamber of Disabled People and the Estonian Federation of the Blind.

Also, the shadow report suggested digitalisation of the technical aids eligibility card, which certified eligibility to state-financed assistive devices and existed in a paper format. The recommendation was implemented from 1 December 2020 and since then eligibility to technical aids is verified online.

The European Social Funds have been used well by some educational institutions that provide free courses to specialists or company workers wanting to develop (digital) services for people with disabilities. An example is description translation training in Tallinn University.

The new strategies include plans to integrate different databases and information systems which have been fragmented up to now, causing people with disabilities difficulties in disability evaluation and receipt of aids and support benefits.

Recommendations

- Education and training opportunities at schooling as well as work environments need more improvement in increasing the inclusiveness of people with disabilities in the digital sphere (incl. training people with disabilities to use the new updated and smart solutions). Although the problematic integration of students with special needs has been mentioned as a problem in some strategies. EU funds have been allocated to improve this situation, but in general, the state supports differentiating classes or schools by disability.
- Representatives of people with various disabilities in the development, testing and evaluation phases of digital solutions (by the state as well as private sector) should be the norm.
- The routine collection, provision and publication of data on people with disabilities in different (digital) spheres and use of IT should be supported by the state, including through allocation of more funding for these purposes.

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

At the moment, **a new strategy**[6] **of the digital society** up to 2030 has been prepared by the Ministry of Economic Affairs and Communications. This is an update of the previous strategy "Digital Agenda for Estonia 2020".[7] The new strategy is not yet in force, but is planned to be approved by the Government during the first half of 2021. There is no mention of the funding sources. The strategy document mentions that one of the positive outcomes of this strategy would be improving distance working, and through that also the employment of people with mobility difficulties. The strategy also includes a general statement that one of the strategy's core principles is protecting human rights. There have been negotiation rounds with different stakeholders, also the final document is open for feedback to the general public as well as to all the ministries until the end of May 2021,[8] but it is not clear whether organisations representing persons with disabled people have been involved in the development of the strategy.

Until the new digitalisation strategy has been approved, the basis document for digitalisation and information society is **'The Principles of the Estonian Information Policy'** adopted in 1998.[9] This does not mention persons with disabilities.

The general **development strategy 'Estonia 2035'**[10] **and its action plan** is integrated with the economic coordination of the European Semester, serving as a basis for the planning of European Union (EU) funds and provides a direction for implementation of sustainable development goals in Estonia. It hasn't been adopted yet by the government. The document includes among its basic indicators the percentage of people perceiving disability or long-term illness as a major risk, aiming to reduce the share by 2035 below the current level of 60.7 % of the adult population with such concerns.[11] Also, it includes several sub-aims that include people with special needs. One of the objectives (A) is developing a comprehensive population and family policy which also mentions developing services for children with complex problems and continuing the transition to family-based care. A separate objective (D) related to disabled people is modernising the occupational health system to support health and reduce people's incapacity for work. This includes developing innovative technological solutions. It aims to improve the availability and accessibility of different governmental services to different population groups (under objective E). Persons with special needs have been previously having trouble with reaching and accessing all services due to the shift in the responsibilities between the state and the local government levels.

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6 Estonian Digital Society 2030 https://mkm.ee/sites/default/files/eesti_digiuhiskond_2030.pdf.
7 Digital Agenda for Estonia 2020 https://www.mkm.ee/sites/default/files/digitalagenda2020_final.pdf.
8 The Ministry of Economic Affairs and Communications https://www.mkm.ee/et/eesmargid-tegevused/infouhiskond/digiuhiskonna-arengukava-2030.
9 The Principles of the Estonian Information Policy, adopted in 1998 https://www.riigiteataja.ee/akt/75308.
10 Estonia 2035 https://valitsus.ee/media/3926/download.
11 This is based on the OECD 2018 survey "Risks that matter" https://www.oecd.org/els/soc/Risks-That-Matter-2018-Main-Findings.pdf. According to this, 60.7 % of all Estonian respondents aged 18-70 listed 'becoming ill or disabled' as one of the top-three perceived social or economic risks for them or their immediate family in the next years. Falling ill or becoming disabled is the most common socio-economic concern people in Estonia are worried about.

Creating education and employment opportunities for people with special needs is a separate sub-objective (under objective F). A separate objective (H) is improving the well-being and social activity of people with special needs and improving the efficiency of the long-term care system. That includes sub-points on including the technological or information services in care and integration of health, employment and social protection, i.e., using innovative technological solutions in the social sector.

Another **development strategy focusses on information and communication technologies of local governments in 2020 – 2023**.[12] This aims at coordinating the cooperation between the state and local governments in developing centralised, harmonised and updated simple IT solutions and information systems. The procedures of and receiving the service outcome should be simple and understandable for the individual, irrespective of the number of information systems that the information is retrieved from. It also lays out some aspects that the coordination activities should take into account, such as data privacy, following the EU accessibility directive, and following the public sector legislation requirements regarding accessibility of persons with disabilities and open data processing, among other things. The document aims at solving problems in cooperation with different ministries to harmonise the use of different information systems, including the one of the Social Insurance Board that is responsible for social services.

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

The Estonian Lifelong Learning Strategy 2020[13] has been replaced with the **Education Strategy 2021 – 2035**[14] which has not been approved yet finally by the government. The Estonian Chamber of Disabled People is part of the steering committee that has been counselling the preparation of the strategy. Core connections to other aspects include equal opportunities for access to education and learning (incl. for people with special needs) and improving digital skills across life for all people.

The strategic priority number 1 states that flexible individual-based learning paths are intertwined with life-long learning in the next 15 years. Therefore, barriers between formal, non-formal and informal learning should decrease, and the learner should be able to shape their learning according to their needs and capabilities. Multiple learning environments, including the digital one, are mentioned as one of the future learning formats. Persons with special needs are mentioned in different parts of the strategy document, but no explicit link with digitalisation can be found.

In the chapter on the organisation of education it has been mentioned that current support systems are not sufficiently efficient to implement inclusive education and accessibility to education that would cross different ministries. In the chapter of labour market, it has been also generally mentioned that there is a lack of systemic approach to support risk groups (incl. persons with special needs) in case of economic sector

[12] The development strategy on IT in local governments 2020- 2023 https://www.elvl.ee/documents/21189341/28398411/KOV+IKT+arengukava+20-2023+%287.02.20%29_kodulehele.pdf/295f0123-f2bb-4cdc-93fa-1a5dd180502c.

[13] The Estonian Lifelong Learning Strategy 2020 https://www.hm.ee/sites/default/files/strateegia2020.pdf.

[14] Education Strategy 2021 – 2035 https://www.hm.ee/sites/default/files/haridusvaldkonna_arengukava_2035_29.10.2020_riigikokku.pdf.

changes. Also, it mentions that the transition to the labour market is not systemically supported for persons with special needs. The previous version of the strategy – the Estonian Lifelong Learning Strategy 2020 had a strong digital focus[15] which aimed at increasing teachers' competencies as well as schools' technological capabilities in general. Within this strategy, the provision of platforms for teachers to share content was established – such as e-koolikott[16] and Koolielu.[17]

The **Youth Strategy 2021- 2035**[18] aims at empowering young people – the document has been prepared also by the Ministry of Education and Science, but needs final approval from the government. Similarly, to the Education Strategy 2021-2035 it includes connections to core themes such as equal opportunities (to participate in youth work also for persons with special needs) and digital society. The document also aims to have a positive effect on the access to services among persons with special needs, but does not explicitly mention activities connecting digitalisation and persons with special needs.

As part of the E-Health Strategy 2020 also **E-Health Vision 2025**[19] was framed, which is currently still in force. This document originates from 2014, so the main aims include improving the health and care system by improving the relevant information and e-systems.

One of the four focuses is improving the availability of medical, nursing and care help by using intelligence solutions and optimising human labour. This includes telemedicine and tele-care, taking into account the decreasing work force and increasing costs for institutional services.

Other focuses include patient/individual-centred and integration of health and social care. The first focus aims to increase the role of personal or precision medicine which is based better analysis of different data sources and systems, including gene information. The latter mentions that the online individual patient portal has in the future become a health care consulting centre for the person where cases are first analysed with machine algorithms. After this, the person will be directed to a relevant health care professional or given self-help guidelines.

The document lists different trends, and their potential impact in health care. Among them are various IT and robotic devices and sensors that allow integration ("embedded systems") to receive more medical data. Also, the spread of big data and the development of AI is expected to help better data analysis of personal medical data. Different communication technologies are expected to improve communication between different relevant parties (but also might increase information noise).

[15] The Ministry of Education and Research https://www.hm.ee/en/activities/digital-focus.
[16] https://e-koolikott.ee/.
[17] https://koolielu.ee/.
[18] The Youth Strategy 2021 – 2035 https://www.hm.ee/sites/default/files/noortevaldkonna_arengukava_2035_eelnou_0.pdf.
[19] E-Health Vision 2025 https://www.sm.ee/sites/default/files/content-editors/eesmargid_ja_tegevused/Eesti_e_tervise_strateegia/e-tervise_visioon2025-v0.pdf.

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 **Welfare Development Plan 2016 – 2023**[20] is replacing previous disability strategies. One of the problems mentioned in the document is the labour force participation of persons with disabilities. It is mentioned that the e-applications of labour policy are not purposeful and coherent enough (cross-usage of data is not efficient). So, one of the aims is to ensure that all information systems and e-applications are coherent, updated and accessible to different population groups (availability of information in Russian, to partially sighted persons, the deaf, and people with an intellectual disability).

There is also direct reference made to the UN Convention on the Rights of Persons with Disabilities that Estonia has joined and that guides access to physical environment, services and information for everyone. In addition to mentioning the importance of accessibility on websites for disabled people and compiling a universal design standard with the support of the state, the principles of universal design are prioritised in developing the physical environment, products, and services in general.

One of the policy instruments mentioned in the plan is that the data register for social services and benefits (STAR) and the social data warehouse (SAIT) shall be further developed to allow the cross-use of the social sector's data sources and to obtain flexible statistical outputs necessary for policymaking in a modern and comfortable environment. Additionally, it is mentioned that all information systems and e-applications are coherent, updated, and accessible, including for partially sighted persons, the deaf, and people with an intellectual disability. In addition to that, e-services are being developed.

The Ministry of Social Affairs has evaluated[21] the fulfilment of different targets set in the plan. The employment rate of people with decreased working ability (ages 15 – 64; slide 11), absolute and relative poverty of people with disabilities (slides 23, 25) as well as receiving different care services at home as well as in institutions by age and disability (slides 32-34) have been evaluated. For several indicators, except for the employment rate and absolute poverty, the situation worsened by 2020, but an improvement is projected for the upcoming years. However, evaluation regarding the digital aspect has not been made.

A new **Welfare Development Plan 2023 – 2030**[22] has been drafted already – this widens the scope of the existing plan. The final draft, after consultations and working group meetings, is scheduled to be ready by the beginning of 2022. The welfare policies of children and families, employment policy, care policy and gender equality are the four target spheres. One of the challenges mentioned under the welfare policies of children and families is fragmented data collection and problematic information

[20] The Welfare Development Plan 2016 – 2023 https://www.sm.ee/sites/default/files/content-editors/eesmargid_ja_tegevused/welfare_development_plan_2016-2023.pdf.
[21] Presentation by H.Sinisaar, 20.11.2020 https://www.sm.ee/sites/default/files/hea_ja_lpa_eesmargid.pdf.
[22] The Welfare Development Plan 2023 – 2030 https://www.valitsus.ee/media/3946/download.

exchange that does not allow getting an overview of the needs and outcomes of services and benefits provided to children with special needs and their families. Moreover, necessary services are lacking for children with complex problems in order to prevent institutionalisation.

The care policy section mentions that the Estonian care system uses innovation too little, which could be improved by taking up smart solutions as well as new working habits that could potentially decrease the support need of people. Also, the cross-usage of data is mentioned as a challenge. Three levels of data usage improvement are identified: data exchange and skilful use of data between support receivers and providers, cross-usage of data for policymaking and management, and data cross-usage for research and development. Providing digital solutions is mentioned as one way to develop services supporting independent living. Accessibility is mentioned as an important aspect to improve, keeping in mind also people with disabilities, under the section of gender equality and equal treatment.

The Ministry of Social Affairs has also prepared a **green book** (a discussion paper) on increasing the usage of technology for supporting coping and welfare at home.[23] This was prepared in close cooperation with different civil society representatives (incl. those representing people with disabilities, older people, tech developers, social and health care specialists, etc.), and it acts as a discussion framework to increase innovation in the social sector. It has been referred to also in the new Welfare Development Plan 2023- 2030. The book identifies the target group sizes (e.g., that the amount of people with mental special needs has increased by about 5 % per year), the main challenges and possible solutions for technological take-up in improving the welfare of people with disabilities. The document mentions that digital solutions that are to be integrated into different information systems to improve the welfare should involve people with special needs early on in the development phase as well as in the testing of solutions. Different stakeholders have been identified, such as enterprises, public sector, civil society and community, education and science organisations (incl. disability organisations), who can provide different solutions.

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

The **development plan of population health 2020 – 2030**[24] which is still to be adopted, mentions under sub-target number 6 of health supporting choices that the role of digital media in health behaviour and choices is acknowledged. That means that innovative solutions have been developed in cooperation with different level and sector representatives. Among other outcomes it is mentioned that good quality data and analyses exist to evaluate the situation and to use in policymaking.

The sub-target number 8 on human-centred healthcare mentions that as an outcome Estonia will be among the global forerunners of using digital solutions in healthcare.

[23] The green book (discussion paper) on increasing the usage of technology for supporting coping and welfare at home https://www.sm.ee/sites/default/files/news-related-files/roheline_raamat_tehnoloogiakasutuse_suurendamine_inimese_igapaevase_toimetuleku_ja_heaolu_toetamiseks_kodus.pdf.

[24] The development plan of population health 2020 – 2030 https://www.sm.ee/sites/default/files/content-editors/Tervishoid/rta_05.05.pdf.

One way how to reach this is by investing in and contributing to the infrastructure that support human-centred and integrated healthcare service provision.

Similarly, to other strategic documents these statements are relatively generic, and stem from the general long-term acknowledgment in the country of the need to develop and update the fragmented technological and digital (health) information systems and various registries. In addition, the strategy document takes a somewhat ableist approach, assuming that everyone can, if prevention is implemented, achieve the prescribed health (behaviour) indicators. Although reducing inequality in health by gender, region, age and education is mentioned in the document, disabled people are not included as a separate group whose health inequalities in relation to the general population could be reduced.

4 Promoting disability inclusion through funding, education and training

4.1 How funding promotes disability-inclusive digitalisation and digital transformation

There is no information on such requirements in the strategies.

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

One specialty of (digital) product design at the national arts' academy has a course[25] where the mentioned obligatory literature includes mostly articles on the perspective of disabled people in product design.

In general, most courses in Estonian higher education institutions require at least 75 % of attendance at lectures, but the option of attending online is not mentioned anywhere (although during the last one and a half years most of the studying and lectures has taken place online).

In general, inclusion of students with special needs in the Estonian education system has been problematic for a long time – students with special needs have a higher drop-out rate than non-disabled students, also the completion rate of tertiary education level is lower among adults with disabilities.[26]

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

Tallinn University provides a free course on descriptive translation[27] to people working in companies that (want to) provide such a service. One of the aims of the course is to introduce the culture consumption of people with visual impairments. It is funded by the European Social Fund.

Social work and rehabilitation organisation (vocational higher education degree)[28] under Tartu University provides an obligatory course on basic digital competencies.[29] Optional courses include also internet marketing, graphic design and building websites with WordPress.[30]

[25] Enesejuhtimine, tiimitöö, mentorlus 1 [Self-direction, teamwork, mentoring 1] https://artun.ois.ee/curriculum-subject/view?curriculum_id=10&subject_id=8797&year=2020.
[26] European Semester 2020-2021 country fiche on disability equality: Estonia https://op.europa.eu/en/publication-detail/-/publication/3704fffc-a70d-11eb-9585-01aa75ed71a1/language-en/format-PDF/source-213474333.
[27] Descriptive translation course https://www.tlu.ee/bfm/kirjeldustolge-visuaalsuse-vahendaja-0.
[28] Social work and rehabilitation organisation curricula https://ois2.ut.ee/#/curricula/2946/version/2021/details.
[29] Course on basic digital competencies https://ois2.ut.ee/#/courses/SVPC.00.052/details.
[30] According to the authors, there is nothing to add here related to accessibility.

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

From September 2021, the Tallinn School of Service will open a 9-month learning programme[31] for students with special needs who might need help with choosing their next education specialty. It is a vocational programme which does not require having a basic education level beforehand. Among other things, skills in computer use can be improved during this programme.

Previously, study programmes/ adult courses have been organised based on the support of the European Union Social Fund for people with disabilities who have been unemployed for more than 6 months.[32] This free training programme aimed to train people in creative industry sphere, such as design, audiovisuals, etc.

This year, the Country Development Centres are organising free trainings[33] to improve digital skills, such as on social media, building user-friendly websites, etc. These are funded by the Ministry of Economics, and the opportunity was communicated to organisations representing disabled people.

The Estonian Chamber of Disabled People is also providing trainings[34] to disabled people as well as to others interested in improving their knowledge of the situation on disabled people. The Chamber has also developed principles[35] of trainings that they give. Among the topics of trainings are accessibility, (technical) aids and adjusting the environment, for example.

There are state-level stipends and exceptions as well as more specific stipends to access studying for people with disabilities (in technology specialties). First, the Higher Education Act[36] stipulates that students with a disability or parents of a disabled child are exempt from paying additional fees in case the required level of credits has not been obtained by the end of the semester.

Also, students with special needs are entitled to a national stipend[37] – the amount ranges EUR 60 – EUR 510 per month, and it can be received for one semester (5 months) or two semesters (10 months) per one year.

Tallinn University has a stipend[38] for students with mobility, visual or hearing impairment. The amount is EUR 640 for full-time and EUR 320 for part-time students. It can be applied once per study year for up to 10 months.

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31 Kutsevaliku õppekava [Occupation choice programme] https://www.teeninduskool.ee/?page_id=13076.

32 Free training programme (April 2019) https://www.epikoda.ee/uudised/mtu-pro-civitas-kutsub-tootuid-osalema-tasuta-koolitusprogrammis.

33 Õpi koos Google'ga [Learn with Google] https://www.arenduskeskused.ee/opi-koos-googleiga/.

34 The Estonian Chamber of Disabled People https://www.epikoda.ee/spetsialistile/kusi-nou.

35 The Estonian Chamber of Disabled People - Principles of Trainings https://www.epikoda.ee/media/pages/spetsialistile/kusi-nou/3071214536-1580292490/taienduskoolitustegevuse-korraldamise-kord-16.08.2016.pdf.

36 Higher Education Act https://www.riigiteataja.ee/en/eli/525062020001/consolide.

37 Students' national stipends, their amounts and regulation https://www.riigiteataja.ee/akt/125092020002.

38 Tallinn University stipend for students with special needs https://www.tlu.ee/tlu-liikumis-nagemis-voi-kuulmisfunktsiooni-korvalekaldega-uliopilase-stipendium.

The Unemployment Insurance Fund has a degree study allowance[39] for adults who are unemployed or employed and cannot work due to health (must be proven by a decision of the occupational health physician, for example).

[39] Degree study allowance https://www.tootukassa.ee/eng/content/prevention-unemployment/eligibility-allowance.

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

The latest shadow report of the Estonian Chamber of Disabled People (ECDP) on the implementation of the UN CRPD specifically addressed two areas where digital technologies present new opportunities for persons with disabilities:[40]

- E-services, developed by the state, local governments and private sector. E-services of the state and local governments facilitate the claiming of benefits and other services, but also other forms of participation, such as participation in surveys and web-based questionnaires.
- E-voting, which is actively used in Estonia and allows to vote at home with an ID-card. E-voting can be used, for example by a person who due to disability is hindered to go to the polling station.

As an example of a positive development, the shadow report mentioned the national process of harmonisation of the EU web-accessibility directive. Respective ministerial working group, which elaborated amendments to the Public Information Act, included representatives of the Estonian Chamber of Disabled People and the Estonian Federation of the Blind.

As one of the policy recommendations, the shadow report suggested digitalisation of the technical aids eligibility card, which certified eligibility to state-financed assistive devices and existed in a paper format. The latter recommendation was implemented from 1 December 2020 and since then eligibility to technical aids is verified online.[41]

The list of technical aids, adopted by the decree of the Minister of Social Protection, includes certain digital tools to facilitate web accessibility, e.g., screen magnification software, screen readers and text readers (including software updates).[42]

The 2018 shadow report however did not explore the potential opportunities of digitalisation in other fields of life, e.g., education or the world of work.

The Estonian E-Commerce Association, which is an umbrella organisation of the e-commerce businesses and the promoter and competence centre in this field, has recommended its members to take into consideration the recent EU requirements on web-accessibility[43] for persons with disabilities when developing further the e-commerce software. The Association has developed a 9-item checklist for e-commerce

[40] Eesti Puuetega Inimeste Koda (2018). Puuetega inimeste eluolu Eestis: ÜRO puuetega inimeste õiguste konventsiooni täitmise variraport. [The life of persons with disabilities in Estonia: the shadow report on implementation of the UN convention on the rights of persons with disabilities] https://www.epikoda.ee/wp-content/uploads/2018/03/EPIK_variraport_webi.pdf.

[41] Invaru. Isikliku abivahendi kaart, https://www.invaru.ee/isikliku-abivahendi-kaart.

[42] Sotsiaalkaitseministri 21.12.2015 määrus nr 74 “Abivahendite loetelu, abivahendite eest tasu maksmise kohustuse riigi poolt ülevõtmise otsustamise ja erandite tegemise tingimused ja kord ning abivahendi kaardi andmed”. Lisa 1 – Abivahendite loetelu, https://www.riigiteataja.ee/akt/129122015041?leiaKehtiv.

[43] According to the authors, there is nothing to add here related to accessibility of mainstream technologies.

providers to check whether their web-shops comply with the WCAG requirements.[44] However, for the time being, given that the requirements of the EU directive become mandatory only from 2025, compatibility with the web-accessibility requirements is not a prerequisite for awarding the label of 'Trustworthy e-shop" by the Association.[45]

Liister (2020) has outlined that digitalisation of services could potentially help to equalize the situation of persons with disabilities as such services, provided that their design is accessible and they are easy to use, are flexible in terms of time, location and physical capacities of the client. E-services which meet such requirements would allow higher independence, better coping and higher quality of life of persons with disabilities.[46]

The 2018 Charter of the E-state, compiled under the initiatives of the State Audit Office and the Office of the Chancellor of Justice, also stresses that the special needs of persons with disabilities shall be taken into account in the process of development of public services and the website of government agencies shall meet the standards of the Web Content Accessibility Guidelines (WCAG).[47]

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

The Estonian Statistical Office (ESO) annually conducts a survey on IT in households to monitor availability of computers, access to and usage of internet at home. While data published in the ESO database allow analysing the digital divide by gender, age group, household type, education, employment status, and urban/rural residence, regular data is not presented on digital divide by disability status.

The latest available analysis on the digital divide of persons with disabilities is the Master thesis of Hänni (2016), which is based on ESO survey data from 2015. According to this analysis, the digital divide in internet usage between persons with and without disabilities is relatively small – less than 10 percentage points – in 16-54 age groups. In 16-24 age group the internet usage is nearly 100 per cent both among persons with disabilities and without disabilities. The difference between persons with and without disabilities increases with age. In 45-54 age group 85.2 % of persons with disabilities used internet, as opposed to 94.6 % of persons without disabilities. The digital divide is more significant in older (55+) age groups. In 55-64 age group 53.4 % of persons with disabilities used internet, as opposed to 79.2 % of persons without disabilities, increasing the gap to over 25 percentage points. There is also a difference in the frequency of internet usage. Whereas 88.3 % of persons without disabilities used internet on a daily basis, the share of daily users among persons with disabilities was 70.4 %. Notably, however, when comparing the 2015 data with the 2013 data, Hänni

[44] Eesti E-kaubanduse Liit. Ligipääsetavuse kiirtest e-poodidele **Fout! De hyperlinkverwijzing is ongeldig.**.

[45] Eesti E-kaubanduse Liit. Muudatused e-kaubanduse seadusandluses aastal 2021 https://www.e-kaubanduseliit.ee/uudised/2021-seadusemuudatused-e-kaubanduses.

[46] Liister, M. (2020). Hea juurdepääs e-teenustele tagab inimeste võrdsema kohtlemise. [Good access to e-services will ensure more equal treatment of people]. *Sotsiaaltöö*, 1/2020 https://www.tai.ee/et/sotsiaaltoo/hea-juurdepaas-e-teenustele-tagab-inimeste-vordsema-kohtlemise.

[47] Igaühe õigused e-riigis. E-riigi harta (2018) http://www.riigikontroll.ee/LinkClick.aspx?fileticket=nPvMkUvuKWU%3d&tabid=305&mid=908&language=et-EE&forcedownload=true.

(2016) observed a significant decrease in the digital disability divide – internet usage among persons with disabilities had increased more rapidly than among persons without disabilities, in particular in 25-54 age groups. As to the purposes of internet usage, the analysis of Hänni (2016) did not reveal significant differences between persons with and without disabilities. It may be expected that the internet usage has further increased over the last 5 years since this analysis was conducted, but more up-to-date analyses are not available.

The 2018 shadow report of the ECPD referred to the 2015 study commissioned by the Ministry of Economy and Communication, whereby only 28 % of the web-sites of the governmental agencies and only 1 % of the web-sites of local municipalities complied with the WCAG standards.[48] The main problems related to the absence of assistive modules (e.g. special software or plug-ins) enabling access to the content by persons with disabilities, and the lack of textual alternatives to information presented in picture or video formats. This presents a general challenge on access to information. The particularly low accessibility of websites local municipalities further hinders access to public services, given that in Estonia local municipalities have a primary responsibility on provision of social welfare services.

The report also highlights obstacles related to the use of e-services developed by the private sector, such as e-banking, e-commerce and courier delivery services. While both the public and the private sector have significantly expanded services based on smart phones and other smart devices, there have been no regular courses offered by the public authorities for persons with visual impairments on how to use such smart devices.

In the context of transposition of the EU Directive 2016/2102 and subsequent amendments to the Public Information Act, from 2020 the Data Protection Inspectorate is entrusted with the task to monitor the implementation of WCAG 2.1 standards in Estonia.[49]

[48] Majandus- ja Kommunikatsiooniministeerium (2015). Avaliku sektori veebilehtede vastavus WCAG 2.0 nõuetele 2015. aastal. Uuringu aruanne, https://www.mkm.ee/sites/default/files/wcag_aruanne_2015.pdf.

[49] Andmekaitse Inspektsioon. Veebilehtede ligipääsetavusest, https://www.aki.ee/et/teabe-avalikkus/veebilehtedele-ligipaasetavusest.

6 Conclusions and recommendations

6.1 Conclusions

Major national strategies are being updated for the new EU funding period up to 2030 or 2035. The fragmentation of different information systems has been voiced as a problem by various scientists as well as representatives of people with disabilities for years already. The new strategies include more explicitly plans to integrate different databases and information systems which have been fragmented up to now, causing people with disabilities difficulties in disability evaluation and receipt of aids and support benefits. Often these statements remain relatively general and generic, thus it is not clear whether and how much the actual situation will improve as a result of these strategies. In general, the high reliance on the EU funds and lack of sustainable funding is acknowledged as a risk. These risks are planned to be mitigated by using separate financing measures and activities, clear steps in deciding which projects to finance, and more focus on prevention rather than consequences.

There is also some attention to improving accessibility in the digital environment for people with disabilities. Major divides in the use of digital devices and internet are across different age groups – middle-aged and older people with disabilities are not using or are using very little the digital opportunities. This demonstrates problems not in the information systems, but in training opportunities, coordinated by employers and other organisations. Internalised as well as societal attitudes take time to change to include all different people in education and employment sphere.

6.2 Recommendations

Recommendations to state-level actors:

- Improve education and training opportunities in the digital sphere for people with disabilities by creating clearer requirements in the education field, providing (financial) incentives, organising interactive awareness raising programmes, etc.
- Implement inclusive education from early schooling stages more clearly (as now special schools for children with special needs are still remaining).
- Monitor and develop stimulus activities for employers to take up more inclusive behaviour in their training and hiring practices to increase inclusiveness of disabled people in the digital sphere.
- Include representatives of people with various disabilities in the development, testing and evaluation phases of digital solutions.
- Include representatives of people with various disabilities in legislative, communication and representative positions/ roles/ bodies.
- State support to collect, provide and publish data by disability in various fields
- Enhance access to enabling technologies for persons with disabilities.

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