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Digitalisation and digital transformation in the Netherlands

Implications for persons with disabilities

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1   Executive summary

Government regards the impact of digitalisation as a transforming power in all possible domains in society. The aim is to facilitate opportunities to scale up digital applications in the economy while securing safety and privacy of citizens. The digitalisation strategy consists of cooperation in developing the national strategy with representatives of universities, expert centres, national employer organisations, individual companies, municipalities, and a range of private initiatives working on digital applications. DPO's are not involved. The strategy aims to give room for all kinds of initiatives and projects. Funding of the strategy is part of regular budgets.

Sector specific strategies are:

-    Digitalisation as a strategy to combat illiteracy. This strategy is meant to support people who have low reading skills and low digital skills and people with intellectual disabilities are mentioned as a target group.
-    Digitalisation of all government services and secure inclusion of all citizens in digitalised government services; the aim is to make digital access as easy as possible, to educate people on digital skills. The intention is to regulate the digitalisation of government services in a new Act.
-    A strategic action plan on artificial intelligence consists of forming an alliance of government and private companies working on artificial intelligence. Guidelines are formed with which companies are to secure respect for basic human rights and to prevent discriminatory effects of algorithms.
-    A strategy on introducing e-health solutions and developing and introducing applications and digital innovations in long term care.

The general digitalisation strategy and the sector specific strategies do not explicitly state that all citizens should be included and they are mostly not disability inclusive. DPO's are not involved. They are not facilitated financially to seek involvement. A law proposal that aims at regulating digitalising government services does not mention the legal obligation to guarantee accessibility of digital services and does not introduce sanctions when government websites are found not to be fully accessible. The strategy on e-health and the action plan on introducing digital innovation does involve consultation of DPO's albeit without facilitating the DPO's such that they can be consulted in a meaningful way. For instance, DPO's do not get funding to gain specific knowledge on the subject or to hire experts that could support them in the consultation process.

Digitalisation and digital transformation are described in strategies as having the potential to improve inclusion of people with disabilities and thus improve their quality of life, albeit without targeted or related funding to implement accessibility. Usually, the introduction of apps or individual adaptive equipment is viewed as good practice of enhancing the ability for people to participate more easily in society.[1] It has been noted though that the added value of apps is not always clear. Moreover, the strategy to

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[1]   An elaborate system is used, based on three different Acts to provide people with disabilities with equipment with the specific legal aim to enable people with disabilities to participate on the labour market and schools, in leisure activities and to be able to live independently in their own home. These three acts are Zorgverzekeringswet (Basic Insurance Act), Wet Maatschappelijke Ondersteuning (Social Support Act) and Wet Reintegratievoorzieningen Arbeidsgehandicapten (Act Reintegration Labourdisabled).

develop digital innovations (such as online support) can be driven by the need to provide more cost efficient care by reducing personal contact. This can have the counter effect for people reliant on personal supports for participation who may become less included.

The inclination to focus on individual adaptive equipment may provide individual people with disabilities better opportunities in the labour market, but the strategy ignores the need for structural changes in the labour market where people with disabilities are not widely accepted.

Government acknowledges the risk that many people (22 %) have low digital skills and run the risk of being excluded from digitalised government services. There is an intention to make digital access as easy as possible and to provide more education in digital skills. It is unclear though how many people are reached by these measures and if sufficient alternatives are offered. Accessibility of government websites and apps are monitored by the National Government, as is required by the Web Accessibility Directive[2] but accessibility of government services in general is not monitored. Less than a third of Government officials state that accessibility is part of the public procurement conditions for the website or app services although accessibility requirements are mandatory in procurement procedures.[3]

People with disabilities have no way of filing formal complaints on discrimination when they find that government services are inaccessible. The Netherlands Institute for Human Rights is by law restricted to take complaints on discrimination for government services.[4]

Good practices

There is acknowledgement that many people lack digital skills. It is good practice to offer easy access to education on digital skills via a national foundation working on improving reading and writing skills and via additional support in libraries.

In most digitalisation strategies government sets up public-private alliances with innovative companies, expert centres, universities and vocational colleges and NGO's. These alliances stimulate cooperation between developers, companies, students and academics who work on technical innovations and NGO's and government representatives who are potentially guarding common interests of society. The representation of people with disabilities and their organisations is missed. DPO's are not facilitated to develop advocacy work on digital transformation.

A good practice is the intent to facilitate companies who introduce apps and innovative adaptive equipment to get general funding for their products via basic health care

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[2] First monitoring report on accessibility of government websites and apps: (Rapport nulmeting toegankelijkheid 2019), October 2019.
https://www.rijksoverheid.nl/documenten/rapporten/2019/10/22/bijlage-rapport-nulmeting-toegankelijkheid-2019.

[3] Page 55 of the First monitoring report on accessibility of government websites and apps:
https://www.rijksoverheid.nl/documenten/rapporten/2019/10/22/bijlage-rapport-nulmeting-toegankelijkheid-2019.

[4] The Netherlands Institute for Human Rights is not allowed to judge complaints on 'unilateral acts' of government such as decisions on tax revenues: https://mensenrechten.nl/nl/klacht-over-een-overheidsinstantie.

insurance or the social support act. This enables easy and free of charge provisions of the new apps and equipment to people with disabilities.

Recommendations

1. Involve DPO's in all strategies and fund them such that they can gain knowledge on the subject, organize user led innovation, and that they can develop advocacy work on digitalisation.

2. Introduce the legal right to personal contact in all government services and services by companies as a way of providing equal access.

3. Make accessibility of digitalised services mandatory and introduce effective remedies if websites and applications by government are not accessible.

4. Commission research on how digitalisation could transform attitudinal obstacles in society for people with a disability.

5. Divert the automatic aim of cost efficiency in digitalisation strategies into the aim to facilitate people with disabilities to be more included in society and to respect human rights.

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

National Government formulated a digitalisation strategy in 2018 which is renewed every year.[5] The Government regards the impact of digitalisation as a transforming power in all possible domains in society. Two targets are stated. One is to facilitate opportunities to scale up digital applications in the economy and community and to make the Netherlands a frontrunner in Europe on digitalisation. The second is to secure safety and privacy of citizens.

Three ministerial departments are specifically involved: the department of economy, responsible for the infrastructure of digitalisation; the department of internal affairs, responsible of for digitalisation of government's services; the department of justice responsible for cyber security and legal protection. The department of health, welfare and sports, responsible for disability policies, is not involved.

The strategy is based on structural cooperation in developing the national strategy with representatives of universities, expert centres, national employer organisations, individual companies, municipalities and a range of private initiatives working on digital applications.[6] These types of organisations are represented in advisory councils/alliances on the national strategy and in sub alliances on specific aspects (such as digitalising government services;[7] developing artificial intelligence;[8] the project Smart Cities;[9] the alliance on digital community;[10] the Data Sharing Coalition).[11]

Disabled people's organizations were not involved in the national digitalisation strategy. In one of the sub alliances - the alliance for digital community, which has the aim of ensuring inclusion of all people in the digitalisation of society - one NGO for elderly people is involved.[12]

As of July 2018, a Temporary Decree on Digital Accessibility Government[13] is implemented (as a result of the European directive on digital accessibility). This decree

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[5] Nederlandse Digitaliseringsstrategie 2018-2021. (Digitalisation Strategy). Letter to Parliament. June 2018 https://www.nederlanddigitaal.nl/nederlandse-digitaliseringsstrategie and Digitaliseringsstrategie 2021. Letter to Parliament, April 2021 https://www.rijksoverheid.nl/documenten/kamerstukken/2021/04/26/nederlandse-digitaliseringsstrategie-2021.

[6] Beraad Nederland Digitaal. (Advisory Netherlands Digital) https://www.nederlanddigitaal.nl/actueel/nieuws/2019/03/21/beraad-nederland-digitaal-voor-het-eerst-bijeen.

[7] De digitale overheid (the digital government) https://www.digitaleoverheid.nl/.

[8] AI Coalitie (AI coalition), https://nlaic.com/en/about-nl-aic/.

[9] Public-private advisory organisation on the national digitalisation strategy called Nederland digitaal https://www.nederlanddigitaal.nl/. Sub councils are (among others): AI Digitaal: https://nlaic.com/; alliantie digitaal Samenleven (Alliance Digital community): https://digitaalsamenleven.nl/over-de-alliantie/.

[10] Alliantie digitaal samenleven (alliance on digital community) https://digitaalsamenleven.nl/over-de-alliantie/.

[11] Data Sharng Coalition https://datasharingcoalition.eu/participants/.

[12] Nationaal Ouderenfonds (National Foundation for Elderly) https://ouderenfonds.nl/over-ons/.

[13] Tijdelijk besluit digitale toegankelijkheid overheid, https://wetten.overheid.nl/BWBR0040936/2018-07-01.

makes it mandatory for all websites by Government and Government agencies to be accessible for people with disabilities as of September 2020 and for mobile apps from government agencies to be accessible as of June 2021.

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

1: Dutch government identifies digitalisation as a strategy to combat illiteracy. The strategy is set up by the departments of education; social affairs and employment; internal affairs; and the national library,[14] in cooperation with all local Dutch libraries, and an NGO on literacy.[15] The strategy aims to use social media and online courses to reach out to people who have low reading skills (among whom can be people with intellectual disabilities) and low digital skills. Online courses and social media are believed to reach a larger audience compared to offering enrolment in more traditional education or training courses.[16] A specific website has been set up to offer easy training opportunities to improve both reading/maths skills and digital skills.[17] An example of the use of social media for training in literacy is Eva, a project aiming at educating and empowering women.[18]

2. All government services (national, regional, local) and government related services are digitalised. It means that information and requests, applying for benefits, for provisions, paying taxes, receiving notifications, applying for support for instance for reintegration on the labour market, can (and for the most parts can only) be accessed digitally. The national disability strategy acknowledged that digitalisation of government services on a large scale runs the risk of excluding people with (intellectual) disabilities who may have low reading skills and low digital skills. Therefore, the promise has been in the national disability strategy that government services should stay accessible for those groups.

A specific action plan on digital inclusion of government services gives form to that promise.[19] The plan, presented in 2018, contains 4 specific goals: to make digital services easy to use; to help and educate people with digitalisation; to explain the importance of digitalisation and fund research on this topic; and to cooperate with companies and NGO's in a public-private alliance to share experiences and knowledge on how to make digital services accessible.

The main focus in the strategy is to provide educational opportunities for people with low digital skills. The action plan contains measures that are also part of the strategy to use digitalisation in order to combat illiteracy (see above). An important partner for government in the digital inclusion plan is an NGO that specialises in improving

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[14] Described in the Nederlandse Digitaliseringstrategie (National digitalisation strategy) 2018.

[15] The NGO Stichting Lezen en Schrijven https://www.lezenenschrijven.nl/.

[16] Described in the Nederlandse Digitaliseringstrategie (National digitalisation strategy) 2018.

[17] These websites are called oefenen.nl (translates as Practice) https://oefenen.nl/.
and Digitaal Hulpplein (digital support place) https://www.hetinformatiepunt.nl/.

[18] Eva, acronym for Education of Women with Ambition https://www.lezenenschrijven.nl/wat-doen-wij/oplossing-voor-je-vraagstuk/speciale-aandacht-voor-vrouwen.

[19] Kamerbrief Digitale inclusie. Letter to Parliament on digital inclusion, December 2018, https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/archief/toegankelijkheid/kamerbrief-digitale-inclusie/.

literacy.[20] A specific website originally set up to provide easy read explanations on topics relevant for people with intellectual disabilities, is being used to help educate people with intellectual disabilities on how to access and use the national login procedure for digitalised government services.[21]

The ability to access government services online has become crucial. Most government agencies cannot be easily accessed in person anymore (not least during the COVID-19 pandemic) and sending in paperwork is discouraged by government agencies.[22] It is recognised that many people may find it difficult to login and access services, such as applying for benefits, digitally. Part of the digital inclusion strategy is to make it easier for representatives of persons with disabilities to gain formal authorization to use a digital login code on behalf of the person with a disability they want to represent. The authorization process requires supporters or representatives to use the social security and service number of the person who is not able to login personally and to apply for a digital authorization. The authorisation code is sent to the home address of the person with a disability and can then be used by the representative to login in with government agencies. This procedure by postal address is meant to prevent abuse. Accessibility therefore is granted via support workers or family members.

The digital inclusion strategy supposes that all services are accessible via accessible websites or apps. The Temporary Decree on Digital Accessibility Government[23] makes accessibility of government websites and apps mandatory. Most websites and apps do not yet comply. In 2020 a private foundation which monitors accessibility of government websites stated that many websites do not yet comply with the new standard.[24] Another private foundation[25] published 23 June 2021 that the large majority of government services apps were not accessible at that day and that no information was being provided on how and when the apps would be made accessible. Only one of 1000 governments websites was fully accessible on 23 June 2021, 4.1 % was partially accessible.[26]

A first formal monitoring report commissioned by National Government on compliance with the Temporary Decree on Digital Accessibility the Government concluded that the majority of websites and apps from the government are not fully accessible.[27] The

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[20] The NGO is stichting Lezen en Schrijven (reading and writing foundation) https://www.lezenenschrijven.nl/reading-and-writing-foundation.

[21] Digital login of government services https://www.steffie.nl/nieuws/onderwerpen/digid-is-te-moeilijk.html.

[22] An example is applying for benefits at the administrative authority UWV. Offices do not receive visitors. Applications are to be done online. The option to download a paper form is available but the button to do so is small and less visible than the button for the online application, https://www.uwv.nl/particulieren/formulieren/aanvragen-beoordeling-arbeidsvermogen.aspx. Another example is a municipality (Velsen) who do not allow a persons with an intellectual disability to come in in person or to send in paperwork in applying for an unemployment benefit and reintegration support. The standard procedure is to apply online only.

[23] Tijdelijk besluit digitale toegankelijkheid overheid https://wetten.overheid.nl/BWBR0040936/2018-07-01.

[24] Foundation accessibility https://www.accessibility.nl/nieuws/nieuwe-overheidswebsites-en-apps-moeten-vanaf-nu-toegankelijk-zijn and webpage https://www.accessibility.nl/nieuws/zeven-prangende-vragen-over-de-toegankelijkheidsdeadline-van-23-september-2020.

[25] Foundation Appt https://appt.nl/over.

[26] Website article by Appt https://appt.nl/nieuws/wettelijke-verplichting-apps-23-juni.

[27] First monitoring report on accessibility of government websites and apps: (Rapport nulmeting toegankelijkheid 2019), October 2019,

monitoring report noted that inaccessibility of websites and apps was mostly due to barriers in the technical setup and that accessibility could not be provided by changing the content of websites or apps. Less than a third of the government officials who were interviewed for this monitoring report, stated that accessibility is part of the public procurement conditions for the websites or app services.[28] This means that in over two thirds of public procurement procedures for government websites, accessibility requirements are not fully taken into account. This is a breach of the legal obligation to include technical accessibility requirements for people with disabilities if the government aims to procure services aimed at the general public and if binding European legislation applies (such as the Web Accessibility Directive and the European Accessibility Act).[29]

The Act on Equal Treatment on the Ground of Disability or Chronic Illness[30] offers protection against discrimination on any type of disability or chronic illness in offering delivery of goods and services as a consequence of ratifying the UNCRPD. Based on this act citizens may file a discrimination complaint if services are inaccessible to them. A blind customer of a bank who could not use a bank app had success with such a complaint with the Dutch Human Rights Institute. The Institute judged in 2017 that the bank was guilty of discrimination for not making the app accessible.[31]

However, the Government is exempted from complaints on discrimination before the Netherlands Institute for Human Rights. In a complaint case on inaccessibility of train transport the Institute for Human Rights concluded that the provincial Government had not included a specific accessibility requirement in the tender procedure. The lack of this specific accessibility requirement should therefore be blamed not on the train transport provider but on the decision by the provincial Government to not include this specific requirement in the public procurement procedure. The complaint was subsequently dismissed as Government actions are exempted from complaints based on the Equal Treatment Act on the ground of disability or chronic Illness.[32]

The digital inclusion of government services will be regulated in a proposed act on digital government.[33] The act is still in debate in Parliament. The proposed act aims to regulate obligations and standards for digital services by government agencies. Accessibility standards, based on the European Accessibility Act, will be part of the act. The proposed act had been criticized for failing to introduce sanctions if government websites turn out to be inaccessible for people with disabilities.[34]

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https://www.rijksoverheid.nl/documenten/rapporten/2019/10/22/bijlage-rapport-nulmeting-toegankelijkheid-2019.

[28] Page 55 of the First monitoring report on accessibility of government websites and apps: https://www.rijksoverheid.nl/documenten/rapporten/2019/10/22/bijlage-rapport-nulmeting-toegankelijkheid-2019.

[29] Article 2.75, paragraph 4 of the Public Procurement law (aanbestedingswet 2012), https://wetten.overheid.nl/BWBR0032203/2019-04-18.

[30] In Dutch Wet gelijke behandeling op grond van handicap en chronische ziekte 2003 https://wetten.overheid.nl/BWBR0014915/2020-01-01.

[31] Judgement (oordeel) 2017-107. October 2017 https://mensenrechten.nl/nl/oordeel/2017-107.

[32] Complaint in 2019, nr 47. https://mensenrechten.nl/nl/oordeel/2019-47.

[33] Voorstel voor de Wet digitale overheid, https://wetgevingskalender.overheid.nl/Regeling/WGK005654.

[34] Letters send in in 2017 within the public consultation for the act proposal by both the Human Rights Institute and the private Foundation Drempelvrij.

It is not clear how the digital inclusion strategy for government websites is being monitored. We are not aware of a monitoring system on accessibility of digital services or monitoring of the effect of projects with which people with low digital skills are offered educational opportunities.

3. The Dutch government released a strategic action plan for artificial intelligence with a range of policy initiatives and action plans to strengthen Netherlands' competitiveness in artificial intelligence in the global market.[35] There is no specific mention of disability rights but the strategy does refer to inclusion and calls for specific actions to combat abuse and discriminatory aspects of the use of algorithms.

An important part of the strategy is to ensure that artificial intelligence is deployed such that human rights are respected and defended, that all citizens are included in the development of AI, that consumer's rights are protected, that safety of citizens is guaranteed.[36] Concrete actions include:

- the Ministry of Social Affairs is seeking a method to detect and combat possible discriminatory aspects of the use of algorithms by companies in selecting candidates for job vacancies;
- research has been commissioned on the impact of artificial intelligence on public values;
- research has been commissioned on opportunities and risks and legal implications of decision - making algorithms;
- research on the risks of privacy breaches via face recognition technology;
- the ministry of Justice is considering a certification system by an organisation at EU level for all uses of artificial intelligence in the justice system;
- The Ministry of Home Affairs is organising a national platform to exchange knowledge and support in transparency and accountability of government agencies in the use of artificial intelligence;
- all companies that unite on the platform digital.nl are to work according to guidelines. The guidelines ask all companies to work with artificial intelligence such that they take into account public values such as honesty, justness, fairness, inclusion, accountability and rights on the use of data; transparency; that companies communicate fairly on the opportunities, risks and limitations of the use of artificial intelligence; that they minimize unwanted bias and promote inclusive representation; that they provide all means necessary to provide insight into their use of data and feedback opportunities for users of artificial intelligence.[37]

4. The ministry department of health, welfare and sports set up a specific strategy on digitalisation of the health sector. The strategy aims at stimulating development and introduction of innovations via digitalisation in medical care and long-term care and support systems for people with chronic diseases and disabilities. A private/public partnership, ICT-health, was set up which organizes exchange of information and

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[35] Strategisch Actieplan voor Artificiële intelligentie. (Netherlands AI Strategy Report). Oct 2019 Ministry of Economic Affairs https://ec.europa.eu/knowledge4policy/ai-watch/netherlands-ai-strategy-report_en.

[36] Strategisch Actieplan voor Artificiële intelligentie. (Netherlands AI Strategy Report). October 2019 Ministry of Economic Affairs, page 42 https://ec.europa.eu/knowledge4policy/ai-watch/netherlands-ai-strategy-report_en.

[37] Ethische Code Artificial Intelligence (ethical code AI) NL digital https://www.nldigital.nl/ethischecodeai/.

conferences on e-health. E-health solutions are intended to be introduced in training and education of health professionals. A specific action plan on providing technological innovation in long term care for people with disabilities has been published as well (see paragraph 3.1).

The ministry facilitates companies in the lengthy procedures needed to request automatic funding of e-health solutions and applications via basic health care insurance in order to provide people free of cost. Examples are described on the website of the e-health platform.[38] Two examples of digital innovations are the introduction of: (1) an application for self-care and online support for diabetes patients; and (2) an innovative data sharing project on specific treatments for cancer in Dutch hospitals.[39]

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[38] Website ICT health https://www.icthealth.nl/nieuws.
[39] Examples provided in the Digitaliseringstrategie. https://www.rijksoverheid.nl/ministeries/ministerie-van-buitenlandse-zaken/documenten/rapporten/2018/06/01/nederlandse-digitaliseringsstrategie.

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 national plan to implement the Convention on the rights of persons with disabilities CRPD in 2019 serves as a national disability strategy.[40] The strategy focuses on achieving greater accessibility of public buildings, of employment, education, transport, more participation in politics, less bureaucracy in care and support for people with disabilities, and more accessibility in all government services. Digitalisation is mentioned as a means to make government services more accessible, such as in making all government websites fully accessible for people with disabilities. Accessible information (via accessible websites of non-government agencies such as sport clubs, libraries et cetera) is mentioned as a way to enable inclusion of people with disabilities in society.

The national strategy does not contain any specific goals or methods or actions but states that implementation takes the form of voluntary actions and coordination of actions by local municipalities, NGOs, DPOs, organisations of employers and trade unions. One action plan originating from the national disability strategy is a technological innovation action plan for the long-term care sector.[41] In this action plan national Government and care providers cooperate in trying out digital and technological innovations in providing care. For this specific innovation campaign two DPO's were consulted: Iederin, the national organization for people with intellectual disabilities and Kansplus, a national organization of parents of people with an intellectual disability. (See also paragraph 3.2.)

In a Code on General Accessibility,[42] the legal duty to gradually provide general accessibility was introduced in 2017. The Government stated in this Code that the general comment on Article 9 of the UNCRPD is to be used as guideline and action plans on accessibility are to be prepared on a voluntary basis by NGO's and DPO's per sector. Some action plans[43] have been agreed but so far none on digital accessibility.

As a result of the European Accessibility Act, regulations will apply for all those products and applications that fall under the scope of the European Disability Act. Dutch regulations will implement the minimum standards as laid down in the European

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

[41] Toekomstagenda zorg en ondersteuning voor mensen met een beperking (Agenda care and support for persons with disablties), https://www.rijksoverheid.nl/documenten/publicaties/2021/04/30/toekomstagenda-zorg-en-ondersteuning-voor-mensen-met-een-beperking.

[42] Besluit algemene toegankelijkheid voor personen met een handicap of chronische ziekte (Decree on general accessiblity for persons with a disability or chronic illness) https://wetten.overheid.nl/BWBR0039653/2017-06-21.

[43] An example is Actieplan Toegankelijkheid voor de bouw (accessibility of buildings) https://www.woningmarktbeleid.nl/documenten/kamerstukken/2019/06/13/kamerbrief-over-actieplan-toegankelijkheid-voor-de-bouw-voornemens-met-betrekking-tot-de-bouwregelgeving.

Accessibility Act. There is no information by Government on the implementation of this act in the Netherlands.

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

Government published a new 'agenda for the future' of providing care and support for people with disabilities.[44] This strategy originates from the national disability strategy and a specific action plan on providing technological innovation in providing long term care for people with disabilities. The strategy exists alongside a specific campaign on e-health, as mentioned in paragraph 2.2. The e-health campaign focuses more on e-heath solutions within hospitals and for patients, whereas the 'future agenda' focuses on technological and digital innovation for people in residential care institutions or people with disabilities dependent on long-term care at home.

Technological innovation within this future agenda aims at finding technological innovations on chosen themes: social contact; self-reliance; day structure; being understood; safety; self-reliance within the home environment, sleeping, COVID-19 related problems. The purpose is to enable people with disabilities to have better quality of life and more autonomy, and to provide for more efficient care. An example is the wish to gather data on sleeping behaviour of people living in residential care (via sensors on floors, doors and listening out systems in rooms) and combine these with medical data on, for instance, muscle tensions of the same persons in order to detect patterns which might indicate disruption in sleeping for people with disabilities. The aim is to diminish staff interventions during night shifts.

Government consulted the national organization of care providers, two DPO's for people with intellectual disabilities and their families, care insurers (as financers of long-term care), an organization of employees working in long-term care, and the national health authority for this strategy.[45] Together they identified persistent problems which in their view should be addressed in the upcoming years. These themes are: 1. Useful apps are being introduced and they initially gain interest. However, it proves difficult to implement the continuous use of these apps on a broad scale. An example is the use of an app with which people with disabilities can write questions and seek informal help by volunteers.[46] 2. Organizational and changes of behaviour (of workers) seems to be needed within care providing organizations in order to successfully use technological innovations. A lack of knowledge on how to organise behavioural and organizational changes within care providing organisations was identified. 3: a lack of research on the added value of technological innovation is identified. The intention of actors involved is to work more closely together with people with disabilities and their families and with employees in the sector in order to work more on innovations of which they see direct added values in their own lives and work.

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[44] Toekomstagenda zorg en ondersteuning voor mensen met een beperking (Agenda care and support for persons with disablities), https://www.rijksoverheid.nl/documenten/publicaties/2021/04/30/toekomstagenda-zorg-en-ondersteuning-voor-mensen-met-een-beperking.

[45] Organisations consulted were: VGN, ZN, LFB, BPSW, Kansplus, Nza.

[46] The app is called Vraagapp (askapp) https://vraagapp.nl/zou-wel-eens-baanbrekende-app-kunnen-worden/.

Main actions within this strategy are to commission research on technological innovation; to fund care providers for projects on developing innovations within their care institutions; and to consult people with disabilities, their families and workers in order to 'scout' promising new techniques.

The strategy seems strong as it acknowledges that a successful digitalisation strategy needs to go beyond designing promising apps and gadgets if it wants to transform long-term care and that innovations should be designed based on the perspective of people who are intended to use them. The strategy is not clear on how to deal with the potential dilemmas of contradicting goals. One aim of digital innovation is enabling and supporting people with disabilities to have better quality of life and more autonomy, another aim is using digitalisation to provide for more (cost) efficient care. The strategy leaves taking initiatives on digitalisation mostly up to care providing organisations, which might have an inclination to look out more for cost effectiveness than to look out more for autonomy of recipients of care. It is not made clear in the strategy how the consultation of people with disabilities on system change by digitalisation (instead of on using apps) will take form.

A specific digitalisation strategy to improve reintegration in the labour market for people with disabilities through digitalisation has been developed, not by the government but by the administrative authority UWV, the agency commissioned by the Ministry of Social Affairs and Employment (SZW) to implement employee insurances and provide labour market and data services.[47] This strategy aims at developing innovative digital technology to enable people with disabilities to function in paid jobs. A Coalition for Technology and Inclusion has been formed.[48] Representatives of employer organizations, the administrative authority UWV, the ministry of social affairs, some universities and a national council of receivers of unemployment and disability benefits take part in the coalition. The coalition describes seven pilot projects.[49] Development of a communication app for nonverbal workers; testing an eyeglass with a camera and the ability to read and speak digital texts for workers who cannot see or who cannot read; a project to monitor (with smart watches and checklists) energy levels of workers who run the risk of being overloaded in their work; development of an exoskeleton for workers in physically hard working conditions; development of a system of 9 linked microphones and an app which converts speech to text in order to enable deaf workers to 'listen' (via speech-to-text software) and respond in group conversations with colleagues; development of an augmented reality glasses to guide a worker through complicated work processes within a warehouse; development of an app combined with a specific working tool (hedge cutter) to provide feedback to workers with limited strength and concentration ability.

The strategy seems strong as it is based on a broad coalition with government agencies, companies, universities and colleges and with a strong representation of people with disabilities (receivers of disability benefits) allowing for a wide range of initiatives by designers and students in finding technological personal solutions at the workplace.

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[47] https://www.uwv.nl/overuwv/english/index.aspx.

[48] Coalitie voor technologie en Inclusie (Coalition for Technology and Inclusion), https://www.technologievoorinclusie.nl/overcti/.

[49] https://www.technologievoorinclusie.nl/challenge/.

It is also encouraging that some initiatives aim to support people with intellectual disabilities who are increasingly pushed out of the labour market as working environments are more and more technologically advanced and digitalised. Digitalisation usually means a push out of people with intellectual disabilities and people with low reading skills. In this case digital innovation can also be used to re-enable people with disabilities to be productive and be included in modern working environments.

4   Promoting disability inclusion through funding, education and training

4.1   How funding promotes disability-inclusive digitalisation and digital transformation

The author could not find a general overview of government funding for digitalisation strategies nor for digitalisation disability strategies. Funding of digitalisation projects are part of regular budgets and are mostly not identified separately.

The development and rollout of digitalisation and digital transformation takes the form of setting up alliances between government agencies, NGO's and companies. Within this system funding takes form by commissioning projects to companies and NGO's paid for by subsidies. In the general digitalisation strategy, DPO's are not represented and they are not enabled to apply for funding to engage in any way in the general digitalisation strategy. We could not find specific funding conditions or any reference to accessibility in general funding conditions.

An example is the strategy to digitalise government services where it states that in 2021 7 million euro is reserved for the innovation aspects of this strategy. It is not clear which parts of the strategy are considered innovation and which parts are part of regular policies and regular budgets. A specific program on subsidies for projects educating people with low digital and low reading skills makes 7.5 million euro available in the period 2021-2024.[50]

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

Education and training of digital professionals on disability and accessibility is not part of the regular curriculum of lower vocational colleges, colleges and universities.[51] It is left up to the educational institutes to offer courses on disability and accessibility of incorporate this in general courses.

The general digitalisation strategy of Dutch government is based on structural cooperation in developing the national strategy with among other organizations representatives of universities and colleges. As mentioned previously disability if not a funding condition nor is accessibility a requirement for projects within this general strategy. We could find no references to disability or accessibility within education or training other then two specific examples. This does not mean however that accessibility or disability is not part of education. It is simply not known.

One example is the higher vocational college Hanzehogeschool - which takes part in this digitalisation strategy – which stands out for projects and courses on user led design in which disability and accessibility is incorporated. An example of one project of the Hanze hogeschool aimed at designing a console for gaming to be used by people using head movement. Another example is a project to make digital social skills training for children with autism more fun and game-like. The Hanze hogeschool states

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[50] Letter to parliament on illiteracy. June 2021
https://www.rijksoverheid.nl/actueel/nieuws/2021/05/31/ruim-75-miljoen-euro-voor-aanpak-laaggeletterdheid#:~:text=Meer%20dan%20400%20werkgevers%2C%20scholen,mee%20met%20Taal%202021%2D2024.
[51] Alternative report on the CRPD Netherlands, https://iederin.nl/bibliotheek/vn-verdrag-handicap/.

on their website that it works together with some primary schools, and students of other higher vocational projects in developing apps and digital solutions for young children with autism.[52]

The other example is the technical university of Eindhoven which participates in the Suitceyes project by developing technical adaptions for people who are deafblind.[53]

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

We are not aware of any other structural initiatives in which inclusion and accessibility is addressed during the education and professional development of accessibility and inclusion professionals. Disability and accessibility is not part of vocational training of professionals working in web design, transportation, build environment and independent living.[54]

Part of the afore mentioned 'agenda for the future' of providing care and support to people with disabilities[55] is the intention to train support workers within long term care in digital skills. Training support workers in digital skills is considered to be important in order to accept digital innovation in the long-term care sector.

The private foundation 'Accessibility' offers training on website accessibility to website developers and digitalisation managers within organisations.[56]

The national association of people with intellectual disabilities (LFB), train people with intellectual disabilities to work as self-advocates and co-lecturers in higher vocational colleges and universities.[57] Co-lecturers mainly concentrate on sharing knowledge on human rights for people with disabilities and how to engage better with people with intellectual disabilities. LFB also offers accessibility tests focused on accessibility for people with intellectual disabilities as a paid service for website developers.

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

People with disabilities are able to access training to gain and improve knowledge and skills by participating in courses (reading skills and digital skills) offered by the national NGO commissioned to improve reading, writing and digital skills.[58] Public libraries are

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[52] Research Group User-Centered Design, Hanze Hogeschool https://www.hanze.nl/nld/onderzoek/kenniscentra/centrum-ondernemerschap/onderzoek/lectoraten/user-centered-design.

[53] https://suitceyes.eu/project/.

[54] Confirmed in the alternative report on the CRPD Netherlands, https://iederin.nl/bibliotheek/vn-verdrag-handicap/.

[55] Toekomstagenda zorg en ondersteuning voor mensen met een beperking (Agenda care and support for persons with disablities), https://www.rijksoverheid.nl/documenten/publicaties/2021/04/30/toekomstagenda-zorg-en-ondersteuning-voor-mensen-met-een-beperking.

[56] Private foundation on accessibility https://www.accessibility.nl/hoe-wij-helpen/trainingen.

[57] National association of people with intellectual disabilities LFB https://lfb.nu/diensten/.

[58] Stichting Lezen and schrijven. Foundation reading and writing skills, https://www.lezenenschrijven.nl/reading-and-writing-foundation.

also engaged to offer courses and provide support on gaining digital skills. Larger care providers are known to offer courses in digital skills to their residents.[59]

Special schools for secondary education are known for limiting offering of improving reading and writing skills in favour of offering skills to learn daily activities such as housecleaning, personal care and shopping groceries.[60] Improving digital skills is not a regular part of the curriculum for students with intellectual disabilities.

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[59] Care providers work together in sharing their knowledge and experience in offering curses in digitals kills via an exchange platform called Kennisplein gehandicaptensector, https://www.kennispleingehandicaptensector.nl/technologie-en-apps/digitale-vaardigheden-verbeteren-gehandicaptenzorg.

[60] Experiences reported by supportorganisation for parents of children with disabilities in education. Steunpunt Onderwijs het Gehandicapte Kind, https://gehandicaptekind.nl/wat-we-doen/steunpunt-onderwijs-helpt-ouders.

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

Digitalisation and digital transformation is considered to have the potential to improve inclusion of people with disabilities and thus improve quality of life. All kinds of apps and technological personal equipment based on digital innovation are mentioned as good examples of this way of thinking.

These digitally innovative techniques potentially offer compensation for specific functional impairments. In a letter to parliament on vision on digitalisation government describes it in positive terms as:

'optimization of humans' and 'intimate technology helps to overcome physical and cognitive disabilties'. New interfaces offer expansion of our senses and working with digital assistance is considered an expansion of cognitive capabilities'.[61]

DPO's do support developing innovative technological equipment for people with disabilities and they urge national government and municipalities to fund all equipment that is available on the market for people with disabilities. The digitalisation strategy on long term care promises the intention to facilitate funding of innovative new techniques thus making them widely available. Funding of individual personal equipment and apps is usually granted via the Social Support Act, basic care insurance or, in the case of work adaptations, via the authority UWV.

The Coalition for Technology and Inclusion sees introduction of new digital technology as a way of supporting workers with disabilities and including them more in the labour market.

Care providers expect to benefit from introducing innovative digital techniques to increase productivity of support workers.[62] An example is online support talks instead of being present in the actual company of a person with a disability in need of support. Another innovation that care providers find promising is better techniques to monitor sleep among people in residential care from a distance so professionals can decide better when and where they should be present. Care providers say they welcome these new digital techniques because higher productivity would enable support workers to spend more time on actively engaging with people residing in their care institutions. Online support could also enable more people to live outside residential settings in their own home.[63]

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[61] Toekomstverkenning Digitalisering 2030. Letter to parliament. page 6 and 49: April 2021 https://www.rijksoverheid.nl/documenten/kamerstukken/2021/04/26/aanbiedingsbrief-bij-update-nederlandse-digitaliseringsstrategie-2021.

[62] Toekomstagenda gehandicapten zorg, https://www.rijksoverheid.nl/documenten/publicaties/2021/04/30/toekomstagenda-zorg-en-ondersteuning-voor-mensen-met-een-beperking.

[63] Several care providers for people with intellectual disabilities have used online support. An example is care provider Arduin (after a merger with care provider "s Heerenloo now called 's Heerenloo) https://www.kennispleingehandicaptensector.nl/nieuws/clienten-zelfstandig-techniek-arduin.

The main umbrella DPO, Iederin, suggested in 2020 to facilitate voting by internet in general elections for people with disabilities and chronic illness during lock down periods.[64] Voting via internet was seen as a solution for accessibility problems in polling stations.[65] Dutch Government rejected the suggestion out of fear of cyber attacks on the general elections.[66] The example of internet voting suggests that people with disabilities who run in to accessibility problems in buildings, build environment and public transport may benefit from online access.

Workers with disabilities have pointed out the advantages of working at home with all modern digital conferencing and working apps, (for instance no burden of troublesome accessibility in public transport).[67]

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

The private foundation Lezen en schrijven describes a wide digital divide. According to the foundation one in nine people in the Netherlands have very low literacy skills and 22 % of people in the Netherlands have none or very low digital skills.[68] Elderly people are generally considered to have lower digital skills. Surprisingly though it has also been established by the foundation that young people below 18 years of age have difficulty in finding information on the internet and difficulty in assessing which information in the internet is trustworthy.

A major challenge is presented by the digital transformation of government services. Full and easy accessibility of website and applications would be vital to ensure that all citizens feel fully served by government. In that light it is a challenge that there is no monitoring of the accessibility of government websites and that there are no sanctions in place when government websites turn out to be not fully accessible. Furthermore, individuals cannot file a complaint with the Human Rights Institute against discriminating government services. Government does offer educational opportunities to people with low digitals ills, but there is no guarantee that people with disabilities will bridge the digital gap if they follow offered online courses.

The offered method to provide substitute digital entry (via authorization of a support person to use the digital login code) is a breach of the autonomy of people with a disability.

A challenge presented by digitalisation and digital transformation to the rights of persons with disabilities is the trend to provide more online care and support than actual personal support and the use of digital surveillance (for instance during sleeping

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[64] Letter send to the minister of Internal Affairs in a consultation process for the Temporary Act Elections COVID-19 (Tijdelijke wet verkiezingen COVID-19), https://www.internetconsultatie.nl/verkiezingencovid_19/reactie/0d2b8a18-21e2-49f1-b2fc-fdf3783d4762.

[65] The login system is called DigiD, https://www.digid.nl/en.

[66] Letters to parliament. Kamerstukken II 2017/18, 31142, nr. 83, p. 7 e.v.

[67] Anecdotal evidence from social media. A more elaborate website article on the advantages of working at home during COVID-19: https://uitkeringsgerechtigden.fnv-magazine.nl/022020/een-enorme-stap-terug/.

[68] Factsheet digital skills by the foundation Lezen en schrijven (reading and writing foundation), https://www.lezenenschrijven.nl/wat-doen-wij/oplossing-voor-je-vraagstuk/factsheet-digitale-vaardigheden.

times in residential group homes). Families of people with disabilities dependent on long term may perceive the urge to seek more online support options as a way of cutting down on staff costs by diminishing personal contacts which are considered profitable to care providers only, not to people with disabilities. On the other hand, more digital surveillance techniques might come in place of more brutal ways of securing tranquillity such as restraint in beds during nights.[69] The use of digital surveillance is a possible breech of privacy and a breach of personal freedom; care providers who want to use this type of digital care are subject to regulations and supervision, as is the case as with other measures such as restraint or isolation.[70]

Experiences with online contact during lockdown periods due to the COVID-19 pandemic led, according to some specialists, to less support for people with mental health problems. They reported that mental health patients could easily evade addressing their problems with therapists which cannot be avoided during actual house calls.[71]

In consultations on the digital strategy for the long-term care sector[72] it has been noted that people with disabilities do not seem to feel an inherent need for new applications which often can be enthusiastically introduced by managers. Consulting people with disabilities on new digital techniques often is not based on a very deep understanding of what people with disabilities might want changed in their life. Successfully introducing new digital techniques are also considered to be very dependent on introducing changes in the organization of care providers, such organizational change is often not facilitated.

The specific digitalisation strategy by the Coalition for technology and inclusion aims at developing digital innovative technology to enable people with disabilities to perform better in paid jobs.[73] The strategy focuses on seeking compensation for specific disabilities of persons with a disability. This focus on individual equipment ignores the wide gap in employment between people without disabilities (of whom 80 % have paid work) and employment of people with disabilities (less than 50 % employment). This wide gap calls more for a digitalisation strategy focused more on structural system changes and achieving general accessibility of the labour market.

The use of artificial intelligence and algorithms may result in discrimination based on specific personal aspects such as having a disability or using an adapted digital application. The national action plan on the use of artificial intelligence does acknowledge that AI applications might lead to discrimination and a breach of human

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[69] The dilemmas have been described in a report by the Vrije Universiteit VU Amsterdam. Alistair Niemeijer, Marja Depla, Brenda Frederiks en Cees Hertogh. Toezichthoudende domotica. Een handreiking voor zorginstellingen. VU MC 2012. (surveillance domotica, a guideline for care providers.

[70] Regulations are described in the Act Regeling zorg en dwang psychogeriatrische en verstandelijk gehandicapte cliënten, https://wetten.overheid.nl/BWBR0042738/2020-01-01.

[71] The debate among professionals is summed up in the web article Van face to face naar zorg op afstand. De GGZ na de coronacrisis (from face-to-face contact to care at a distance. Mental health after the corona crisis) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7215121/.

[72] Toekomstagenda zorg en ondersteuning voor mensen met een beperking (Agenda care and support for persons with disablities), April 2021. https://www.rijksoverheid.nl/documenten/publicaties/2021/04/30/toekomstagenda-zorg-en-ondersteuning-voor-mensen-met-een-beperking.

[73] Coalitie voor technologie en Inclusie (Coalition for Technology and Inclusion), https://www.technologievoorinclusie.nl/overcti/.

rights but does not, as yet, offer a clear instrument for monitoring and combatting such discrimination.

6   Conclusions and recommendations

6.1   Conclusions

Digitalisation is commonly regarded as a positive way to transform society. Digitalisation is regarded as a way to push economic growth, to make life easier and more comfortable for citizens. Dutch government set out a general digitalisation strategy and sub-strategies and generally sets up public-private alliances in order to be able to cooperate closely with companies, NGO's and expert centres in digitalisation. DPO's are not consulted in the general digitalisation strategy.

For people with disabilities digitalisation is commonly viewed as having the ability to provide a better quality of life and to facilitate inclusion by using apps and equipment to compensate for specific physical limitations. There is a general readiness to provide individual persons with disabilities with equipment, adaptations and apps that make communication easier and facilitate participation, especially if equipment would replace the higher costs of personal assistance. The tendency to develop and invest in individual apps that compensate for individual deficiencies may distract from the need to enhance general accessibility of goods and services and of the labour market. The alternative report on the UN CRPD for the Netherlands states that there is no sense of urgency to enhance general accessibility of goods, services and products such that individual adaptations would be less needed.[74] The implementation of the UNCRPD has been long postponed in the Netherlands out of fear that enhancing general accessibility would lead to high costs for both government and companies while the proposal of a European directive for equal treatment outside labour was not accepted by Dutch government with the cost argument.[75] The Web Accessibility Directive and the European Accessibility Act are implemented, as this is mandatory.

Digitalisation is seen as a way of providing more cost-efficient services. This drive to strive for cost efficiency is clearly present within commercial companies but also in the non-profit sector (care providers) and with all government services.

Digitalised services may be presented as providing better quality of services (for instance by shortening waiting times to be helped or by offering easy access to archive documents) but they are also cost driven. Traditional personal contact with organisations is rapidly being replaced by digital contacts only in the form of chat boxes and online applications. Diminishing personal contact also occurs in residential care, for instance during nightshifts, and by replacing support time by online talks (especially during COVID-19 lockdown periods).

Part of the digitalisation's strategy for long term care is to consult with people with disabilities and their family members. The consultation is aimed at consultation on the use of individual apps, not on more structural changes.

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[74] Schaduwrapportage VN verdrag inzake rechten van personen met een handicap (Shadow report Netherlands on the UN CRPD), December 2019. Alliantie https://iederin.nl/wp-content/uploads/2019/12/Schaduwrapport-VN-verdrag-Handicap-Word.docx.

[75] In1School (2014), Gevolgen VN verdrag IVRPH voor het Nederlands onderwijssysteem (Impact of the UN CPRD on the Dutch education system) , page 30. https://in1school.nl/images/kennis-opinie/onderzoeken-in1school/GevolgenVNVerdrag_IVRPH_Voor_Het_Nederlandse_Onderwijssysteem.pdf.

Not everyone can keep up with the digital transformation and diminishing opportunities for personal contact. A large group within Dutch society (22 %) has low digital skills, among them people with intellectual disabilities.[76] The solution offered by government to authorize support workers or family members to use login codes for accessing government services, diminishes autonomy for people with disabilities.

People with disabilities experience problems with digital access as not all government websites and applications are fully accessible, and government refrained from imposing sanctions if inaccessibility of websites was found. Legislation prohibits filing discrimination complaints against government services.

6.2 Recommendations

1. Government can involve DPO's in the public/private alliances that are set up as part of the general digitalisation strategy in the Netherlands and as part of specific digitalisation strategies for the long-term care sector and labour market. As DPO's generally do not have substantial funding for discretionary engagements, they need to be financially empowered by government to learn about digitalisation and how to involve human rights and disability in discussions on digitalisation.

2. Introduce the legal right to personal contact in all government services and services by companies as a way of providing equal access. Government services and services of private companies are already thoroughly digitally transformed and sometimes only digitally accessible. The effort to educate people with low digital skills is commendable but does not guarantee equal access to services. From a human rights perspective there is an obligation on government to ensure that it's processes are available and accessible to all citizens.

3. Make accessibility of digitalised services mandatory and introduce effective remedies and sanctions if websites and applications by government are not accessible. A remedy could be introducing formal monitoring of accessibility of government services, introducing sanctions, but also an effective complaint mechanism.

4. Government can commission research on how digitalisation could transform attitudinal obstacles in society for people with disabilities. Digitalisation is now mostly viewed as an opportunity to introduce apps and techniques and equipment that compensate for individual deficiencies. Although new apps and equipment can be very supportive, this one sided view reinforces the medical model in which persons with disabilities are viewed as being deficient and in need of being uplifted to the average performing level.

5. Introduce mechanisms within digitalisation strategies and public private partnerships, to divert the automatic aim of cost efficiency into the aim of empowering people with disabilities to realise their rights and to be fully included in society.

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[76] Factsheet Digitale vaardigheden (Fact sheet digital skills) by the private foundation Lezen en Schrijven, https://www.lezenenschrijven.nl/wat-doen-wij/oplossing-voor-je-vraagstuk/factsheet-digitale-vaardigheden.

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