

Working life of people with disabilities during the Covid-19 pandemic

– An interview study conducted in Sweden

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Preface

This report was developed as part of the research project “Working life during the Covid-19 pandemic: social participation, learning experiences, design opportunities and future work life for people with disabilities”. The project is financed by the Swedish Research Council for Health, Working Life and Welfare (FORTE) and run by the University of Gothenburg, Malmö University and RISE Research Institutes.

The report presents insights gained from interviews with 26 people with various disabilities about their working lives during the Covid-19 pandemic. We hope that the insights presented will contribute to new thoughts and discussions about how remote work in hybrid and/or online settings can provide new opportunities for people with disabilities to participate in and contribute to working life.

We want to direct our gratitude to the members of the projects’ reference group, who helped us recruit participants for the study and provided valuable feedback on the report. The reference group consists of the following organisations: the National Association of Rare Diagnoses, Sweden’s National Association of the Deaf, the Organization for People With Impaired Mobility (DHR), Hjärnskade- förbundet Hjärnkraft (Brain Injury Association), Riksföreningen Grunden, the Autism and Asperger Association, the Swedish Association for Disabled Children and Young People (RBU), the Swedish Association for Survivors of Polio, Accident and Injury (RTP), the Swedish Association of Hard of Hearing People (HRF) Gothenburg, Fountain House Gothenburg, and the Nordic Welfare Centre in Stockholm.

Finally, we would like to express our deepest gratitude to all participants in the interviews for so generously sharing practical knowledge, tacit knowledge, and experiences of working life during the Covid-19 pandemic. Thank you!

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Summary

This report presents the results from an interview study carried out as part of the research project "Working life during the Covid-19 pandemic: learning experiences, design opportunities and future working life for people with disabilities". The aims of the research project are, firstly, to investigate how people with various disabilities experienced and coped with their working lives during the Covid-19 pandemic, and what tools and strategies they used to achieve social participation. Secondly, to explore how these learning experiences and insights can contribute to improving the conditions for vulnerable groups to participate in and contribute to working life.

The report includes a large collection of opportunities and challenges faced by people with disabilities in their working lives during the pandemic. The experiences and stories shared by the 26 interviewees evoke many thoughts and reflections about remote working conditions, often in hybrid settings. Opportunities and challenges are identified in three themes: I) Social support, II) Work environment, and III) Technology, accessibility, and infrastructure. Above all, the report is forward-looking, and the insights presented provide input to the shaping of future working life in a post-pandemic world. It highlights what is required in terms of leadership, work environment, digital competencies, access to technology and infrastructure.

Keywords: working life, Covid-19, disabilities, remote work, interviews

Sammanfattning

Den här rapporten presenterar resultat från en intervjustudie som genomförts inom ramen för forskningsprojektet "Arbetsliv under Covid-19-pandemin: lärande erfarenheter, designmöjligheter och framtida arbetsliv för personer med funktionsnedsättningar". Syftet med forskningsprojektet är att undersöka hur personer med olika funktionsnedsättningar upplevde och hanterade sina arbetsliv under Covid-19-pandemin samt vilka verktyg och strategier de använde för att uppnå deltagande och delaktighet. Projektet syftar också till att undersöka hur vi kan bygga vidare på dessa erfarenheter och skapa bättre förutsättningar för utsatta grupper att delta i och bidra till arbetslivet.

Rapporten innehåller en stor uppsättning av möjligheter och utmaningar som personer med funktionsnedsättningar mötte i sitt arbetsliv under pandemin. Erfarenheterna och berättelserna som de 26 intervjupersonerna delar med sig av väcker många tankar och reflektioner om t ex hem- och distansarbete ofta i hybrida former. Möjligheter och utmaningar har identifierats inom tre övergripande teman: I) Social stöd, II) Arbetsmiljö, och III) Teknologi, tillgänglighet och infrastruktur. Framförallt är rapporten framåtblickande och de insikter som presenteras kan bidra till utformningen av framtidens arbetsliv i en post-pandemisk värld. Rapporten lyfter vad som krävs i form av ledarskap, arbetsmiljö, digitala kompetenser, tillgång till teknik och infrastruktur.

Nyckelord: arbetsliv, Covid-19, funktionsnedsättningar, distansarbete, intervjuer

Lättläst sammanfattning

Alla ska vara trygga

Covid-19-pandemin påverkade alla människor.

I Sverige finns ett nytt mål för funktionshinderspolitiken. Målet handlar om mänskliga rättigheter och antogs 2017.

Alla människor som har en funktionsnedsättning ska kunna leva ett bra och tryggt liv och kunna delta i samhället som till exempel i arbetslivet.

Ett arbetsliv för alla innebär att ingen får glömmas bort.

Vid en pandemi ska alla människor ha samma möjligheter att delta på lika villkor i arbetslivet.

Vår forskning

Vår forskning handlar om att ta reda på hur arbetslivet under Covid-19-pandemin såg ut för personer med funktionsnedsättningar.

Vi intervjuade 26 personer och frågade dem om hur de jobbade när de inte fick åka till sina arbetsplatser under pandemin.

Vi frågade om de använde datorer eller andra hjälpmedel för att kunna hålla kontakt med sina kollegor och utföra arbetsuppgifter.

Vi frågade dem om vad som var bra och vad som var dåligt med att jobba hemifrån.

Vi frågade dem också om hur

de vill jobba i framtiden nu när
de har lärt sig att jobba på nya sätt.

Intervjuerna tog ungefär 1 timma.
En av intervjuerna genomfördes
på vårt kontor. Resten av intervjuerna
genomfördes via videokonferens-
programmet Zoom.

Utmaningar och möjligheter

Personerna som vi intervjuade
berättade både om möjligheter
och utmaningar med att jobba
på andra sätt under pandemin.

Vi sammanfattade vad de berättade
för oss och kom fram till en lång lista
med utmaningar och möjligheter.

Vi delade in utmaningarna och
möjligheterna i tre stora grupper
som vi kallar för teman.

Under varje tema sorterade vi in
utmaningarna och möjligheterna.

Tema I) Socialt stöd

Möjlighet: Stöttande ledarskap och organisation

Utmaning: Brister i ledarskap

Möjlighet: Stöd från kollegor och sociala nätverk

Utmaning: Brist på solidaritet och kollektivt ansvar

Utmaning: Social isolering när man arbetar hemifrån

Möjlighet: Alternativa arbetsplatser utanför den vanliga arbetsplatsen

Möjlighet: Stärkt community/gemenskap, föreningsliv och intressepolitiskt engagemang

Utmaning: Anställning och anställningstrygghet

Tema II) Arbetsmiljö

Möjlighet: Flexibla arbetsdagar

Utmaning: Utmanande att organisera och disciplinera sig själv

Möjlighet: Bättre utformning av arbetsplatsen

Utmaning: Ingen lämplig arbetsplats hemma

Utmaning: Datasäkerhet och personlig integritet

Utmaning: Försämrad fysisk hälsa

Utmaning: Arbetsutmattning på grund av överansträngning och uteblivna pauser

Utmaning: Överprestera för att kompensera för funktionsnedsättningen

Möjlighet: Den fysiska platsen blir mindre viktig

Möjlighet: Minskad diskriminering av personer med funktionsnedsättning på arbetsmarknaden

Tema III) Teknik, tillgänglighet och infrastruktur

Möjlighet: Ökad digital kompetens

Utmaning: Digitala kompetensluckor

Utmaning: Brist på kunskap om hur man använder tekniska verktyg för distansarbete

Utmaning: Kontraproduktiv teknik (som skapar otillgänglighet)

Möjlighet: Kunna dra nytta av digitala möjligheter/förmågor

Möjlighet: Ökad tillgänglighet till digital teknik

Möjlighet: Fördelar med videokonferensmöten

Utmaning: Begränsad tillgänglighet och dålig användbarhet

Utmaning: Bristande kommunikation online

Rapporten är lång och skriven på engelska. Vi rekommenderar att du börjar med att titta i innehållsförteckningen och väljer ut de möjligheter och utmaningar som intresserar dig och som du vill läsa mer om.

Eller så läser du rapporten från början till slut. Det är såklart upp till dig.

Om du vill veta mer om någon av utmaningarna eller möjligheterna så kan du kontakta oss så kan vi berätta mer.

I nästa steg av projektet så kommer vi att jobba vidare med några av dessa utmaningar och möjligheter. Vi kommer att hitta på nya lösningar som kan göra arbetslivet ännu bättre för personer med funktionsnedsättningar.

Vi kommer att bjuda in personer med

funktionsnedsättningar till att vara med att hitta på nya lösningar.

Alla måste vara med

Det är viktigt att alla kan vara med att hitta lösningar på problem. Många saker i samhället är viktiga att förändra.

Att ta reda på erfarenheter och kunskap hos personer med funktionsnedsättningar är viktigt. Då kan saker bli bättre och tryggare för alla.

Introduction

The Swedish disability policy (Prop. 2016/17:188) points out a number of goals that address different areas of life, such as *working life* and the right to work for *all* people in society. The policy is based on the UN Convention on the Rights of Persons with Disabilities and the UN's 2030 Agenda for Sustainable Development and its Sustainable Development Goals (Swedish Agency for Participation, 2023; United Nations General Assembly, 2015; United Nations General Assembly, 2006). In an inclusive and equal society, everyone should be offered the opportunity to have employment and benefit from a good and safe working life (Lindberg, 2021). Also, a high employment rate is one of the foundations of the Nordic welfare model and a crucial factor for national competitiveness (ibid.). Compared to the general population, people with disabilities have a lower employment rate and are confronted with greater challenges in working life (Prop. 2023/24:1). In 2022, 52 % of people with disabilities in Sweden were employed in the labour market compared to 81 % for the rest of the population (ibid.).

The Covid-19 pandemic came to affect everyone (Aartsen and Rothe, 2023). Working life underwent major transitions towards increased remote working arrangements (Martel et al., 2021; Teklè, 2022). Today, when the pandemic is over there are groups of people who prefer to continue working entirely from home or assume hybrid working models (Das et al., 2021; Smite et al., 2023). New forms of communication and collaboration that evolved during the pandemic have become a “digital normality” for people with and without disabilities (Jochmaring and York 2023). Working from home, or other locations, has gained a greater acceptance, which has made working life for people with disabilities easier and more accessible (Schur et al., 2020). Such flexible working arrangements are claimed to be important factors in reducing barriers to employment for people with disabilities (Hoque and Bacon, 2021).

It may appear advantageous for people with disabilities to work from home using assistive technologies, but it has turned out that they face many challenges in accessing digital resources and using technology effectively (Eriksson et al., 2023; Jashinsky et al., 2021; Lindberg, 2021). As known, people with various disabilities have to a lower extent access to digital technology compared to the general population (Myndigheten för delaktighet, 2023; Strauser et al., 2021). To benefit from the opportunities that a remote working life may bring to people with disabilities in terms of inclusion in working life, further research and development are needed (Eriksson et al., 2023; Lindberg, 2021).

This report contributes to this field of research by presenting insights gained from an interview study conducted as part of the research project “Working life during the Covid-19 pandemic: social participation, learning experiences, design opportunities and future work life for people with disabilities”.

Research project

“Working life during the Covid-19 pandemic: social participation, learning experiences, design opportunities and future work life for people with disabilities” (2022–2025) is a research project run by the University of Gothenburg, RISE, Malmö University and funded by FORTE (The Swedish Research Council for Health, Working Life and Welfare).

The project aims to explore how the experiences gained from the Covid-19 pandemic can contribute to improving the conditions for people with various forms of disabilities to participate in and contribute to working life. By conducting participatory research based on a collaboration with the stakeholders, we will develop an understanding of what we learned from working, living, and acting during the Covid-19 pandemic, and how these experiences can contribute to improving the conditions for people with various forms of disabilities to participate in and contribute to working life.

The primary stakeholders of the project are people with various forms of disabilities, including their families and relatives. The secondary stakeholders are authorities, civil society organisations, and employers who are part of creating conditions for this group to participate in and contribute to working life.

The research project has received ethical approval from the Swedish Ethical Review Authority (Dnr 2022-02306-01).

For more information, see the project website: <https://dworklife.uni.mau.se/>

Interview study

An interview study was conducted in the first phase of the project and reported in this report. The study aimed to develop an understanding of how people with disabilities experienced their working life during the Covid-19 pandemic, and what tools and strategies they used for work and to achieve social participation.

26 people with various kinds of disabilities were interviewed. One of the interviews was conducted at the researcher’s workplace and the rest were conducted online (via the video conferencing platform Zoom). The interviews were semi-structured and took approximately 1 hour. An interview guide was used.

All interviews were audio recorded and transcribed. A thematic analysis approach (Braun and Clarke 2023) was applied to analyse the transcripts and interview data. The data was first coded by using the codes Strengths, Weaknesses, Opportunities, and Threats (SWOT) (Jackson et al., 2023). The data sorted to each code were thereafter analysed and clustered, resulting in a series of insights. The themes identified in Weaknesses and Threats were merged into one group: *Challenges*. The themes identified in Strengths and Opportunities were merged into the group: *Opportunities*. In the last phase, the themes were sorted under three overarching

themes that addressed I) Social support, II) Work environment, and III) Technology, accessibility, and infrastructure.

The outcome of the analysis will serve as input to the next step of the project, which will focus on designing solutions addressing a selection of challenges and opportunities. This will happen in 2023-2024 in collaboration with the stakeholders.

Respondents

The majority of the 26 respondents were female (65 %), aged 41–64 years (81 %). Most of them live in a relationship (65 %), have employment (77 %), and have studied at the university (61 %).

Ten of the interviewees are visually impaired, five have motor impairments, and four have hearing impairments. Four have cognitive disabilities (brain injury, neuropsychiatric and psychosocial disabilities). Two have more than one disability and one has a rare disease.

The respondents do not constitute a representative selection of people with disabilities but represent individual voices and unique life experiences. The sample consists of individuals who were recruited to the study based on their own interest in contributing to the study. To recruit participants to the study an invitation was sent to members of disability organisations across Sweden. For further details about the respondents, see Table 1.

Background variables	Absolute numbers and percentage
Sex: Female Male	17 (65 %) 9 (35 %)
Age: 20–40 years 41–64 years 65– years	3 (11 %) 21 (81 %) 2 (8 %)
Marital status: In a relationship Single	17 (65 %) 9 (35 %)
Type of impairment/disability: Visual impairment and blindness Hearing impairment Motor impairment Brain injuries Neuropsychiatric disabilities Psychosocial disabilities More than one disability Rare disease	10 (38 %) 4 (15 %) 5 (19 %) 1 (4 %) 2 (8 %) 1 (4 %) 2 (8 %) 1 (4%)

Congenital/Acquired disability Congenital disability Acquired disability	17 (65 %) 9 (35 %)
Education: Elementary school Upper secondary school University	1 (4 %) 9 (35 %) 16 (61 %)
Employment: Employee Unemployed Sick pensioner/early pensioner No information available	20 (77 %) 2 (8 %) 2 (8 %) 2 (8 %)
Type of residence Condominium apartment Rental apartment Villa, terraced house No information available	8 (31 %) 6 (23 %) 8 (31 %) 4 (15 %)
Housing adaptation completed: Yes No	8 (31 %) 18 (28 %)
Country of birth: Sweden Other countries No information available	17 (65 %) 1 (4 %) 8 (31 %)
Number of working years: 1-10 years 11-20 years 20- years No information available	9 (35 %) 5 (19 %) 7 (27 %) 5 (19 %)
Support efforts: Yes No	6 (23 %) 20 (77 %)
Member of a disability organization: Yes No	24 (92 %) 2 (8 %)
Number of years as members of a disability organization 1-5 6-10 11- No information available	6 (23 %) 3 (11 %) 13 (50 %) 4 (15 %)

Table 1. Background variables. Respondents in the interview study (absolute numbers and percentage) (n=26).

How to read this report

In this report, you will encounter descriptions of lived experiences of the Covid-19 pandemic by people with disabilities. We hope that the report will give rise to new reflections and questions about the opportunities and challenges of remote work in online or hybrid settings regarding leadership, work environment, digital competencies, access to technology and infrastructure.

The report should be looked upon as a repository of research results to pick from and further elaborate on depending on interest. When reading the report, we recommend you first browse through the table of contents and search for opportunities or challenges that you find interesting to read more about instead of reading the voluminous report from start to end. In case you wish to get access to additional materials, you are welcome to contact the authors of the report. There are a lot of data and background materials behind each opportunity and challenge identified that could not fit in the report to keep it in a reasonable length.

The report includes few references to research literature. It does not present any reflections or conclusions but simply the research results in an uncommented format. To access publications presenting related theories, connecting to previous research, discussing the results and drawing conclusions, we recommend you to read other publications developed as part of the research project. See the publication list:

<https://dworklife.uni.mau.se/publications>.

Results

The insights gained from the thematic analysis of the interview data resulted in a collection of challenges and opportunities faced by people with disabilities in working life during the Covid-19 pandemic. The findings are sorted into three overarching themes: I) Social support, II) Work environment, and III) Technology, accessibility, and infrastructure. Some of the challenges and opportunities address the same topic but from different perspectives, and present different sides of the same coin.

The challenges and opportunities sorted into the three themes are first described in general terms and, if needed, how they specifically relate to the situations of people with disabilities. Lastly, some quotes from the respondents are presented to illustrate the impossible task of generalising the insights since each experience represents a unique experience and life situation.

Theme I) Social support

The first theme addresses the importance of *social support* to cope with the transition to working from home and to make necessary adaptations to ensure accessibility. As put forward by the respondents, receiving social support from managers, colleagues, friends, and family is crucial to counteract the social isolation that remote work can bring about. Issues of solidarity and collective responsibility were also addressed in the interviews, as well as examples of

strategies for coping with social isolation etc. The opportunities and challenges presented in the following describe the social support (or lack of) that the respondents received during Covid-19 pandemic.

Opportunity: Supporting leadership and organisation

Support from management came in different forms during the pandemic. It could be support directed to the individual employee in creating flexible arrangements for working from home, or the management making efforts to ensure accessible environments for everyone working remotely. The respondents emphasised the importance of managers staying in *close* contact with employees to develop an understanding of their needs through dialogue. A flexible approach from management and human resources departments is required to implement solutions that address those individual needs. Such support from management could offload the effort of the individual employee to having to try to create accessible work environments on their own.

Managers ought to develop leadership skills to support employees' working from *both* the office and the home office. They should support employees in creating good work environments at home, as well as making sure that digital environments and practices are accessible according to the needs of the employees. Creating good remote work habits and making digital tools and platforms functional, adapted, and accessible requires new skills for managers.

Supporting leadership and people with disabilities

Having supportive leadership is important to all employees but not least when it comes to people's various needs and preferences. This support can be especially crucial for people with disabilities who may need extra support related to their specific disability but also who have needs that managers are often not aware of or even understanding of due to a lack of experience with employees with disabilities. Thus, an added focus on individual needs and flexibility (for example, the number of working days you are required to physically be at the office) was reported as important.

But I think employers have become much better at thinking creatively and more outside the box than they were before. Then they had ready-made solutions and the HR department had answers to everything. Now it's more accepted that you don't have answers to everything, and you might be able to test something and evaluate it after a while.

(Female, ~45 years, rare disease)

I think the most important thing for me was probably the very fact that it was not certain that I would have kept this job at all if it had been required of me to be at the office at least two days a week. Being at the office, was such a tension for me that I remember stuttering sometimes. I never do that otherwise. I feel so enormously grateful that I have returned to working life and that I now have a conviction that I will work like most people

until retirement or maybe even a few years after. Just that I have regained a vision that this will probably work out.

(Female, ~40 years, psychosocial disability)

Challenge: Deficiencies in leadership

Managers and colleagues may lack an understanding of the difficulties that employees and colleagues with disabilities face. Such a lack of understanding and supporting leadership may result in a limited willingness and allocation of resources to accommodate a more flexible working life. Supporting employees who work from home demands a different type of leadership, which is something that managers ought to pay attention to and address. Work meetings in remote settings on video conferencing platforms require certain digital leadership skills to ensure that all participants are included and given space to talk and express themselves. When working from home, employees risk missing out on information shared informally at the workplace, during chitchats in the lunchrooms, corridors etc. and thus feel excluded from the social community at work. Others might need training in using software applications needed for work. To have employees who regularly work from home is a new situation for many managers. New situations and challenges emerge roles and responsibilities might be unclear, and tasks that must be handled fall between the cracks.

Deficiencies in leadership and people with disabilities

Deficiencies in leadership can have a more severe impact on people with disabilities than other employees. Lack of support from management leaves each employee on their own and people with disabilities who require different solutions with tools or ways of working risk becoming excluded. It often leaves it up to the individual employee to request assistance or accessible solutions instead of having that taken care of in a systematic way.

Some [remote] meetings can be a little unstructured and require that someone take the lead of the meeting to make sure that everyone feels included.

(Female, ~30 years, visual impairment)

Due to my symptoms, I find it difficult to learn new tools and courses. I wish that we had received some more targeted support. But no, it was the other way around, you were left like a ship adrift.

(Female, ~50 years, brain injury)

Opportunity: Support from colleagues and social networks

Social support from colleagues was perceived as important as everyone was trying to adapt to the transition to working from home. Knowledge sharing, socialising outside of work tasks and sharing responsibilities among colleagues were part of the social support offered. A common strategy was to deliberately schedule non-work time with colleagues to have coffee and tea together and socialise outside work.

Support to people with disabilities from colleagues and social networks

For people with disabilities, it was helpful to have colleagues know about their needs and how they could adapt to making digital meetings and social encounters accessible to all, for example, by using headphones with good microphones.

Maintaining social contact by, for example, combining digital meetings with social meetings was seen as important. The respondents reported that they got a sense of community also when working from home, provided that they and their colleagues made sure to check in on each other and to spend social time together remotely. Remote work also enabled them to meet new people more easily, for example, colleagues located remotely. No exhausting travelling arrangements were needed, which made it easier to meet on equal terms.

I usually help people, but especially when it comes to electronics. Yesterday I had to help a friend with his iPhone. What I know of technology and how to use it, I share.

(Male, ~40 years, more than one disability)

And some colleagues with whom I had a little closer contact, we made an appointment for tea and coffee. So then we had a break together, you sat on each side [of the screen] with a cup of tea and had tea and coffee and talked a bit.

(Female, ~50 years, hearing impairment)

Challenge: Lack of solidarity and collective responsibility

To people with disabilities, it might be more challenging to keep up with the quick pace of online meetings and take the floor, especially in larger groups of people. Video conferencing platforms also tend to be quite difficult to navigate, which causes confusion and insecurity among the participants about how to break into and become part of discussions. It is one thing to receive information at a meeting, but it is another thing to be part of conversations or ask for permission to speak. These difficulties often result in people with disabilities staying quiet in the background at meetings.

There is a lack of managers and colleagues who acknowledge these difficulties and actively invite and give space to people with disabilities. Instead, people with disabilities more often have to fight for themselves. Being that person can be exhausting and result in people getting tired, quiet, and excluded. Managers and colleagues ought to collectively contribute to creating conditions for people with disabilities to partake, instead of leaving them on their own with a feeling of always being the ones who complain and ask for alternative solutions and “special treatment”.

This is however nothing new. People with disabilities have at all times faced mistreatment and exclusion, which is also mirrored in working life. There is a call for increased solidarity among managers and colleagues and a call to take collective responsibility for people who often are being marginalised, such as people with disabilities.

It can be difficult to keep up with a group [...] to request the floor, or me having to wave to enter the conversation. It's hard with Zoom too to keep up, to navigate, how should I do, and press buttons. So, it's not that easy.

(Female, ~60 years, neuropsychiatric disability)

I have to be the one who speaks up all the time, be the nagging person and be the "hearing impaired one". Some people perceived me as a person with the desire to be seen as special and always need to stand in the centre and say "hello".

(Female, ~55 years, hearing impairment)

Challenge: Social isolation when working from home

The social aspect of work is largely lost when working from home. To many people, working life and the workplace are important arenas for social life, well-being, and building relationships with colleagues. The qualities of physical meetings and informal social encounters are challenging to achieve in remote working environments. Meetings in person, social interactions, and talks around the coffee machine are needed to build a "social kit" between colleagues and for collaborations to work in the long run. A lack of everyday social contact with colleagues may negatively affect the sense of belonging to a community and the experience of having a meaningful working life.

Social isolation and people with disabilities

As expressed in the interviews, the social aspects of work are often more important to people with disabilities since they might not have access to many other social arenas beyond the workplace.

To people with disabilities that impact their mobility, the social isolation from working from home and not having the office as a structured social space can be even more severe. There is also the risk that social isolation aggravates already existing mental health issues. Further on, people with neuropsychiatric or psychosocial disabilities who find it challenging to engage in social life and who use the workplace as a strategy to tackle these challenges might become even more exposed when working from home.

In general, people with disabilities need physical meetings, that is my experience after having talked to people.

(Female, ~55 years, motor impairment)

The isolation affects you mentally, you can't get away from that.

(Female, ~50 years, brain injury)

You miss the social interaction [...]. Coffee talk is very important, you shouldn't underestimate that. Such talks you miss when you have digital meetings.

(Female, ~40 years, visual impairment)

Opportunity: Alternative co-working spaces outside the regular workplace

Even if work activities were conducted outside the ordinary workplace, colleagues or co-workers could still meet in a physical space and work next to each other just for the sake of social well-being. One respondent coped with the challenges of social isolation by going to a friend's house (or inviting the friend home) to work side by side, despite them not working in the same organisation. This provided company, support with working tasks if needed, or reminders to take coffee or lunch breaks. Other respondents described how they invited colleagues to their homes for work instead of meeting at the workplace.

Alternative co-working spaces and people with disabilities

For people with disabilities, especially disabilities that make it difficult to travel, creating an alternative co-working space by inviting friends or colleagues to the home office can be an alternative to the workplace. This requires access to a social network of friends and colleagues, a proper office space at home, and the organisational skills to make it happen.

*Sometimes go to a friend's house. It could be a colleague from the same job or someone I know who works from home [...] we sit and work together but do not work together [...] so I get this social thing. Sometimes people come to my house. I have a colleague who lives up in [...]. It's far from here. She takes the shuttle down here. We take a walk together, so I get to walk. I meet her and we sit here at home for a whole day and then she goes home. You get this social interaction even live, even if you are not in the office.
(Male, ~50 years, visual impairment)*

*Some people came to my home, among other things the cashier because we had to look at some things and then we could meet. Either here or that I went in to work and that person arrived while I was at work.
(Female, ~60 years, motor impairment)*

Opportunity: Community building and political engagement

The pandemic situation spurred political engagement. Respondents described that they were able to free up more time for civic engagement when working remotely. They also reported increased participation in disability rights organisations and new members showing up when activities were moved online, attributing this to lower barriers for participation when one only needs to connect to an online meeting.

*It's still in the planning stages, but I will do everything in my power to spread the word about this knowledge. Similarly, I have started working with dog therapy and want to inform physiotherapists and those concerned in [...] about the effects of that form of therapy. I teach her [the physiotherapist] about what it's like to have a brain injury. She has many different patient groups, from dementia to young people with ADHD. We plan lectures and screenings to spread knowledge.
(Female, ~50 years, brain injury)*

Challenge: Employment and job security

There are types of employment, work tasks and working practices that are impossible to perform outside a physical workplace. Employees, such as people with disabilities who were part of a risk group and were working with tasks that were tied to a physical location thus had to quit working until the pandemic was less threatening. Remote work requires access to proper technology. Previous research states that people with disabilities have less access to digital technologies than the general population (Strauser et al., 2021), which has a negative effect on their possibilities to be employed. This also resulted in difficulties in finding new employment for such labourers as well as difficulty in receiving extended support for employment. Besides being forced to stop working since tasks could not be performed at home, others chose to leave work since they were part of a risk group and did not dare to attend the workplace due to anxiety and fear of Covid-19.

People with disabilities were more severely impacted by employment insecurity during Covid-19 since they more often work in jobs or forms of employment that are not able to be performed remotely. International studies on labour statistics during the pandemic showed a steeper decline in employment for people with disabilities (see e.g., Gignac et al., 2021; Gullekson, et al., 2022; Morimoto et al., 2021; Sánchez-Guarnido et al., 2021; Strauser et al., 2021).

I couldn't work from home [had to quit working].

(Male, ~40 years, more than one disability)

In the beginning [...] I got very scared of Covid-19 and stayed at home for a whole month. I took time off because I have asthma and get very sick when I catch infections. So I developed a huge fear of Covid-19 and we had a lot of sick people at the elderly home where I work.

(Female, ~60 years, visual impairment)

The pandemic made it more difficult to receive extended support for employment.

(Female, ~55 years, motor impairment)

Theme II) Work environment

The second theme addresses challenges and opportunities related to the *work environment* at home in comparison to the workplace. The respondents brought up issues related to the physical space of the home allowing for more flexibility in how to e.g., organise the office in terms of ergonomics, but only for those whose homes offer opportunities for adaptation. Homes with smaller living areas hosting large families do not allow for such flexible arrangements. Issues related to the “soft infrastructure” of more flexible workdays were also brought up. For example, the benefit of structuring the workday based on individual preferences, taking breaks when needed, dedicating time in the middle of the day for exercising and then extending the workday in the afternoon. These strategies however put high demands on self-organisation and discipline and were perceived as a challenge to some respondents, and to others not.

Opportunity: More flexible workdays

Working from home allowed for more flexible working day routines compared to working from the office. Remote work allows for flexibility and for attending events remotely rather than travel. As put forward in the interviews, not having to travel forth and back to the office on an everyday basis was a way of combating the accumulation of fatigue during the work week. This led to increased recovery and well-being.

More flexible workdays and people with disabilities

When working from the home office the workday can be arranged based on individual needs; when to have a break, when to start and end the workday, when to exercise, take a walk or eat lunch etc. A motor impairment no longer prevents someone from conducting a working task due to immobility since the tasks can be conducted from home. Further on, the nature of remote work allows for scheduling periods of intense meetings with periods of solo work or extended breaks. Some respondents described that they choose to break up the workday with single meetings followed by a rejuvenating break with tea or coffee to re-energize after meetings. Being able to then retreat to the kitchen or a sofa was a benefit, including getting into a better position for pain relief that is not always available at the office.

Being at home was my salvation in many ways. Because then I could have intense hours with a lot of talking and listening and interacting. Then I could take as many breaks as I wanted. I could go for a walk or I could do something at home.

(Female, ~50 years, hearing impairment)

I thought the pandemic was a revolution for me actually. I think it has been and is much more fun to work when I don't have to go to my workplace every day with the travel service. I really enjoy working at home. It's simple and it's quiet and good. And I like that I can choose for myself. It's great fun to come to work too. It increases freedom of choice and flexibility.

(Female, ~50 years, visual impairment)

I noticed that when I had been working from home for four weeks I was much more alert. I felt that I could start to move more and I wanted to do it too. I am normally very still because I am very tired all the time. When I had been home for four weeks, it was the month of May, nice outside and springtime, in the evenings I even suggested to my husband that we should walk around the block. 300 meters maybe. So I started walking. When the summer ended I felt that I was in a much better shape.

(Female, ~45 years, rare disease)

The benefit of flexible workdays during the pandemic had a huge impact on some respondents since working from home relieved effects from their disability that strongly affected them in their regular work environment and working life. They could better manage pain and tiredness and the home office allowed for rest periods or shifting work positions. To some respondents, the effects were so great that they claimed that working from home allows them

to continue working until they retire. Regular office work and an everyday commuter life would have forced them into early retirement.

When I have the opportunity to work from home on certain days, I feel that then it's not as tough to work evenings and on weekends. I get the opportunity to rest in a different way because there are no trips every day.

(Female, ~30 years, visual impairment)

To me, the pandemic has been much about better physical well-being. My body continues to deteriorate, but I think I would have been in a worse position if I had had to go to the office as before. Somehow it has slowed down even if it hasn't stopped. I can take care of my health in a better way than what I have the energy and strength for when I need to be at the office.

(Female, ~45 years, rare disease)

Something that I will get better at is actually going for walks and making use of my "wellness hour". It is something that I think about repeatedly. I have to remember that so I don't get dragged into constantly thinking that I don't have time for that today.

(Female, ~40 years, psychosocial disability)

Challenge: Challenging to self-organise and self-discipline

Some people find it challenging to work from home due to limited capacity to self-organise and/or lack of discipline. It is difficult for them to maintain everyday routines and habits when not having a workplace to go to and supporting colleagues. To work together, sitting in the same space is motivating and engaging. To work from home all alone is experienced as dull and unengaging.

In contrast, some people enjoy working from home to such an extent that it has made them too comfortable and choose to stay at home instead of meeting physically. This can result in a less productive working life since it might be more difficult to understand instructions given online than face-to-face.

Self-organisation and people with disabilities

Self-organising the workday and its routines can be especially challenging for people with cognitive disabilities. The importance of routines can also be higher for people with disabilities where not following routines (for example taking breaks) would aggravate the effects of their disability. Supportive leadership and supporting colleagues are key.

I believe that 95% of all people need routines daily and so on. [...] Many people with disabilities find it very comfortable to stay at home. But then you realise that they do not really understand what we are doing, will do, or what has been done, via Teams and Zoom. They become less focused.

(Female, ~55 years, motor impairment)

The most important thing is to have routines. [...] To try to have the same routines and take breaks during the working day and not forget about it just because you sit alone.
(Female, ~30 years, visual impairment)

One has developed other habits during the pandemic. Maybe you set the alarm for a certain time but then sleep for another 20 minutes in the morning and then you can go to the toilet and do this or that in peace and quiet.
(Male, ~40 years, more than one disability)

Opportunity: Designing a better workplace

Working from home allows for individual design of home office spaces in a way that suits individual needs, including computer accessories supporting proper audio and video experiences. The home office offers silence, less ambient noise and interruptions compared to an office that is often structured with open floor plans.

Workplace design and people with disabilities

Respondents reported that the ergonomics of their home offices were better and more adapted to their individual needs. That also includes those attending online meetings while lying down on the sofa to relieve pain from sitting in an office chair for extended periods. This is something that would not have been possible at the office. Having online meetings at home instead of in-person meetings at the workplace was even preferred by some of the respondents with hearing impairments. Such online meeting settings allowed them to connect their hearing aids to the sound in the online meeting as well as use headphones to hear the audio better.

Due to special needs related to their disability, some respondents reported added benefits with being able to design non-orthodox workplaces and positions for working when being at home. The digital nature of remote interactions also suited some respondents due to their visual or hearing impairments.

It's much better ergonomics at home than at the office because you usually have to stand in different places and every time it's about adjusting that place and so on. But at home, I know exactly how to stand so that it will be good.
(Female, ~50 years, hearing impairment)

I lie on the sofa a lot when I have team meetings too. Because, as I told you before, I never have the camera on.
(Female, ~50 years, visual impairment)

But from a purely technical point of view, this digital meeting has for me, almost been better than the physical meeting in a way. It is easier to be more flexible because with the help of the computer programs during meetings than to be part of larger meetings and conferences. Yes, but for example when you show overheads at regular meetings, it is often very difficult to follow it. You rarely see them properly. People always forget to copy them

but say they've done it. It is always forgotten. But when it comes to Zoom and Teams, it has been much easier in that part. Then you become much more independent yourself and can use the technology available. In this way, it has worked better.

(Male, ~60 years, visual impairment)

That's actually the fun part here, it's much better ergonomics at home than in the office because you usually have to stand in different places and every time have to do adjustments and so on. But at home, I know exactly how to stand so that it will be good.

(Female, ~40 years, psychosocial disability)

Challenge: No suitable workplace at home

To have access to a suitable workplace at home is crucial, both for being able to concentrate properly and for security reasons, personal safety, and integrity. Video meetings and working tasks might treat sensitive topics that must be handled with confidentiality according to legal regulations. To share the workplace, and work in the same room as other family members is then not an option. All homes might not accommodate such situations, which must be communicated to employers and colleagues.

Not having a suitable workplace at home can cause difficulties for all employees, but having a proper place to work that is ergonomic and without distractions or noise can be especially important for people with certain disabilities.

You need somewhere to be and to work in peace. Many have had office spaces at home and worked side by side [with their partner]. But, if you have a meeting then you must have your own room. It's one thing if one of you has a meeting, but you cannot have two meetings going on in the same room.

(Male, ~50 years, visual impairment)

Challenge: Data security and personal integrity

When working from home, employees' integrity and privacy can be challenged if not handled with care. Data security has to be ensured by employers for personal security reasons, but also according to legal privacy regulations. Increased use of online environments, using digital tools and technologies and automatisations to solve work assignments bring the question about AI to the table, and how the interests of people with disabilities are guarded.

As many people with disabilities are in contact with health providers or government support agencies, confidentiality issues on both sides of the call may be compromised when working from home.

Sometimes when you call other care providers, for example at the Social Insurance Agency, and you hear that they have children in the background despite the conversation it's of a confidential kind.

(Female, ~50 years, visual impairment)

If my teenage children had home school at the same time, which they also had a lot during the pandemic, I couldn't work because I don't have a door that I can close. Then you can't guarantee confidentiality.

(Female, ~50 years, visual impairment)

Challenge: Deteriorating physical health

Working from home may result in a more sedentary lifestyle. Everyday movements connected to working life at a workplace, such as travelling to the location, causal movements at the workplace, walks to the print room, or colleagues sitting in other rooms, decrease. A heavy workload also makes it difficult to prioritise regular breaks and make time for movement. People tend to choose to finalise a work task before taking a break for physical exercise.

Further on, workplaces, and work desks at home might not be based on ergonomic principles, or even possible to adjust to to support healthy and sustainable working positions. Long video conference meetings in front of the computer are also experienced as tiring, not only for the brain and sight but also for the neck and shoulders. Working long hours in front of the computer is exhausting but it also causes difficulties to sleep (note: possibly due to the exposure of artificial light from the screen).

Deteriorating physical health and people with disabilities

To people with disabilities, their physical health can be more severely affected by the sedentary lifestyle that might arise from working from home. Ergonomics, long sedentary working sessions and tiredness that come from them could aggravate the disability. During the pandemic, gyms were closed and rehabilitation activities were cancelled, which negatively affected people with disabilities who are dependent on physical exercise to cope with life.

When we have board meetings, I sit for two and a half to three hours and write minutes. Then I just sit at the dining table. You don't sit well. You don't have a good position when you work from home. You should have your own office at home, but you don't.

(Female, ~60 years, visual impairment)

I get very tired from it [video meetings] and then my neck and shoulders ache easily. I can get so tired that I can't sleep later and then I get even more tired. It's difficult and I don't do much in my free time since I'm so tired after a working day.

(Female, ~55 years, hearing impairment)

Challenge: Work fatigue due to overworking and not pausing

When working from home there is an increased risk of overworking and not pausing, skipping lunch breaks and coffee breaks, which in the long run may result in work fatigue. There is a risk of becoming too absorbed by work and forgetting to pause. While being at a workplace there are structures and routines that scaffold a sustainable working life and colleagues that can remind you to take a break. Too many hours in front of the computer in video conferencing meetings may cause what is referred to as "Zoom fatigue" and result in a decreased interest in participating in video meetings and remote collaborations.

Work fatigue and people with disabilities

Experiencing fatigue due to difficulties with remembering to take breaks or becoming over-absorbed in work can be an additional risk for neurodivergent people. The impacts of overworking can also be more severe for people with disabilities where overwork can lead to increased fatigue or pain.

My wife usually calls me to ask if I have had lunch yet. I answer, no I will, and check the time, oh, half past three.

(Male, ~50 years, visual impairment)

So, there's a very big risk when you sit at home alone, that you forget, oops, I should have taken a coffee break 45 minutes ago [...]. Same with lunch, it's very easy to not keep time. [...] It's easier to leave work on time when you're at your workplace, because there are people there, and you sort of push each other. I never skip coffee breaks or lunch, but it can be later because you are so into what you are doing.

(Female, ~55 years, motor impairment)

Challenge: Overperforming to compensate for the disability

There is a tendency for some people with disabilities to over-perform at work to compensate for their disability and show that they are worthy of the job. Through the digitalisation of society, some barriers are lowered for people with disabilities to enter the labour market, such as access to information or the possibility to attend meetings from remote locations. However, the problems do not disappear, they are not just as visible. This raises the expectations on the performance of people with disabilities, for good and for bad. Maybe they are not capable of or have the strength to deliver what is expected of them but find it difficult to communicate that when the disability is hidden behind technological aids. Working from home may increase the risk of overperformance and as a consequence, result in exhaustion.

People don't expect you to be able to achieve things because of the visual impairment. Then you have to convince them and overperform.

(Female, ~55 years, visual impairment)

That's also why you push yourself to the limit. People always keep their eyes on you, so you must be excellent. Just as if that is okay, and that this is the case with all disabilities. You are always watched, and if you do not perform, and preferably ever more than everybody else, you are criticised. This is very common. It is common for women too, you must perform better than men do.

(Female, ~60 years, visual impairment)

Opportunity: Physical location becomes less important

To have the ability to work from home, and not having to attend the workplace on an everyday basis makes the physical location less important. This opens new opportunities for people with disabilities who cannot move so easily. People can be hired to remote jobs in other

locations than where they live and therefore are offered more job opportunities. Families and living situations do not need to be uprooted due to new employment opportunities elsewhere.

As long as my work is of an individual character, I can work anywhere, I don't have to live where I work. [...] it's a huge opportunity to be able to work almost anywhere. But if we can work anywhere in Sweden, then people from Spain can work here too. I can live in Spain and work in Sweden. Or I can live in the US or we have maybe a million Indians looking for work because they have the skills. We haven't seen the beginning of what this is going to mean.

(Male, ~50 years, visual impairment)

A lot of people are very tired, for example. Then you can save both time and energy by already being at home. The home is safer, you should also consider that. You don't need to go out in the evenings when it's dark. There are many benefits.

(Female, ~60 years, motor impairment)

Opportunity: Decreased discrimination against people with disabilities in the labour market

In remote work settings disabilities become less visible and subject to discrimination. As expressed by the respondents, the pandemic situation and remote work from home may have resulted in decreased discrimination against people with disabilities in the labour market. Previous discriminatory behaviour against people with visible disabilities at workplaces could be less frequent in remote work. However, as also expressed, it would not be desirable for people with visible disabilities to seek out remote work to avoid discrimination.

I've been in contact with a girl, who applied for many jobs. She was highly educated, very forward-thinking and applied for one job and another. After a while, she got very sad and told me that she'd never get a job, "I'm looking for a job and I'm not getting anything". I asked what she writes in her application, and she answered that she includes information about her visual impairment. I told her to skip that in the job application, and instead share that at the job interview. And yes, what happened is that she then was called to interviews for all the jobs she applied for.

(Female, ~55 years, visual impairment)

You learned quickly to not write about the disability in your job application, cause if you do, then you are never called for interviews. Never. If you are not looking for a job where it is meritorious, yes. But you rarely do that.

(Female, ~55 years, visual impairment)

And this thing with careers, well, it's my competence, my ability to communicate that's important here, not that I see poorly. So in this sense, this [the pandemic] is the shit, from this perspective.

(Male, ~50 years, visual impairment)

Theme III) Technology, accessibility, and infrastructure

The experiences gained during the Covid-19 pandemic point toward a future working life as being hybrid. Respondents envisioned their future working life to be a self-determined mixture of working from home and from an office space, as well as attending some events remotely and others in person, that is, a *hybrid working life*. The events they plan to attend in person are mainly events where they can stay multiple days and establish relationships with new collaborators. Several respondents reported being astounded by how much was possible to do remotely from the home and how they have worked out solutions to make remote working life function better during the pandemic.

The transition to working from home during the pandemic involved a digital transition towards new tools and platforms as well as new ways of working afforded by a digital work environment. This transition opened new opportunities to create accessible work environments and practices.

A hybrid working life requires proper access to digital technologies and the competency to use them. The third theme that emerged in the interview study, addresses challenges and opportunities connected to *technology, accessibility and infrastructure*. The theme is divided into two sub-themes, which relate to *digital competencies* and access to *technology design, accessibility, and infrastructure* such as access to proper equipment and the Internet.

Sub-theme: Digital competencies

The first sub-theme addresses opportunities and challenges related to the digital skills and competencies acquired for remote work, and how the respondents became more confident using digital technologies during the pandemic. And the contrary, limited digital competencies hindered other respondents from taking part in working life during the pandemic.

Opportunity: Increased digital maturity

The rapid transition during the pandemic to working from home in a digital work environment accelerated learning and led to a new digital maturity, both in terms of knowledge and experience of working with digital tools and in terms of upgraded equipment and developing new work practices. One respondent described it as a crisis at work that forced the adoption of digital ways of working as well as increasing competencies in the use of these tools which remain to this day.

All employees working from home had to learn how to use online meeting tools as well as adopt a digital-first approach to work. The skills developed were not only technical but also organisational and social, for example how to organise and act during an online meeting to make it run efficiently and be accessible to all participants. Several of the respondents spoke of a revelation that digital ways of working turned out to be at least as good as their in-person counterparts.

The respondents reported that the conditions for working from home have been present for years, such as having a paperless office, but the permission to work from home and the workplace culture of doing so have not been in place. Also, employers have been resisting the change even when desired by employees. The pandemic brought the paradigm shift and showed in practice that a hybrid working life was possible.

Digital maturity and people with disabilities

This cultural change is especially important for those people who prefer to not come into the office every day due to their disability and who might have to work from home on some days when the disability prevents them from coming to the office.

[...] the crisis that arose [the pandemic] made it necessary to develop the technology. That technology took many steps forward and the public began to use it. I will continue to use various digital tools, which I also do regularly.

(Male, ~50 years, motor impairment, neuropsychiatric disability)

Just Teams and Zoom and everything, I think has brought something good apart from the pandemic crap itself, of course. We held our board meetings via Teams, and we still do. Sometimes we meet, but it's damn more efficient. It becomes more discipline in some damn weird way. I think that will stay. [...] These business trips that used to be done, I think they're simply becoming less and less.

(Male, ~70 years, motor impairment)

I've learned a lot about computers, before I hadn't used Zoom and apps like this but I've noticed that it's going pretty well and I've familiarized myself with it so that I can handle it today. It feels very good that you don't just say no to this digital development as well.

(Male, ~45 years, neuropsychiatric disability)

Before the pandemic, we hadn't really been using Skype, Teams or WebEx or Zoom. The digital world has only exploded with distance meetings. I had never been at a video conference before the pandemic. [...] Yes, I think that Sweden went ten years ahead in digitization because of the pandemic. Because everyone had to change. Even if you thought it was difficult, you were whipped so badly to learn. Most of the time when it's something that's complicated, then you try to push it, you're forced to, you feel you have to solve it."

(Male, ~60 years, visual impairment)

Challenge: Digital competencies gaps

Remote work from home or elsewhere demands a certain level of digital competency, and/or an interest in or capacity to achieve these skills. To some people, using digital technologies to access video meetings is too complicated due to a lack of proper training. Others are simply not interested in learning or are scared of revealing their knowledge gaps, and thus do not want to move working tasks and communication to online environments.

Digital competencies gaps and people with disabilities

Besides basic digital competencies, people with disabilities may have to learn special accessibility tools and features on top of the regular digital tools used for remote work. This places extra high demands on the individual's ability to learn. Others may have difficulty acquiring digital skills due to their cognitive disabilities. Additionally, people with disabilities may previously have been excluded from work and other social environments where these digital skills are acquired, and thus learned step by step. During the pandemic, these digital skills had to be acquired from one day to another due to the whole society closing down. A required learning progression of that intensity is difficult for anyone to cope with, with or without a disability.

It is not only that the system must be made accessible, but it is also that many people with visual impairment live in a kind of digital exclusion and cannot use these solutions. There are a lot of people who can do it, but it is still the case that many people can't.

(Female, ~55 years, visual impairment)

Not everyone has it or even wants it. One of my board members says "I'm not interested, I can't, I don't want to".

(Female, ~60 years, motor impairment)

What has not worked so well is Teams meetings with our local organisations due to them not being digital. It is very difficult for the elderly to get into the digital world. Many of us who have visual impairments are excluded.

(Female, ~60 years, visual impairment)

We have members who have been missing the physical meetings a lot and who think it's really hard to connect via [video] link. But why do they find it tough to be connected via link they haven't been able to express it in words.

(Female, ~55 years, motor impairment)

Challenge: Lack of knowledge of how to use remote work technologies

Existing tools and technologies, such as speakers and microphones are often used for other purposes than they are primarily designed for or used in the wrong way. There are video conferencing platforms that are complicated to connect to screen reading programs. Other software used for remote work does not comply well with computers with braille displays, screen reading programs and speech synthesis.

In hybrid video meetings with people participating on-site and online, it is important to consider the acoustics in the room and position microphones and speakers properly to achieve the best sound quality possible. Such knowledge is not so often represented among the organisers of remote meetings. Poor sound and video screening at meetings leads to less engaging meetings and poor communication.

Remote work technologies and people with disabilities

For people with disabilities who must stay fully concentrated to be able to make sense of the information that is shared, it is exhausting to not hear well due to bad sound quality or incorrect usage. This eventually leads to fatigue and exclusion. Proper use of digital tools and knowing how to increase the accessibility of the meetings and other interactions taking place through digital means, is crucial to include people with disabilities such as hearing or visual impairments.

If there is a group sitting around the table and then you have a microphone in the middle, it rarely turns out well. One person is close and the others are further away and do not speak directly into it [the microphone].

(Female, ~40 years, hearing impairment)

You look at a screen with many people and often such meetings are quite large and you always see someone or a few who don't have a decent microphone or who maybe participate via the mobile phone and put the mobile phone on the desk and you only see the nostrils. There are many factors that I cannot influence.

(Female, ~55 years, hearing impairment)

It feels like this type of communication is meant for one person per device. But in a group, it becomes a completely different matter. Yes, and there disappears lip reading, facial expressions, everything disappears in that way.

(Female, ~40 years, hearing impairment)

Challenge: Counterproductive technologies

Becoming too dependent upon technology puts people in vulnerable positions by not learning to live and act without technological aids. For example, children with hearing impairments who use hearing aid technologies may not find it necessary to learn sign language. However, situations will occur when technologies break down and stop working, and we must learn how to cope without them. Allowing technologies to overturn the possibilities to learn analogue techniques, such as sign language, makes us become dependent upon constant access to technologies and thus vulnerable.

You don't get sign language [only use hearing aids]. There is too much trust in the technology to solve it but the person becomes deaf if you remove the technology. Then you get hearing loss. You might become completely deaf. There are situations when the technology does not work.

(Female, ~40 years, hearing impairment)

Sub-theme: Technology design, accessibility, and infrastructure

The second sub-theme addresses opportunities and challenges related to technology design that meet accessibility requirements, but also to issues related to the digital infrastructures in terms of access to proper equipment and to the Internet.

Opportunity: Taking advantage of digital affordances

The transition to a digital work environment has not only transferred work practices to digital environments but has also resulted in us taking advantage of the unique affordances of digital tools to create more accessibility and improved ways of working.

Hearing and understanding others regardless of how many participants attend an online meeting, seeing everyone's name on the screen, simplified turn-taking, being able to see slideshows better and being able to keep up with the information shared, are just some advantages of online meetings compared to in-person meetings expressed by the respondents. All of these digital affordances offered made meetings less draining for all but are especially beneficial for those whose disabilities make regular meetings inaccessible or were used to a workplace that didn't make sure meetings were accessible to all.

With the increased use of digital information, written or recorded information can be read at one's own pace and digested. This was described as helpful for people with disabilities that make real-time information difficult to comprehend.

Working efficiently has become easier. Taking part in information has been insanely much easier. And it is precisely due to people not using pen and paper, no post-it notes, no whiteboards, nothing that is printed. For once, for the first time in my entire 30-year professional life, I have been able to keep up on the same terms as my colleagues have been able to do.

(Male, ~50 years, visual impairment)

Digital sound transmitted directly into the ears is better, yes [..]. If you compare the digital to sitting in a real room, I get it better. I think it sounds better.

(Female, ~40 years, hearing impairment)

Yes, so what became easier, for example this type of digital meeting suits me very well. I can hear, as I said because I hear better and perceive less perception disturbances when I sit like this and talk to someone. I'm quite disturbed by ambient noise so it becomes, this type of meeting gives me more.

(Male, ~50 years, motor impairment, neuropsychiatric disability)

[..] you also see everyone's name, at the bottom left of the screen [in a video meeting]. I have a hard time learning names as a rule, so at least when I enter the workplace, it can take a couple of months to learn ten people's names. He with the rusty voice and she and he great soprano and things like that. It took a while to get a name on everyone, but now that everyone has a name tag there [..] So I get to know people by name in a completely different way and they become a person to me, not just a face with a voice, but they become a person. It has also been great. But above all being able to work under such conditions, I have access to all the information that everyone else has under such conditions, it has been revolutionary."

(Male, ~50 years, visual impairment)

Online communication and working from home make some working tasks more efficient. By taking advantage of digital ways of working, shorter meetings and e-mails made work more efficient when working remotely. Respondents described that they experimented with doing more tasks over the phone or online meetings instead of in-person meetings. They also felt that they could work more undisturbed from home and that created less stress, especially for neurodivergent people. It was also reported that work became more disciplined and efficient with digital tools, leaving more space for non-work activities. This both included the meetings themselves, but also cutting down on business trips and travel for client meetings. Many workplaces have adopted hybrid ways of working where people who are remote and unable to join in person can join meetings or take part in information remotely.

So we have a lot of combined meetings. And yesterday, for example, we had a chairman's board meeting with our local associations here in the room. And then we had a combined meeting. Then we had a lecturer on Teams. And then we had a puck as a speaker and so it worked great.

(Female, ~60 years, visual impairment)

Administrative matters became easier. It was easier to focus on the work task. There wasn't much around that bothered me. My hearing was better. I had more energy, I had more stamina.

(Male, ~40 years, more than one disability)

It reduces travel and makes it easier. Maybe you don't have to be away from work for so long, but you can still attend the meeting [...] And it is not a must to move physically to participate. In this way, it opens up new possibilities in a completely different way."

(Female, ~40 years, hearing impairment)

Opportunity: Improved accessibility of digital technologies

Access to technology that is designed according to accessibility principles is of crucial importance. Accessible technologies greatly improve or even determine people with disabilities' chances to participate in and contribute to working life. Since far from all technologies and published materials (text, visuals, films) are made accessible, this field holds great potential and opportunities for improvements. Good quality equipment, such as headsets with boom microphones was reported to make a big difference to people with hearing impairments. Similarly, good cameras and well-lit participants helped with lip reading and other visual cues.

Digital technologies such as phones, smartwatches and smart TV's that have voice support increase accessibility for visually impaired people. The possibility of connecting braille displays via Bluetooth is also increasing the accessibility of digital technologies. Other ways of making digital technologies more accessible are subtitling online courses or meeting transcripts.

And what I discovered later was that such real headsets, preferably with a microphone boom, make a big difference for me and I don't have to put in as much effort [..], I would like there to be a greater general awareness that it is good to have microphones and to think about good lighting, for everyone.

(Female, ~55 years, hearing impairment)

Even Apple TV has voice support, Apple Watch has voice support and a speech centesis. This is why I will never buy anything other than an iPhone just for the assistive part. They have it in their philosophy that everything should even have hearing aids built in. You can connect a braille display via Bluetooth to your iPhone. Without having to buy additional programs for 15-20 thousand kroner that you can do on computers when you need an aid".

(Male, ~60 years, visual impairment)

I want the online courses to be subtitled so that I can sit and read the information instead of having to listen. It is accessible to all. I'm not the only one who thinks that there is a miserable sound in those. It is then a win that the web courses are subtitled so that you can read.

(Female, ~40 years, hearing impairment)

Cochlear implants simplify my life and help me hear much better, thousands of times better than before I depended on lip reading.

(Female, ~70 years, hearing impairment)

Opportunity: Advantages of video conferencing meetings

The full potential advantages of video conferencing information meetings can only be reached if all employees, with or without disabilities, can participate on equal terms and take responsibility for their participation. To achieve this, meetings must be planned carefully and the meeting organiser must ensure good audio and video to facilitate the participation of people with disabilities (and others). The meeting participants should also be offered support to learn how to use the technology correctly. Providing relevant training for employees is needed to take advantage of the new technologies. One strategy is to open meetings a quarter before the scheduled time for people to be able to join and test their technology setup. Hearing aids are becoming better and more compatible with digital tools and can work with the most common digital platforms, for example by streaming sound to implants.

I still believe that it [video conferencing meetings] can lead to a positive development. I think that many people with disabilities can embrace the new technology if they get the right support. It is crucial that you receive training in handling the technology. If that is achieved, then this is a great support to keep on working.

(Female, ~30 years, visual impairment)

[L]earn the technology, be careful to take responsibility for learning yourself so that it makes working life easier. It will be both more fun and smoother and everything will be fine if you can.

(Female, ~50 years, visual impairment)

Well, and I've noticed if it's a good person leading the Zoom meeting, it's easier to get into it.

(Female, ~60 years, neuropsychiatric impairment)

Challenge: Limited accessibility and poor usability

Despite legal requirements to follow the EU accessibility directives when designing tools and technologies, there are still software, systems, and devices that do not follow these principles and can thus not be adapted to the specific needs of people with disabilities. Furthermore, the systems that *are* designed to meet specific needs and comply with the accessibility directives, might not interconnect with other systems used at the workplace. This limits the possibilities for people with special needs to work efficiently.

Developers of software and systems do not always possess the competency and skills to design for accessibility. Also, despite the legal requirements some organisations do not acknowledge or prioritise the specific needs of people with disabilities and procure systems and software that are not aligned with the accessibility directives. This results in accessibility and usability challenges, and employees with disabilities become dependent upon support from colleagues or family members to access work materials or channels, or in the worst case have to quit working. It also results in limited possibilities to enter systems from outside the workplace and work from home since the system can not be accessed without help from others.

In my work, I use a computer with a braille display, screen reading programs and speech synthesis. [...] These programs for digital meetings work very differently due to the fact that some public organisations procure a system [that works badly]. It was difficult, for example, to have meetings with the region because they had procured Skype and it works very badly with my screen reading program. The municipality had the opportunity to procure Teams and Zoom and then it worked much better, but as a point reader or as a screen reading program user, you end up a little extra behind because none of my colleagues could teach me Zoom and Teams.

(Female, ~40 years, visual impairment)

The digitalization we see today has not made things easier, it has gotten worse since screen-based media has become more spread and more complex. Many websites don't follow the EU accessibility directives. There are things that you simply can't do with keyboard shortcuts. They do not comply with the legal requirements that we are obliged to follow.

(Male, ~60 years, visual impairment)

In addition, our region managed to procure a system that did not work with screen readers. Initially, it didn't work for anyone else either. There has been a lot of fuss about it. When they procured an upgrade of the system, they didn't include accessibility since it got lost along the way. It's a bit like that when you make central procurements, that things easily get lost.

(Female, ~55 years, visual impairment)

"We have looked into the possibility of installing voice control on the computer, but haven't found a solution that works for me. It is difficult with voice control since we sit in an open office landscape. We work in software that is in-house developed by [the organisation]. Then they are not programmed to take voice control into account."

(Female, ~45 years, rare disease)

Challenge: Poor communication online

In comparison to communication in physical space, collaboration and communication online become more complicated due to difficulties in interpreting signals in facial expressions, lack of body language and non-verbal communication, latency/delay in communication etc. Bodily and spatial interaction is missing, which makes it more difficult to position oneself in relation to a group. For example, if you wish to take the lead you might position yourself in front of everybody. In case you wish to comment on a topic then you lean forward, or the opposite, you lean back. All these signals connected to the space and the body are not made possible in a video conferencing meeting where just parts of the body are represented on the screen and not in relation to others. These limited conditions for communication online make it more difficult to build relationships with people that you just meet in remote settings and never face-to-face. The risk of conflicts increased due to misunderstandings and misinterpretations caused by these communication shortages.

There is a second delay sometimes even more and if you are out walking with your mobile then there might even be a two-second delay. So, I speak when there is silence before you start speaking, but you experience it as if you start talking and then two seconds in, someone interrupts you. This latency makes us feel less nice to each other. The latency might not be the main reason, but it is a contributing factor to the fact that more conflicts arise when you work remotely than when you work in the same room [..] Conflicts at work increased significantly, both for me and for others. Just because we didn't have this interaction, we misunderstood each other.

(Male, ~50 years, visual impairment)

We have hired many new people lately. I realise that I have had a very hard time remembering their names and recognizing them when you are not there to see them every day and meet them.

(Female, ~45 years, rare disease)

Reading on lips in video conferencing meetings is challenging and in particular, if people are wearing headsets with a microphone in front of the mouth. This affects people with hearing

impairments negatively. Further on, sign interpreters or translators find it challenging to follow hasty meetings when people discuss and interrupt each other. The terminology used might be new to the interpreters, or the sound quality is low, which occasionally results in incorrect or incomprehensive translations in text or sign language.

A video meeting can never replace a physical meeting. [...] If I say something that upsets you, I notice that if I sit in the same room. In a video meeting, I don't notice that, I don't pick up on facial expressions. A physical meeting can never be replaced digitally. Not to me anyway.

(Male, ~60 years, visual impairment)

Meetings can go pretty fast. If there is particular terminology used that the typewriters don't know then it can become crazy text. Then I need to listen and read and take notes at the same time [...] I always have to be very focused in meetings and especially if there is poor sound or noise around. I hear things but certainly not all sounds. It's a lot about reading and guessing. I can never passively listen to anything, but I always have to be active and fill in the blanks.

(Female, ~55 years, hearing impairment)

Potential design opportunities

The identified challenges and opportunities point towards many possible directions for future development of tools and practices that can improve the conditions for people with disabilities to participate in and contribute to working life.

In the next step of the project, the identified challenges and opportunities will be reformulated as “How Might We” questions and formulated as design opportunities. In doing so, complex issues addressed are turned into something concrete to act upon. The outcome of this interview study will therefore not stop by “knowing”, but also enable “doing” and be used as an entry point in the development of solutions addressing the challenges and opportunities identified.

In the autumn of 2023, a collection of design opportunities will be formulated and discussed. A series of collaborative workshops will be set up to explore these design opportunities together with stakeholders. Until then, here are a few examples of potential design opportunities that might become topics for further exploration.

Challenge/Opportunity	Design opportunity
Challenge: Social isolation when working from home Opportunity: Support from colleagues and social networks Opportunity: Alternative	How might we create conditions for people to be part of the community and social life at work even if not being present at the workplace on an everyday basis?

co-working spaces outside the regular workplace	
Challenge: Challenging to self-organise and self-discipline Challenge: Work fatigue due to overworking and not pausing	How might we design tools that support employees in structuring their workdays and in completing work tasks?
Challenge: Deficiencies in Leadership Opportunity: Support from management and organisation	How might we create conditions for managers to develop leadership skills that support people with disabilities working from home?
Challenge: Lack of knowledge on how to use technologies for remote work	How might we support organisers of online meetings to learn how to use technologies for remote work that create the best conditions possible for equal participation?
Challenge: Data security and personal integrity	How can we design processes and routines to ensure the security and protection of personal integrity?
Opportunity: Increased digital maturity Challenge: Digital competencies gaps Opportunity: Advantages of video conferencing meetings	How might we design inclusive hybrid meetings and working practices for everyone to participate on equal terms?
Opportunity: Taking advantage of digital affordances Opportunity: Advantages of video conferencing meetings	How can we create conditions for the full utilisation of the affordances offered by digital technologies to improve the conditions for a hybrid working life?
Opportunity: Improved accessibility of digital technologies Challenge: Limited accessibility and poor usability Challenge: Poor communication online	How can we create conditions for designers of technologies to always address and ensure the accessibility of digital technologies?

Table 1. Examples of design opportunities that might be topics of exploration in the next phase of the project.

Contact information

Project website: “Working life during the Covid-19 pandemic: social participation, learning experiences, design opportunities and future work life for people with disabilities”

<https://dworklife.uni.mau.se/>

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