

Mapping and Analysis of Conditions for Working from Home during the Covid-19 Pandemic

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Foreword

In December 2020 the government tasked the Swedish Agency for Work Environment Expertise with mapping and analysing the conditions surrounding working from home during the Covid-19 pandemic (A2020/02549). The analysis was to cover legal and technical obstacles to working from home and identify any work environment risks or other challenges that may exist in terms of achieving a good work environment when working from home. The Agency is also to propose areas for further analysis and any measures that need to be implemented. This is the Agency's report on this task.

Anders Fredriksson, PhD, Vilna and Olov Wolf-Watz, MPhil of the Strategy Council have conducted the analysis and authored this report at the request of the Agency. During the project, Professor Gunnar Aronsson of Stockholm University also provided opinions on and contributions to the report. Maivor Hallén and Robin Gullstrand from the library of the Faculty of Engineering at Lund University have contributed by conducting literature and information searches.

Johan Stenmark of the Swedish Agency for Work Environment Expertise has served as project manager.

I would like to express my extreme gratitude to everyone who contributed to the work of producing this important report, and in particular to the interviewees who enriched it with their knowledge and insight into these issues.

Gävle, 1 April 2021

A handwritten signature in black ink, appearing to read 'Nader Ahmadi', with a stylized flourish at the end.

Nader Ahmadi,
General Director

Summary

Many, but not all, have been able to work from home

The mapping process takes as its starting point the major increase in the number of people working from home as a result of the Swedish Public Health Agency's recommendations. There is some variation over time, but overall some 30–40% of employees have worked from home during the pandemic. However, a large share of those working in Sweden are in working situations in which their work cannot be done from home. Our mapping pertains to those who have transitioned from working mainly at an office to working from home.

An initial current status report

As yet, little research has been published regarding how the work environment and working conditions have changed during the pandemic. Our mapping is consequently based on a review of the currently limited literature in this area. The report is therefore largely based on so-called grey literature – unpublished academic research reports, reports from authorities and international organisations, trade unions, etc. To secure a broader documentary basis, the Agency for Work Environment Expertise has also interviewed researchers and experts in the work environment field, as well as supervisors with experience in transitioning to working from home. Our mapping offers an initial picture of the current status, but needs to be supplemented with more research and a follow-up once more scientific publications are available.

The conditions for an acceptable work environment have changed

Our mapping shows that the transition to working from home has resulted in changes in the conditions and assumptions surrounding the work environment. First, a notable *individualisation of the work environment and work environment work* has occurred: each employee's individual and social circumstances play a major role in their work environment. For example, the employee's housing conditions, family circumstances, technical equipment at home and competence in terms of configuring their own work environment play more major roles. Second, a distinct *digitalisation of the work environment* has occurred, insofar as the work environment is increasingly dependent upon the functioning of digital tools, as well as upon the ability of supervisors and employees to manage their digital interfaces.

Working from home has improved the work environment in some respects, but not in others

The transition to working more from home has led to an improved work environment in some respects. It is clear from both the literature and our

interviews with experts and supervisors that the transition to working from home generally seems to have gone well, and many employees are positively disposed towards working from home. Examples of advantages reported in our mapping included reduced stress from not having to commute, greater means of concentrating at work and, most importantly, more flexibility in terms of combining work and leisure – a better “work–life balance”. At the same time as many also report that working from home has led to improvements in key aspects of their work environment, others also report ergonomic problems and social isolation. Based on the results of this study, it is not possible to determine what importance the particular industry or organisation in question has in terms of impacting the work environment at home. It is instead factors at the individual level that determine whether the work environment and working conditions have improved or worsened during the pandemic.

A number of work environment risks have arisen while working from home during the pandemic

Even though there are, from a work environment perspective, advantages to working from home, our mapping also shows that known work environment risks have been exacerbated, and that new risks have arisen in connection with the rapid and unplanned transition to working from home. The transition has also created problems in terms of defining the employer’s work environment responsibilities. The following risks associated with working from home during the pandemic were identified:

- Deficient *ergonomic* conditions when working from home increase the risk of neck, shoulder and back injuries. Our mapping shows that ergonomic conditions were more adverse at the start of the pandemic and have gradually improved. Employees and supervisors have gradually learned how to adapt the home workplace so that the ergonomic, noise and lighting conditions become acceptable. At the same time, concerns have arisen regarding a physical “cumulative workload” that becomes apparent only after an extended period of more sedentary work, physical inactivity and poor lighting conditions in the home workplace.
- There is no indication that the technology has generally posed any major obstacles in the transition to working from home during the pandemic. However, as was the case for the ergonomic conditions, there is broad variation, and some employees have encountered significant technical obstacles. At issue are the various *technical deficiencies* that arise when working from home, such as inadequate broadband connections and non-functioning hardware and software. Technical deficiencies have led to a risk of stress. The situation is that the technical infrastructure has gradually improved, while supervisors have improved their ability to manage the technology over time. Overall, broadband access appears to have been sufficient for working from home.

- The supervisor–employee relationship is a key factor for a good work environment. Once the work has been shifted to the home and interactions are occurring digitally, the conditions surrounding the relationship and circumstances that enable a trusting relationship between *supervisor and employee* change. The work environment risks that arise as result of this change are based on the fact that the distance between supervisor and employee has increased, and the digital interface does not serve to fully replace physical meetings. For example, certain types of supervisor–employee conversations are more difficult in the digital interface, particularly if the meeting is of a more serious nature. In digital meetings – both with and without cameras – it is also more difficult for the supervisor to see and perceive how the employee is feeling. This poses challenges to supervisors in terms of work environment work. Degraded relations between employee and supervisor can lead to stress, and to decreased motivation and enthusiasm for work in both employees and supervisors.
- Working remotely and digitally also entails *working methods* that affect the means available to perform certain job tasks. Some job tasks cannot be performed in the same way, and some roles that were important in the workplace vanish or assume a different significance. Working from home can create obstacles when the quality of the work is determined by factors that are tied to a specific place or physical context. Independent and versatile employees can perform their job tasks more easily on their own by working from home. Other employees who need other colleagues to perform job tasks, or who are inexperienced or newly hired, have a more difficult time. The altered working methods may create stress for those employees who base much of their work on physical meetings and conversations.
- Working from home entails altered *forms of social contact*. Working from home is characterised by physical distance, with colleagues who formerly met daily no longer meeting physically. This is a major adjustment for many, particularly as many organisations and employees were not previously accustomed to working together remotely. Our mapping shows that working from home leads to diminished social contact, less collaboration and poorer teamwork. Working from home also reduces opportunities for informal chats and the social interactions that occur at the office. There is less spontaneous interaction in the digital interface. The experience of isolation is not the same for all groups; e.g. employees in single-person households and those who lack a social network outside of the workplace suffer more from the social isolation than do others. The consequences can range all the way from decreased motivation and enthusiasm for work to degraded mental wellbeing and depression.

- Working from home *blurs the boundaries between work and leisure*. While working from home during the pandemic, one's workplace has often been visible even when the workday is done. For example, there are fewer impediments to working long hours or resuming work in the evening. When working from home, the workplace is often shared with family members who while, not one's colleagues, nevertheless impact the work situation. There are primarily two work environment risks that arise due to the blurred boundaries between work and leisure. The first has to do with the work pushing aside one's private life, resulting in longer working hours and less recovery. The second has to do with private life encroaching on working life, affecting the feasibility of completing job tasks. The consequence in either case may be increased stress.

Ambiguity in the need to adapt work environment regulations

Our mapping has not shown that work environment risks traceable to a lack of clarity in terms of legislation have arisen in connection with working from home during the pandemic. But the mapping did yield various indications of the need for oversight and adaptation of the existing work environment regulations in response to increased working from home during the pandemic. Concrete legal issues that emerged from the mapping include: Do the employer's work environment responsibilities need to be adapted when the employer does not have control over the employee's home? Does the employee's responsibility for their own work environment need to be clarified, and how can workers' compensation insurance be adapted to a situation in which more people are working from home?

Proposed measures

In light of the results of the mapping, the Agency for Work Environment Expertise proposes the following measures:

- *Enhance employers' competence and ability to engage in systematic work environment work when the workplace is not at the office*. The roles in work environment work change when work is being done from home. During the pandemic many employers have, together with their employees, developed new ways of doing work environment work. This knowledge needs to be compiled and disseminated to supervisors and managers who are operatively engaged in work environment work.
- *Enhance employees' competence in terms of how they can adapt their own workplaces to create a good work environment*. When work is done in the employee's home, the individual circumstances of each employee become more impactful. In addition, it becomes more difficult for the supervisor to see and perceive how the employee is feeling. As a result, initiatives are also needed that will enhance employees' competence and their ability to detect risks in their own work environment, and to adapt their own workplace to create a good work environment.

- *Enhance employers' competence in managing work environments when a substantial proportion of those employers will also want to spend much of their time working at home.* Employers will need to find ways of engaging in systematic work environment work that addresses both those who are on the employer's premises and those who are at home. Work is needed to enhance employers' competence and ability to engage in work environment work regardless of where the work is being done.
- *Prepare children and adolescents for the working life of the future.* The working life of the future will probably involve more people working from home. Requirements in terms of the individual employee's ability to adapt their work environment and working conditions will intensify with the individualisation of the work environment and changes in the roles in work environment work. The ability to create a good work environment in connection with working remotely will become an important skill for today's children and adolescents in their future working lives. Initiatives are consequently needed to enhance the competence of children and adolescents with respect to the work environment.
- *Strengthen forward-looking research on working remotely, particularly with regard to the effects of more paid labour in employees' homes on equality.* Our mapping shows that knowledge concerning the changes that are occurring and have occurred during the pandemic remains fragmented. A strengthened work environment will require more knowledge regarding the work environment risks that result from working at home. It is important to follow up on the risks that have arisen while people have been working from home during the pandemic, but also to expand society's knowledge base regarding the work environment in connection with working remotely post-pandemic. It is especially important to expand our knowledge of the conditions and work environments facing men and women who work remotely.

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1 Introduction

During the pandemic, many people began working from home rather than at their customary workplace. However, this includes far from everyone, as many had job tasks that they could not do from home. The transition to working from home happened quickly, and employers had no means of preparing for the adaptation of workplaces at home, or of establishing processes for professional communication using digital tools. Shifting work to employees' homes has had implications in terms of how the boundary between the private and the professional is drawn, and between work and leisure. These changes have also had consequences for the work environment, with an altered risk situation and changes in the conditions surrounding work environment work. The transition is also creating problems in terms of defining the work environment responsibilities of the employer.

Working from home can offer advantages, but the transition also poses risks – risks of ergonomic occupational injuries and degraded wellbeing due to social isolation. Working life will be characterised by more people working from their own residences, even after the pandemic. For this reason, there is need to deepen our understanding of how a sustainable working life can be created even when employees are working remotely and from their homes. In light of the changes to working life that have taken place during the pandemic, the Swedish Agency for Work Environment Expertise has been tasked by the government with mapping the conditions surrounding working at home, and with identifying and analysing work environment risks and other challenges posed by working from home during the pandemic.

This chapter describes the background of the mapping, its purpose and associated questions, and sets out the main elements involved in carrying out the mapping process.

1.1 Working remotely was relatively common in Sweden even before the pandemic

Working remotely was relatively common in Sweden even before the pandemic. The Swedish Internet Foundation reports that roughly three out of ten internet users over the age of 16 had worked from home at least for some time prior to the pandemic.¹

1 Andersson, J., Bäck, J., & Ernbrandt, T. (2020). *Svenskarna och internet 2020* [Swedes and the Internet], pp. 21–25.

The EU Commission offers a similar appraisal, confirming that roughly 25% of employees in Sweden worked from home at least occasionally in 2019.² According to the Commission, working from home was more prevalent in Sweden than in other countries in the EU. In 2019 Sweden was, along with Finland and the Netherlands, at the top in terms of the proportion of people who sometimes worked from home. The Commission notes that this is because a relatively large share of the employees in those countries work in occupations that are knowledge-intensive and advanced in terms of IT.

1.2 The number of people working from home has increased dramatically during the pandemic

The Covid-19 pandemic reached Sweden in the first quarter of 2020. To avoid spreading the disease, the Public Health Agency of Sweden urged employers to make it possible for their employees to work from home. Increased working from home was a key component of the strategy to reduce the spread.

The number of people working from home increased dramatically in conjunction with the outbreak of the pandemic. There are various conceptions of just how extensive working from home has been during the pandemic. The available data indicate that, overall, some 30–40% of employees have worked from home for at least part of their working hours. This share has, however, varied during the pandemic, with fewer working from home during the summer half of the year, when the rate of spread was lower. The Swedish Internet Foundation report indicates, for example, that the share who worked exclusively from home increased ten-fold during the pandemic, from around 2% to just over 20% in the 3rd quarter of 2020.³ Data from Eurofound's COVID-19 survey indicate that roughly four out of ten Swedes worked from home in April 2020.⁴ Statistics Sweden states that approximately one-third worked from home in October 2020.⁵ Statistics Sweden also asserts that there are significant differences in terms of the extent. Some worked primarily from home, some did so on fewer than half of their workdays, while others customarily worked from home even under normal conditions.

2 Sostero, M., Milasi, S., Hurley, J., Fernandez-Macias, E., & Bisello, M. (2020). Teleworkability and the COVID-19 crisis: a new digital divide? – The European Commission. (JRC Working Papers Series on Labour, Education and Technology 2020/05), p. 14.

3 Andersson, J., Bäck, J., & Ernbrandt, T. (2020). *Svenskarna och internet 2020* [The Swedes and the Internet 2020], pp. 21–25

4 Sostero, M., Milasi, S., Hurley, J., Fernandez-Macias, E., & Bisello, M. (2020). Teleworkability and the COVID-19 crisis: a new digital divide? – The European Commission. (JRC Working Papers Series on Labour, Education and Technology 2020/05), p. 22.

5 Statistics Sweden (2020). *En av tre jobbar hemifrån*. [One in three working from home.] (<https://www.scb.se/om-scb/nyheter-och-pressemeddelanden/en-tre-av-jobbar-hemifran/>). Retrieved: 2021-02-25

1.2.1 Some groups have worked from home to a greater extent during the pandemic

Before the pandemic there were certain patterns visible in suitability to telework, e.g. by working from home. Being a husband, having a family with small children, being college educated, being permanently employed in the skilled service sector and living in any of the major regions in Sweden are all factors which, according to an early Swedish study, significantly increased the likelihood of regularly working remotely.⁶ This conclusion is based on data from the national travel surveys for the periods 2005–2006 and 2011–2012.

During the pandemic, certain patterns have also emerged in terms of which groups are working at home to a greater extent. For many employees it is not even possible to work from home, as they have job tasks that cannot be handled from home. Nor has working from home been a requirement. Statistics Sweden indicates that there are major differences between various *industries and occupational groups*.⁷ For example, nearly 93% of hotel and restaurant industry workers reported that they did not work from home at all during the third quarter of 2020. The corresponding figure in the information and communication sector was barely 23%.

According to Statistics Sweden, roughly as many *men as women* have reported that they do not work at home at all. However, a somewhat greater share of women than men worked from home more than half the time. There are also major differences depending on age. In October 2020, 86% of men and 94% of women in the 15–24 age group reported that they had not worked at home at all over the last week. The fact that young people have not worked from home as much as other groups is, according to Statistics Sweden, due to the fact that young people work to a greater extent in occupations that are largely incompatible with teleworking, such as retail and caregiving occupations.

1.3 The rapid transition to working from home places the focus on the work environment

Earlier studies emphasised several advantages associated with teleworking for both individuals and organisations and society as a whole.

Teleworking is presumed to save on and reduce physical transport, urban congestion, pollution and energy use.⁸ It has also been noted that

6 Vilhelmson, B., & Thulin, E. (2016). Who and where are the flexible workers? Exploring the current diffusion of telework in Sweden. *New Technology, Work & Employment*, 31(1), 77–96, p. 84.

7 Statistics Sweden (2020). *En av tre jobbar hemifrån*. [One in three work from home.] (<https://www.scb.se/om-scb/nyheter-och-pressmeddelanden/en-tre-av-jobbar-hemifrån/>). Retrieved: 2021-02-25.

8 Vilhelmson, B., & Thulin, E. (2016). Who and where are the flexible workers? Exploring the current diffusion of telework in Sweden. *New Technology, Work & Employment*, 31(1), 77–96, pp. 77–78.

teleworking can save on office costs for companies, as well as creating job opportunities and attracting skilled labour that contributes to economic growth in more peripheral regions.

The work environment plays a major role in terms of human health and living conditions, which are key for a well-functioning labour market. According to earlier research, teleworking affects the conditions surrounding employees' work environments. The Agency for Work Environment Expertise has previously noted that the opportunity to work remotely with the support of digital technology has had consequences for the relationship between work and the rest of life.⁹ Digital teleworking can have both positive and negative effects for the individual. The positive effects include better work–life balance, greater autonomy at work and more efficient communication. The negative effects include problems in managing the boundaries between work and the rest of life, i.e. if digital teleworking is combined with sleeping poorly, one's discipline will suffer the next workday.

The dramatic increase in the number of people working from home during the pandemic is shedding new light on the issue of the employee working environment when teleworking. Prior to the pandemic, teleworking was often something that the employee could choose to do in dialogue with their employer, assuming that it was appropriate given the employee's job tasks and circumstances. It was possible to plan the work environment-related conditions surrounding working from home. During the pandemic, working from home has been recommended by the Public Health Agency of Sweden, i.e. working from home has not been entirely voluntary. The transition was also rapid and relatively unplanned, with many employees having to abandon the office during the day and start working from home using hastily arranged workplaces on kitchen tables and sofas. Many organisations had no opportunity to plan the transition to working from home from a work-environment perspective.

Our knowledge as to how work environments have been impacted during the pandemic is limited as yet; the change was rapid and work environment research has not yet been able to conduct studies or publish results. At the same time, it is not inconceivable that the transition to increased working from home is a structural transformation of our working lives that is here to stay. Issues concerning future working life, teleworking and employees' work environments are currently being given high priority. The government has decided on a new work environment strategy, which will include the review of work environment regulations. The government is striving to ensure that everyone who works in Sweden will have a good and safe work environment, regardless of whether

⁹ Swedish Agency for Work Environment [Expertise] (2020). *Framtidens arbetsmiljö i Sverige*. [The Work Environment of the Future in Sweden] Report KS 2020:1, p. 10

services are provided through apps or whether the work is done at home at the kitchen table. There are signs that organisations will develop new working methods post-pandemic that will be based to a greater extent on working from home. For instance, in early 2021 the news that Spotify would henceforth let its employees work wherever they wished, i.e. mainly at home or at the office, drew major attention.¹⁰

1.4 Purpose and questions of the mapping

In light of the transition towards more people working from home, the Swedish Agency for Work Environment Expertise has been tasked by the government with performing a current status analysis with a view to mapping the practical conditions surrounding working from home. Our purpose has also been to identify and analyse work environment risks and other challenges posed by working from home during the Covid-19 pandemic that are of relevance to the post-pandemic period as well. The focus during the mapping process has been on the following questions:

- What conditions for a good work environment are present in connection with working from home during the pandemic?
- What work environment risks or other challenges (e.g. legal or technical) exist in connection with working from home during the pandemic?
- What work environment-related areas should be analysed further in terms of working from home during the pandemic?
- What measures should be implemented based on the results of the mapping?

1.5 Execution of the mapping

The mapping is based in part on a literature review, and in part on an interview study involving supervisors and experts in the work environment field. The main elements involved in the conduct of the literature review and the interview study are discussed below.

¹⁰ Dagens Nyheter (2021). "Efter Corona kan Spotifys anställda jobba var de vill". [After Corona Spotify's employees can work where they wish.] Published 2021-02-12.

1.5.1 The literature study

The Swedish Agency for Work Environment Expertise has conducted a literature review to gain an idea of the current state of our knowledge regarding the conditions surrounding working from home during the Covid-19 pandemic, and of the work environment risks that have arisen along with the transition to more working from home. This review has been focused on identifying research in this area. However, such research remains extremely limited, with the result that the Agency chose to also include so-called “grey literature”, i.e. literature that is of good quality and relevance but that has not been peer-reviewed for publication in an academic journal.

The literature was identified in collaboration with the library of the Faculty of Engineering at Lund University. The library developed relevant search criteria based on the questions that the mapping was intended to answer and using the analysis framework provided by the Swedish Agency for Work Environment Expertise. The library then identified suitable search terms in both Swedish and English, which were then used to conduct a structured literature search both in scientific publication databases and on the Internet. The overall goal of the searches was to identify literature that describes the conditions for a good work environment that are present in connection with working from home in Sweden, and which work environment risks and other challenges exist in connection with working from home during the pandemic in a Swedish context.

The library then evaluated the results of the searches and compiled the relevant publications in a literature list. A total of 24 publications were ultimately included in the literature review.¹¹ They are of various types, i.e. research reports/articles, reports from government agencies and international organisations (such as the EU Commission), reports from professional organisations and reports from companies or foundations. The emphasis in the literature is on quantitative data, and in a number of instances the publications consist of reports from survey studies conducted among employees.

The Swedish Agency for Work Environment Expertise proceeded based on an analysis form that structured the literature review. The form was designed to identify the contents of publications of relevance based on the questions for the mapping. Each and every publication was analysed based on the analysis form. The individual publications correspond to varying degrees to the analysis form; some publications proved to be significantly more relevant than others in the analysis process. Other literature corresponded in its entirety to the questions at the heart of the mapping process, albeit to varying degrees. For example, the literature

¹¹ A number of student papers were found on the initial list. The Swedish Agency for Work Environment Expertise reviewed these papers to assess their quality, and chose not to include them in the literature review.

describes to a large extent how working at home looked before and then during the pandemic. However, the literature describes to a lesser extent the conditions that exist for a good work environment in connection with working from home, and the work environment risks and other obstacles that arise in such work.

The publications included in the literature review and other references that serve as the basis for the mapping are found in an appendix to this report (see report's reference list).

1.5.2 The interview study

The Swedish Agency for Work Environment Expertise conducted an interview study in order to deepen and enhance the picture derived from the literature review. The interview study targeted four categories of interviewees, i.e. researchers in the work environment field, supervisors with experience in the transition to working from home, and representatives from labour market parties and from agencies. The interviewees were selected with a view to gaining a broad perspective on work environment issues associated with working from home during the pandemic.

With respect to the interviews with researchers, the Agency chose researchers whom the Agency knew were engaged in research with a bearing on the questions involved in the mapping, either in that they were researching working from home during the pandemic or doing research in related areas, such as teleworking.

The supervisors were selected with a view to capturing a variety of experiences. Supervisors in state, regional and municipal enterprises were included. The supervisors at the companies were drawn from various industries, i.e. banking, sales, industrial operations, forestry, the travel industry and education. A total of 27 people were interviewed within the framework of the mapping process:

- Eleven researchers in the work environment field, eight women and three men.¹²
- Ten supervisors from the public and private sectors, seven women and three men.
- Four representatives from labour market parties, three women and one man.
- Two representatives from government agencies, one woman and one man.¹³

¹² The researchers are working at Chalmers Technical University, the University of Gothenburg, Karolinska Institute, Royal Institute of Technology, Faculty of Engineering at Lund University, Stockholm University and Gävle University.

¹³ Swedish Social Insurance Agency and Swedish Work Environment Authority.

The interviews were conducted in February 2021, either digitally using Teams or by telephone. The interviews were based on an interview guide that structured the conversations and ensured that the various areas were covered in an equivalent manner. The guide also provided leeway to adapt the questions based on the specific experiences of the interviewee. As a rule, the interviews lasted 45–60 minutes. Notes were kept at the interviews and served, in an initial step, as the basis for compilations of the contents of each respective interview and subsequently as the basis for an overall compilation of the results from the interviews.

1.5.3 Combined analysis and results reporting

The Swedish Agency for Work Environment Expertise has conducted a composite analysis of the results of the literature review and the interview study. The Agency applied operational logic as a framework for this composite analysis. This means that the Agency has, based on regulations and earlier research, developed an operational logic model that describes the conditions that need to be present for an acceptable work environment. Based on this normative representation the Agency has, with the help of empirical evidence from the literature review and the interview study, mapped the conditions that are in reality present or absent when working from home. By analysing the breach in the operational logic, the Agency then identified and analysed work environment risks that can arise when working from home. Finally, the Agency has sought evidence in the literature review of the extent to which these risks have resulted in injury or illness.

This report presents the main results of the mapping. It is organised in the following way:

- Chapter 2 describes what is needed for an acceptable work environment and how the conditions surrounding the work environment have been altered as a result of the transition from working at the office to working from home.
- Chapter 3 contains an analysis of the work environment risks that are present in connection with working from home during the pandemic, given the prevailing conditions.
- Chapter 4 summarises the main conclusions and offers proposals for measures and further analysis that could be adopted in light of the mapping.

2 Conditions surrounding the work environment's change in character during the pandemic

Prior to the pandemic it was essentially the conditions present on the employer's premises that constituted the work environment. The physical, organisational and social work environment was changed for many employees with the transition from working at the office to working more from home.

This chapter describes how the conditions needed for an acceptable work environment have changed in character during the pandemic. In Chapter 3 we analyse the work environment risks to which these altered circumstances have given rise.

2.1 What conditions are needed for an acceptable work environment when working from home?

Our mapping is based on the fact that, owing to the pandemic, many employees have gone from working mainly on their employers' premises to working in their own residences. There are many different ways of referring to work in different places.¹⁴ In this mapping it is described as a transition from "working at the office" to "working from home". Working at the office thus refers to the customary workplace on the employer's common premises. Working from home pertains to work that the employee does remote from their usual office during the pandemic, e.g. in their residence or weekend cottage.

The elements that create a good environment when working at the office are fairly well known.¹⁵ The conditions that are needed for an acceptable work environment are altered in part by the transition to workplaces in the home. This is true of the physical, the organisational and the social work environment (see Table 1). The physical work environment in the home needs to be functional when working from home during the pandemic.

14 For a discussion of how work in various places can be defined, see e.g. International Labour Organization (2020). COVID-19: Guidance for labour statistics data collection. ILO technical note. 5 June 2020.

15 AFS (Work Environment Authority Statute Book) 1982:3, AFS 1998:1, AFS 1998:5, AFS 2000:42, AFS 2001:1 and AFS 2015:4.

This means that the workplace in the employee's own residence must be adapted ergonomically and offer acceptable noise and lighting conditions. The workplace in the home also needs to have adequate technical equipment for the job in terms of both hardware and software. The Internet connection also needs to work properly. Because the office had to offer an acceptable physical work environment prior to the pandemic, each employee's residence must have an acceptable physical work environment for those working at home.

With regard to the organisational work environment, it has had to function in a digital space rather than a physical one during the pandemic. Supervisors need to have regular digital contact with their employees and provide satisfactory leadership, support and feedback via digital tools. Trusting relationships need to be created and maintained between supervisors and employees through their digital encounters. The social work environment is also subject to different conditions and assumptions when working from home during the pandemic. Suitable forms of both collaboration and social interaction need to be established using digital tools.

Table 1: Conditions needed for an acceptable work environment before and during the pandemic

	Working at the office	Working from home during the pandemic
Physical work environment	• The workplace at the office is ergonomically adapted (e.g. desk, chair, aids). • Acoustics and lighting in the office are adapted for the job tasks. • The office is equipped with adequate technical hardware and software (e.g. connections, printer, systems support).	• The workplace in the home is ergonomically adapted (e.g. desk, chair, aids). • Acoustics and lighting in the home are adapted for the job tasks. • The home is equipped with adequate technical hardware and software (e.g. connections, printer, systems support).
Organisational work environment	• The supervisor has regular communication with their employees. • The supervisor can provide adequate leadership, support and feedback. • Trusting relationships between supervisor and employees created in their physical encounters.	• The supervisor has regular digital contact with their employees. • The supervisor can provide adequate leadership, support and feedback via digital tools. • Trusting relationships between supervisor and employees created in their digital encounters.
Social work environment	• Suitable collegial forms of collaboration in the workplace are established. • Suitable forms of social support and interaction are established.	• Suitable collegial forms of collaboration via digital tools are established. • Suitable forms of social support and interaction are established via digital tools.

Overall, the transition from working at the office to working at home can be summarised in terms of two major changes. When working from home during the pandemic, it is first the employee's *individual circumstances* that are more impactful for the work environment. Second, the quality of the work environment is determined to a greater extent by the *digital interface and the ability to manage that interface*. The meaning of these changes will be concretised in the remainder of this chapter.

2.2 Individual circumstances more impactful

In the interviews conducted in the mapping process it became clear that, when one was working from home during the pandemic, the individual circumstances of the employee became more impactful for the work environment. The individual employee's *housing conditions* play a bigger role. For example, the size and the noise and lighting conditions of the house affect the means available to create a workplace that meets the requirements in terms of ergonomics, noise and lighting. An employee who lives in a larger residence with more rooms is subject to different conditions than one who lives in a smaller residence. While the former can set up an ergonomically suitable workplace in a separate workroom, the latter may need to have their workplace at the kitchen table. This means that employees within a single organisation may face very different conditions in terms of having a good work environment when working from home.

The literature review and the interview study also made it clear that the employee's *physical and technical equipment* at home affect the conditions for a good work environment when working from home. This may have to do with how the desk looks, the size of the computer display, how separate the workplace is, and so on. Employees who live in parts of the country or in flats with good Internet connections enjoy better conditions than do those who live in parts of the country or flats where the Internet connections are deficient or the network is overburdened.

In addition, the individual employee's *family circumstances* at home affect the conditions for an acceptable work environment when working from home. Whether the employee lives alone or together with other adults and children plays a role in terms of creating an acceptable physical, organisational and social work environment when working from home. If two adults are working from home at the same time and the residence is also small, it may be difficult to create two ergonomically adapted workspaces where they will not disturb one another.

When working from home, the employee's own *competence* in terms of managing their work environment assumes greater importance for how the work environment will be for the individual. Several types of competence are significant, including the ability to adapt and use the home workplace in terms of its ergonomics, noise and lighting, and competence in using technical hardware and software. With regard to the organisational and social work environment, the means available to the individual employee to perform their job tasks and assume their role remotely are also important. This has to do in part with the ability to plan and complete the work from home independently, but also with having motivation, the ability to collaborate digitally, and self-discipline.

2.3 The work environment is created and exists in the digital interface

The transition to working from home further entails that the digital tools will, in combination with the supervisor's and employee's ability to use them, have a greater impact on the work environment. The supervisor must manage and support the employee remotely when they are working at home. The supervisor's means of gaining insight into and control of the employee's performance are altered, as is their ability to see how the employee is feeling and, based on their individual needs, offering support and stimulation.

The supervisor's efforts in terms of leadership and support become more dependent upon the telephone, e-mail and various digital communication tools when the employee is working at home. The employee's organisational work environment is thus contingent upon the communication tools that are available within the organisation and how well the individual supervisor and employee can manage those tools so as to have, together but remotely, functioning forms of leadership and support.

The social work environment is also contingent upon the function of the digital tools and the ability to adapt to them. When working from home, the employees' access to communication tools that support collegial collaboration around their job tasks and the individual employee's ability to manage them become important. The social contacts among the employees also become dependent upon the digital interface and the ability to use it to interact socially with colleagues remotely.

Overall, it is clear that while the conditions for an acceptable work environment are created in shared spaces and the shared physical infrastructure at the office, the conditions surrounding the work environment and work environment work during the pandemic have become more individualised and digitalised. The work environment is created by a combination of factors, and partly in digital environments; when working from home, the individual employee's residence, technical equipment, family circumstances and competence in terms of creating an acceptable work environment in their residence and in the digital interface together shape the work environment.

3 Description of the work environment when working from home during the pandemic

The pandemic has entailed major changes for large groups in the labour market. Many have been consigned to their home as their workplace from one day to the next. Employers who previously had processes for the work environment work associated with a physical workplace need to engage in dialogue about their employees' work situations digitally. Preceding sections of this report have described how this has impacted the conditions surrounding a satisfactory work environment. The individualisation of the work environment and digitalisation of the supervisor–employee and employee–employee interfaces have resulted in new aspects of the work environment gaining importance in terms of a good work environment. This means that the work environment-related risks are affected as well.

This chapter describes the work environment associated with working from home during the pandemic. It begins with an account of how working from home may be said to have improved the work environment. This is followed by a description of the work environment risks that may stem from working from home during the pandemic. The description of such risks is based on themes tied to the physical, social and organisational conditions and circumstances presented in the preceding sections. The chapter concludes with a description of how employers have taken action to cope with the new conditions and assumptions, and what legal obstacles are viewed as making a satisfactory work environment work more difficult.

3.1 Working from home strengthens certain aspects of the work environment

The questions addressed in the mapping process shed light mainly on obstacles to a good work environment and the work environment risks associated with working from home during the pandemic. However, both the literature and the interviews indicate that working at home during the pandemic has also had positive effects on the work environment in a number of ways. The overall picture derived from the literature and the interviews shows that the rapid transition to working from home has

gone well from a work environment perspective. For example, a survey conducted by Tele2 & Kantar Sifo indicates that the pandemic has changed work situations for the better for many people. Tele2 & Kantar Sifos saw major improvement among those who were able to work 25% or more remotely during the pandemic. The biggest improvement is seen among those who have worked 100% remotely. In that group, nearly four out of ten reported being more or much more satisfied with their work situation, according to Tele2 & Kantar Sifo.¹⁶

In particular, the supervisors in the interviews reported being surprised by how well the transition to working from home had gone. One supervisor describes how they had changed their attitude towards working from home:

I have to say that, from having been opposed to working from home, I have been amazed that even I myself have managed to set things up to work at home quite well. It has gone quite well, and it will be exciting to see what we will go back to.

Working from home offers three main advantages. First, there are reports that working from home has offered greater means of working undisturbed and being able to concentrate and work on a task without interruption. This is particularly evident if the usual office is an open-plan and/or activity-based office. This applies to those employees who have been able to set up a satisfactory workplace in their home, and who had job tasks that were possible to do under the conditions otherwise prevailing during the pandemic. ST (Swedish Union of Civil Servants) reports that the home work environment can be better than the work environment in current office settings:

Many people like working from home (...) We know that many current workplaces consist of open-plan and activity-based offices. Many in such offices find that it is hard to concentrate, and that the office spaces are crowded.¹⁷

Similarly, one of the researchers in the interview study reports that there are advantages to working from home compared to today's open-plan office environments:

Many people feel that they perform well working from home. Many had been dissatisfied with the open-plan office, which they thought worked poorly before.

16 Tele2 & Kantar Sifo. (2020). Nya arbetssätt. Så förändrades svenskarnas arbetsliv under coronakrisen. En rapport från Tele2 i samarbete med Kantar Sifo [New ways of working. How the working lives of Swedes have changed during the Corona crisis. A report from Tele2 in collaboration with Kantar Sifo], p.10.

17 Hallberg, B., & Saar, M. (2020). Jobba hemifrån - är distansarbete här för att stanna? [Working from home - is teleworking here to stay?], p.12.

Second, many report that working from home during the pandemic has allowed them to avoid timewasting in their everyday lives. This has to do in part with avoiding the waiting time associated with moving from one meeting to the next in large workplaces, and with the time saved by not having to commute to and from work. The latter has meant a calmer life and less stressful everyday existence for many. One supervisor describes how the work environment has been affected positively by working from home:

I see major positive effects. Particularly once we as a company can do this with greater freedom in the future. We see that people are less stressed because they avoid stress at the office, or in rush-hour traffic. You can get a cup of coffee first, read your e-mails at home first in peace and quiet.

Finally there is evidence to the effect that working from home during the pandemic has expanded the means available to combine one's job with other aspects of life, such as leisure activities, household chores and responsibility for children. There are indications that this benefits women in particular. A member study of Swedish graduate engineers showed that 49% of women reported having a better balance between work and spare time during the pandemic than before it. The corresponding figure for men is 41%.¹⁸

The combined advantages of working from home during the pandemic are sufficiently weighty that many employees in a number of surveys report wanting to continue working from home even after the pandemic. This conclusion also recurs in interviews with both researchers and employers.

3.2 Ergonomic risks of working from home

During the rapid transformation of work in the early days of the pandemic, large numbers of employees left their respective workplaces and moved their work home. The share of those working full-time from home has grown ten-fold, from ca. 2% to just over 20%. The home workplaces were, in many cases, organised provisionally, with the work being done on laptop computers on the existing tables and chairs. The variation in terms of workplace appearance has generally been extensive. Household and residence size has imposed outer limits in terms of arranging a separate area or room for work, with the result that the ergonomic quality of the workplaces has varied from one employee to the next. In a survey study conducted by Tele 2 & Kantar Sifo, just over 20% reported that they lacked the means of working from home; it was

¹⁸ Swedish Association of Graduate Engineers (2020) *Coronakrisen – Så påverkas ingenjörerna* (2020) [The Corona Crisis – How engineers are being affected], p. 5.

too messy, good work surfaces were lacking, etc. The things that do not work differ.¹⁹ For instance, one of the researchers in the interview study describes their workplace as follows:

I have no room to work. No desk and no chair. You notice that in the long run, you sit uncomfortably and it hurts your body. Some employers have offered money for equipment, but even if I had gotten money for a desk, there's no place where I could have set it up.

This quote offers an idea of how the work situation at home can look in practice, and illustrates the fact that how people live and how many other people they must share the spaces in their homes with affect how well adapted they are from an ergonomics standpoint.

In their interviews, some supervisors report that the ergonomic problems for many were greatest at the start of the pandemic. Once the employees signalled that they were having problems, some employers took action to solve them by offering to lend them displays, chairs, tables, etc. The equipment began to be used in the home, and the problems diminished. Some interviewees in the mapping process also report that employees and supervisors gradually learned how to adapt the home workplaces so that the ergonomic, lighting and noise conditions there were acceptable. One supervisor says:

It began with ergonomic issues. They have been resolved. Now it's the psychosocial challenges.

Another supervisor describes how those within the organisation gradually saw an improved physical work environment:

There were ergonomic challenges to start with. Our employer is generous, and we were able to lend people the equipment they needed to take home. Anyone who needed an ergonomic chair could get one, and now no one has complained about ergonomics since the end of autumn.

Other employers took a more restrictive attitude when it came to equipping the home workplaces. For instance, one supervisor indicated that they had been restrictive in providing equipment for the home as follows:

The municipality offered nothing to make it easier to work from home. I found individual solutions with the staff. We took that stance because we didn't want to run around doling out chairs.

¹⁹ Tele2, & Kantar Sifo. (2020). *Nya arbetssätt. Så förändrades svenskarnas arbetsliv under coronakrisen*. En rapport från Tele2 i samarbete med Kantar Sifo [New ways of working. How Swedes' work lives have changed during the Corona crisis. A report from Tele2 in collaboration with Kantar Sifo], p. 15.

At the same time, the physical work environment varies from employee to employee. There are researchers in the interview study who warn that a cumulative workload can build up, causing problems that derive from a static and poor work posture in bad lighting, such as neck, shoulder and back injuries and vision problems. For example, one researcher describes:

Symptoms of stress in the neck, shoulders and upper arms, which have become worse for some people during the pandemic. Many people are sitting still in worse work postures than at the office. That accelerates the problems.

The literature also offers evidence that problems involving neck and shoulder injuries have increased during the pandemic. For example, a member survey conducted by the Swedish Confederation of Professional Employees (TCO) shows that 27% of respondents had experienced back, neck or shoulder pain that they did not have previously.²⁰ These problems do not affect men and women equally; 32% of the women in the study reported having back, neck or shoulder pain that they did not have previously. The corresponding share among men is 22%.²¹

One union representative reports how working from home has resulted in more screen time work at the office, and sees risks of eye problems:

I am most afraid because you're sitting just 50 cm from the display the whole time. That could be a problem in the long run. With physical meetings there is sometimes variation, now it's always 50 cm. I believe that we will see the consequences in the long term.

In one survey conducted by the Swedish Union of Civil Servants (ST) concerning members' perceptions of the changes in their work lives, one in four reported a poor work environment as one of the disadvantages of teleworking. Members point to worse ergonomics and the lack of adjustable-height desks, as well as other problems associated with sitting all day.²²

Overall the mapping shows that acute problems in the physical work environment have often been remedied, but there is a risk that problems that the employer cannot impact, such as static work postures and increased inactivity, will increase over time.

20 TCO (2020) Resultat från Novusundersökning om tjänstemännens arbetsmiljö under coronapandemin [Results from Novus Survey of professional employees' work environments during the Corona pandemic], pp. 3–4.

21 TCO (2020) Resultat från Novusundersökning om tjänstemännens arbetsmiljö under coronapandemin [Results from Novus survey concerning white-collar working environment during the Corona pandemic], p. 6.

22 Hallberg, B., & Saar, M. (2020). Jobba hemifrån - är distansarbete här för att stanna? [Working from home – is teleworking here to stay?], p. 16.

3.3 Technical deficiencies when working from home affect the work environment

One key precondition for the ability to carry out one's job tasks is that the technology be functioning. During the pandemic the issue of functionality has shifted from office to home, and the quality of the technology becomes a matter of the degree to which it is possible to complete one's job tasks using the technology that is available in the home, and whether the individual employee has the ability to manage it. The technical aspects can in turn be divided into three parts, i.e. broadband access, hardware and software. All three are key factors in achieving a good technical level when working from home.

Both the literature study and the interviews indicate that, overall, broadband access has been adequate for working from home. For example, the Swedish Post and Telecom Authority writes that:

Sweden's broadband network has basically been able to handle the data traffic during the pandemic, as work, school and entertainment have largely migrated into Swedish homes.²³

However, broadband access at home was, in some cases, deficient for individual employees. For instance, one of the researchers in the interview study writes:

My closest colleague sits in a little flat with two children of secondary school age, and with a husband, where they all fight over the connectivity.

But as was the case with the ergonomic conditions, the variation is broad, with some having significant problems with their connection, and others none. The literature makes clear how the difference between urban and rural areas look in terms of perceived disruptions and access to fast fibre broadband.²⁴ Three in ten households without fibre access experience disruptions when just three people are connected, while one in three without fibre access has problems working from home. Access to fibre broadband is not evenly distributed throughout society. According to the same report, 52% of the population in sparsely populated areas have no fast fibre broadband, while the corresponding figure for those in urban areas is 16%.²⁵

23 Swedish Post and Telecom Authority. (2021). *Digital omställning till följd av covid-19: uppdrag att kartlägga och analysera erfarenheter och behov av åtgärder för att leva och verka digitalt i spåren av utbrottet av covid-19*, [Digital adjustment as a result of Covid-19: the task of mapping and analysing experiences of and the need for measures to live and work digitally in the wake of the Covid-19 outbreak], p. 9.

24 IP-Only, & Kantar Sifo. (2020). *Snabbt bredband är viktigast när svenskarna jobbar hemifrån – landsbygden har blivit ett digitalt b-lag*. [Fast broadband is most important when Swedes work from home – rural areas have become a digital B-team.] A report on working from home produced by Kantar Sifo at the request of IP-Only, p. 8.

25 Ibid.

There are numerous anecdotes concerning technology that caused problems for individual employees working from home. But there is no evidence that either hardware or software generally posed any major obstacles in the transition to working at home during the pandemic. For example, the Swedish Post and Telecom Authority reports that the majority of those who have worked from home are satisfied and believe that they have the right technical solutions.²⁶ A corresponding picture emerged in our interviews. The supervisors in the interview study generally report that their enterprise had in place the digital solutions needed to enable working from home. One noted that the organisation was digitally prepared for working from home without being aware of it, as follows:

We didn't think it would work. But it greatly exceeded our expectations. We in management had no idea that we had such great digital tools for working from home.

The Swedish Post and Telecom Authority also notes that the increase in working from home has required employers to invest in technology that enables teleworking, as the global procurement figures show. This pertained to procurements of laptops, peripherals, software and so forth that support teleworking. A few of the interviewees reported that equipment deliveries were delayed.

The software in certain specific enterprises has contributed to the challenges. The adjustment to digital meeting tools such as Teams and Zoom has gone well. In other cases, deficiencies in the available tools have posed challenges. According to the Swedish Post and Telecom Authority, many actors that the Authority interviewed in both the public sector and the private business community reported frustration over their inability to work optimally using the meeting platforms and collaborative tools on offer within their organisations. The Post and Telecom Authority points out that organisations have, for completely different reasons, chosen different solutions that do not always correspond to the needs of the enterprise. There is at present no technical consensus, and there are major differences in how different organisations deal with the issue.²⁷ Private individuals currently enjoy, as users, access to advanced cloud services and extensive digital space in a way that not all companies and organisations do.

26 Swedish Post and Telecom Authority. (2021). *Digital omställning till följd av covid-19 : uppdrag att kartlägga och analysera erfarenheter och behov av åtgärder för att leva och verka digitalt i spåren av utbrottet av covid-19* [Digital adjustment to the results of Covid-19: the task of mapping and analysing experiences of and need for measures to live and work digitally in the wake of the Covid-19 outbreak], p. 103.

27 Swedish Post and Telecom Authority. (2021). *Digital omställning till följd av covid-19 : uppdrag att kartlägga och analysera erfarenheter och behov av åtgärder för att leva och verka digitalt i spåren av utbrottet av covid-19* [Digital adjustment as a result of Covid-19: the task of mapping and analysing experiences of and need for measures to live and work digitally in the wake of the Covid-19 outbreak] p. 109.

In interviews, supervisors have described how they faced challenges when certain functions had to be shifted from the office. One such obstacle pertained to enterprises that were subject to confidentiality, and where their digital tools did not offer such functionality in digital meetings with their target group. Another obstacle of a similar nature concerned the feasibility of storing data in the cloud. These obstacles have often been overcome by procuring alternative software. One supervisor describes the situation as follows:

We had to purchase software that would support confidentiality. The technology wasn't the problem. But I know how things look elsewhere. They didn't get going with video chat, and now they're sitting with a long queue. They have built up balances that will create stress for their employees later on.

With regard to the ability to manage the technology, the general impression is thus that the adjustment has basically gone well. The ability of the individual employee to manage the digital interface has been decisive, but supervisors in the interview study report that employees had also taught themselves how to manage the new tools. A survey of IT users' behaviours and preferences shows that, during the pandemic, a great deal of learning occurred in groups that were less IT savvy and that, for example, older users in many areas have caught up with younger age groups.²⁸ Tele2 and Kantar Sifo describe how competence in managing the technology from home increased over time in the following ways, based on interviews with employees in various companies:

Overall, people have become more positive towards the technical circumstances surrounding working remotely. This is probably attributable to the fact that one was quite simply forced to try and teach oneself how to do things. If connecting from home becomes a daily routine, one learns how to do it, and gets it to work. We all had to undergo an intensive course in teleworking, and many have quite clearly assimilated both the technology and this way of working. 13% find that the technology causes problems, which is nearly half as many as felt that way prior to Corona.²⁹

At an organisational level the adjustment had led to difficulties in some cases. Organisations have been prepared technically and digitally to varying degrees. One researcher reports that the technical threshold was low among organisations in which it was customary to work remotely. The adjustment was greater in other enterprises in which routines and habits for working from home were lacking. For example, one supervisor at a company with a team based in multiple countries described the situation as follows:

28 Andersson, J., Bäck, J., & Ernbrandt, T. (2020). *Svenskarna och internet 2020* [Swedes and the Internet 2020], p. 5.

29 Tele2, & Kantar Sifo. (2020). *Nya arbetssätt. Så förändrades svenskarnas arbetsliv under coronakrisen. En rapport från Tele2 i samarbete med Kantar Sifo*, [New ways of working. How the working lives of Swedes have changed during the Corona crisis. A report from Tele2 in collaboration with Kantar Sifo], p. 13.

In the group that I lead, there are employees located in five countries. We are spread out, and most of those on the sales side sit at home. But the differences are not all that great; we were working with digital meetings even before the pandemic.

The work environment risks in this area arise when the technology makes the work more difficult or makes it impossible for the individual to complete their job tasks, e.g. in working with clients in physical meetings. The consequences can include stress and frustration. Although some supervisors in the interview study describe concrete situations in which employees expressed frustration or stress, the Swedish Agency for Work Environment Expertise has found no examples in which deficient technology per se has resulted in illness or injury.

3.4 Altered conditions for the supervisor/employee relationship

The supervisor/employee relationship is a key factor in a good work environment. Guidance, feedback and follow-up are important elements in the organisational work environment. As noted above in this report, the conditions surrounding this relationship have undergone changes during the pandemic. Once the work has been shifted to the home and the interactions are occurring digitally, the conditions surrounding the relationship and the circumstances required for a trusting relationship are altered. The work environment risks that arise as a function of these changes are due to the fact that both the psychological and physical distance between supervisor and employee have increased, and that the digital interface does not serve fully as a replacement for physical meetings.

Such changes entail an adjustment for every organisation. However, in interviews, researchers reported that the challenges at the organisational level varied depending on the type of organisation. Organisations with a management model that is based on monitoring the various process steps in their work have faced bigger adjustments than those that have a more trust-based management model. The distance and the limitations of the digital means of communication have greater consequences when the alternative has been close-up and controlling supervision. One supervisor reports that the transition to working from home went well, and attributes this to the leadership's already established trust-based management:

We don't oversee things from the management, but rather it is our culture that the jobs have to get done. We all depend on one another; we don't work alone. It's not possible to maintain control. It's about giving trust, and that people take responsibility. That's the only thing that works.

The interviews with supervisors show that the changes have resulted in altered requirements in terms of establishing the level of the leadership. Communicating with the employees in digital meetings is described by employers as an initial risk factor. Some aspects of leadership and some types of meetings work well. Digital forms of communication appear to meet the requirements of the supervisors in cases where the relationship is good, the work is proceeding and the employees deliver in accordance with expectations. But such forms have limitations in difficult conversations. One supervisor describes the situation as follows:

The psychosocial aspect is difficult digitally. Just the tougher conversations, when you have to make a little comment, offer feedback for instance. Those conversations are not as good on Teams. The outcomes of those conversations are not as good. It's hard to tell whether they are taking things in or not.

In a member survey from the Swedish Confederation of Professional Employees (TCO), women were compared to men in terms of how they think that the contact with their immediate supervisor had evolved while working from home during the pandemic. Compared with other groups, it is more common for women working from home to feel that the support from their immediate supervisor has worsened during the pandemic. Nearly 20% of women felt that way, compared to roughly 10% in other groups.³⁰

Another risk has to do with supervisors having a harder time overseeing and monitoring their employees' work hours and workloads. One supervisor described the differences between individual employees as follows:

For some, the stress goes down. For others it's the reverse – they work all the time.

How much the individual employee works is a matter of their ability to set limits and organise their work hours by themselves.

A third risk has to do with the fact that supervisors have difficulty gaining insight into how their employees are feeling. As the distance between supervisor and employee grows, the means available to the supervisor to understand the reasons why an employee is withdrawing or failing to live up to expectations shrink. Problems that develop over time may be discovered too late. But in other cases in which problems are discovered, the forms of communication may present an obstacle in terms of addressing how the individual employee is feeling in a conversation. One supervisor describes this as follows:

30 TCO (2020) Resultat från Novusundersökning om tjänstemännens arbetsmiljö under coronapandemin [Results from Novus survey of professional employees' work environment during the Corona pandemic], p. 6.

We have one employee who has had personal problems. It is very hard to handle the situation. We held rehab meetings digitally, but they refused to turn on their camera. It's hard to provide leadership when an employee is feeling bad.

Another supervisor describes the challenge of perceiving employees' needs as follows:

I think that there are those who keep up appearances in front of the screen, but actually are feeling bad. It's hard. The digital tools have their limitations. We need to see one another.

The consequences of these risks differ in nature. In some cases they have to do with a decrease in motivation and enthusiasm for work when feedback can only be provided digitally. In other cases they have to do with stress for the individual when the dialogue about their work situation and workload fails. Finally, there may also be injuries or sick-listings in those cases where work-related problems are discovered too late, or not at all.

It should also be added that the altered interface between supervisor and employee affects supervisors' work environments as well. Most of the supervisors interviewed in this mapping process have reported altered and heavier demands in terms of their management and leadership.

3.5 Altered working methods a risk factor for some groups

Working from home changes not only the conditions surrounding a trusting and close relationship between supervisor and employee, but also the conditions surrounding the performance of many job tasks. Certain tasks cannot be completed in the same way, and some roles that were important in the workplace disappear or assume a different significance.

One factor that affects the individual employee's stress level is the perception that they have insufficient means of completing their job tasks. This pertains to a number of issues, i.e. how the task is delimited and defined, and what the actual circumstances surrounding the performance of their job tasks look like. Working from home can pose an absolute obstacle in cases where the quality of the work is dependent on factors that are tied to a specific place or a specific context. One supervisor describes this as follows:

If you have coordinating duties, then you feel like you're not in control.

Another supervisor offers the following example of how working from home has changed the conditions that determine how the work can be carried out within the employer's organisation:

We have one employee who suffers from burn-out and depression. They work with risks in the production process. Control over their job requires that they meet with people at the plant. If they don't do that, they can't do the job in a sensible manner.

The interviews show that working from home suits different employees to differing extents. Many indicate that independent and versatile employees who can complete their job tasks on their own are pleased with their work situation during the pandemic. Other employees who need others to perform their job tasks or who are inexperienced or newly hired have a harder time. Both researchers and supervisors also identify a risk in that the roles that an employee fills in their workplace are being changed or become superfluous. It may be that certain employees assume greater social responsibility or communicate knowledge within the organisation in a way that is not possible when working from home. One researcher describes this as follows:

We assume different roles in the workplace. For example, "the big helper" may be affected when the work is being done from home. There are many different roles that disappear.

One supervisor describes the challenge in the following way.

Then there are some... those who had facilitating roles and built heavily on that, and who use their charisma on the job – when they end up in front of a screen, they find themselves reduced to a two-dimensional existence and much of their charisma is lost.

The consequences of these risks include reduced motivation and enthusiasm for work, as well as stress. However, the Swedish Agency for Work Environment Expertise is unable to assess the extent of such consequences based on the existing material.

3.6 Altered forms of social contact at work pose risk of contributing to social isolation

The altered conditions that characterise the relationship between supervisor and employee also apply to relationships among employees. Working from home is characterised by physical distancing, which means, in concrete terms, that those colleagues previously encountered daily are no longer being met physically. This is a major adjustment for many, particularly as many organisations and employees are unaccustomed to working together remotely from before.

The literature includes accounts of how working from home leads to reduced social contact, less collaboration and degraded teamwork. One survey conducted by Tele2 & Sifo Kantar regarding new working methods during the pandemic indicates that over half of respondents find that their sense of being a team suffers when they meet so seldom.³¹

Supervisors in the interview study also talk about these problems, i.e. that because of the degraded contact between colleagues, working from home contributes to a low energy level and reduced motivation among many employees. An expert at one agency describes how the social work environment has been impoverished:

You lose the dimension of having a good time together. The big things with conferences and overnights can come later. But chatting over coffee and the sense of context disappear.

The experience of isolation is not the same for all groups in the labour market. The interviews with researchers make it clear that, for example, employees living in single-person households and those who lack a social network outside their workplace suffer more from the social isolation than do others. Example of this emerged in interviews with supervisors. In some cases employees have signalled feeling worse as a consequence of the lack of social contact in particular. One supervisor describes this as follows:

At the start everyone is disposed to handle it. But a time comes that is more difficult, autumn and darkness and winter come. Those people who may be living alone, that's where it gets tough. One employee has made it clear they feel awful.

The work environment risk that has its roots in social isolation can thus have consequences ranging from decreased motivation and enthusiasm for work to degraded mental wellbeing and depression. The picture of this risk that emerges in interviews with researchers and supervisors indicates that these problems grow over time. If the pandemic and a situation involving compulsory working from home become long term, it is consequently reasonable to assume that the consequences of this risk will increase in scope.

31 Tele2, & Sifo, K. (2021). *Det hybrida arbetslivet: coronapandemins effekter på vårt sätt att arbeta – nu och i framtiden: en rapport från Tele2 i samarbete med Kantar Sifo.* [The hybrid working life: the Corona pandemic's effects on how we work – now and in the future: a report from Tele2 in collaboration with Kantar Sifo.] Stockholm. p. 14.

3.7 Working from home can blur the boundary between work and leisure

When work is shifted home, the boundary drawn between work and leisure is affected, as is the boundary between the personal and the professional in terms of both space and time. The workplace is often visible in the home even when one is not working. There is no impediment to working longer hours or resuming work in the evening. The workplace is often shared with family members who are not even colleagues, but who nevertheless impact the work situation – working life and personal life run together.

There are primarily two work environment risks that are associated with work that lacks boundaries. The first has to do with work pushing aside one's personal life, with longer working hours and less recovery as a result. The second has to do with one's personal life impinging on one's work life and affecting the feasibility of completing job tasks. These risks were also pointed out in a 2020 report from the Nordic work environment authorities.

/.../ long working hours, inability to log off from work and imbalance in work life causing strains within the family relationships are some of the issues that may impact the health and safety of workers.³²

The literature also indicates that working from home during the pandemic has contributed de facto to many employees working more. In a member survey, the Swedish Association of Graduate Engineers reports that their members see that working from home during the pandemic has led to an ever-longer workday, as the computer is always available, and many believe that they are consequently working more hours per week.³³ In another survey regarding the experiences of Swedish Internet users during the pandemic, 20% reported working more hours than before.³⁴ Employer representatives who were interviewed also painted a picture of maintained or increased productivity, even though they do not always point to longer working hours as the explanation. For example, one supervisor says:

I believe that productivity has increased, but there has been less recovery.

The second risk has to do with one's personal life impinging on one's work life to such an extent that it affects the feasibility of completing one's job tasks. Part of this risk has to do with the workplace having to

32 Mattila-Wiro, P., Samant, Y., Husberg, W., Falk, M., Knudsen, A., & Saemundsson, E. (2020). Work today and in the future: perspectives on Occupational Safety and Health challenges and opportunities for the Nordic labour inspectorates: report authored by the Nordic Future of Work Group. Helsinki: Ministry of Social Affairs and Health, p. 60.

33 Swedish Association of Graduate Engineers (2020) *Coronakrisen – Så påverkas ingenjörerna*, [The Corona Crisis – How graduate engineers are being affected], p. 6.

34 Andersson, J., Bäck, J., & Erbrandt, T. (2020). *Svenskarna och internet 2020* [Swedes and the Internet 2020], p. 27.

be shared with other family members; partners who are also working at home, secondary-school-age teenagers studying at home, or younger children home from school or preschool. This risk is well described in the literature; the Swedish Agency for Work Environment Expertise's 2020 knowledge compilation regarding working life in the future describes how working from home digitally can have negative effects on the individual, i.e. that they can be easily interrupted in what they are doing at the time, or that it contributes to conflicts between work and the rest of life.³⁵

One researcher describes in an interview how she has two workplaces:

I have to agree on my meeting times with my real colleagues online, then I have to agree on them with my other colleagues at home, in other words, my partner and my children.

The interview study also offers indications that problems in the home, such as threats of violence or actual violence in close relationships affect the work. In such cases the normal workplace may have served as a place to avoid a destructive situation at home. The scope of such problems is difficult to estimate, but the Swedish Gender Equality Agency indicates on its website that the number of reported crimes of abuse against women increased 4% in the first half of 2020 compared to the year before. The connection to working from home is not cited as an explanation, but the Agency does note that as more and more families are forced to stay at home, there are risks of rising male violence towards women and other forms of violence in close relationships, honour-related violence and oppression and sexual violence against children.³⁶

The consequences of the aforementioned risks include increased stress among individual employees. A number of studies also show that perceived stress has increased during the pandemic.³⁷ For example, the Swedish Association of Graduate Engineers reports in its member survey that four out of ten graduate engineers say that their wellbeing on the job has been degraded, and that the younger members in particular are experiencing increased stress.³⁸ Difficulty winding down, sleeping and recovering are also cited as consequences of the fact that one's job is present in one's home all the time.

35 Swedish Agency for Work Environment Expertise (2020). *Framtidens arbetsmiljö i Sverige*. [The future work environment in Sweden.] Report KS 2020:1, p. 57

36 <https://www.jamstalldetsmyndigheten.se/nyhet/coronapandemin-okar-risken-for-vald-mot-kvinnor-och-barn>, 21 February 2021

37 See for example the Union for Professionals SSR/Novus (2020) and Swedish Association of Graduate Engineers (2020).

38 Swedish Association of Graduate Engineers (2020) *Coronakrisen – Så påverkas ingenjörerna*, [The Corona Crisis – How graduate engineers are being affected] p. 6.

3.8 Employers' efforts to manage risks

The conditions surrounding employers' and supervisors' efforts to engage in work environment work change once the workplace has relocated from the office to the home. They have needed new guidance, communication and follow-up methods to be able to shoulder their responsibilities when work is being done from home. Our interviews with supervisors offer examples of how they have acted in practice to ensure a satisfactory work environment for their employees. Two areas that need work recur in particular in the interviews, i.e. ensuring a satisfactory physical work environment and efforts to deal with social isolation.

On a general level, most supervisors report having introduced some form of digital work environment sessions and systematic processes to incorporate employees' perceptions of their work environment during the pandemic. The work environment work takes its course, but does so via the digital communication tools that are available. One supervisor describes this as follows:

It is important that, as a supervisor, I take note of risks. It's the same as usual. Systematic work environment work, we always do that this time of year. We map risks, and tie activities to that. But it's not something that is to be done once a year, we handle it on an ongoing basis.

There are some initiatives that recur in the interviews regarding concrete measures to establish a good physical work environment and counteract stress-related ill-health. First, as noted above, it is common to let the employees take equipment from the office home with them. Employees have been able to bring chairs, tables and displays home so that they can improve the work environment there.

Another common initiative is to emphasise, in dialogue with the employees, the importance of taking rests and walks. Some employers have increased the number of preventive healthcare hours to encourage movement. In other cases employers have arranged joint digital exercise sessions for their employees.

The interviews also indicate that employers are adopting concrete measures to reduce the risk of social isolation. These can include purely social activities such as digital coffee breaks at set times during the workday. The employers also mention other initiatives, i.e. those who report that the isolation is making them feel bad can receive a dispensation to work at the office, or be offered outdoor physical meetings with their supervisor. Employees have also been encouraged by a number of the supervisors interviewed to make direct contact with one another spontaneously, and without a work-related pretext.

The supervisors also mention technologies and digital tools that they avail themselves of in order to reduce the perceived distance to their employees and improve communication between employees. Encouraging meeting participants to have their cameras turned on and having a clear meeting agenda that encourages participation are two such examples.

3.9 Legal aspects of working from home

In its mapping process, the Swedish Agency for Work Environment Expertise has also studied whether there are any perceived areas lacking legal clarity, or obstacles associated with the work environment when working from home during the pandemic. The Agency has not conducted a legal review, i.e. determined or taken a position on what the applicable law consists of.

There are different perceptions among the interviewees in terms of the degree to which their experiences during the pandemic have pointed to a need for changes in work environment regulations. While some point to a need for review and adaptation, others consider the present laws to be working well overall. The need for review and changes is pointed out by, for example, Niklas Selberg, a labour law researcher at Linköping University, who, in an article in *Dagens Arena*, writes that he sees a need both for updated work environment law and regulations regarding employee privacy in their working lives. He asks himself how the employer's responsibility for the work environment is to be grounded in the legal system if it no longer has power over the workplace.³⁹ The Post and Telecom Authority also draws the conclusion that the current regulations are not working optimally:

*The employer has direct responsibility for the work environment, and yet many of those with whom we spoke found that an ad hoc-like situation has prevailed during the pandemic. Our work environment legislation is not designed for crises of this kind.*⁴⁰

At the same time, the perception that the current regulations are working fairly well and that new regulations would not solve the problems in defining the boundaries between the employer's and the employee's responsibility for the work environment comes across in our interviews. It is important that needs-based and functional systematic work environment work be carried out, with functioning dialogue between employer and employee.

39 Selberg, N. (2020). *En agenda för framtidens arbetsrätt*. [An agenda for future labour law.] Dagens arena. Essä.

40 Swedish Post and Telecom Authority. (2021). *Digital omställning till följd av covid-19: uppdrag att kartlägga och analysera erfarenheter och behov av åtgärder för att leva och verka digitalt i spåren av utbrottet av covid-19*, [[Digital adjustment as a result of Covid-19: the task of mapping and analysing experiences of and the need for measures to live and work digitally in the wake of the Covid-19 outbreak], p. 110.

More concrete legal issues emerge alongside the argument for a more comprehensive review of regulations associated with the home-working environment:

- *Does the employer's responsibility for the work environment need to be adapted when the employer does not have control over the employee's home?* The employer is responsible for the work environment in connection with working at home, but cannot influence how the employee lives or visit their residence and monitor the work environment without consent. In practice, the responsibility for reporting anomalies in the home work environment consequently falls on the individual employee, who is of course also the actor who can impact that work environment. The employer thus has formal responsibility for the work environment but does not, in practice, have control over it.
- *Does the employee's responsibility for their own work environment need to be clarified?* The employee has the means of impacting their work environment, but not the formal responsibility. Some feel that there is a need to clarify the nature of the employee's responsibility for their own work environment when the work is being done in the employee's private residence.
- *How can work-related injuries compensation insurance be adapted to a situation in which more people are working from home?* A perception emerges that such insurance is designed primarily for work and injuries occurring at a shared workplace, and that there is reason to review and adapt such insurance to apply to work done from home in order to ensure that occupational injuries that may occur in the home work environment are covered.⁴¹

41 See e.g. Hallberg, B., & Saar, M. (2020). *Jobba hemifrån - är distansarbete här för att stanna?* [Working from home – is teleworking here to stay?]

4 Concluding discussion

The purpose of this mapping has been to study the practical conditions surrounding working from home, and to identify and analyse work environment risks and other challenges associated with working from home during the pandemic.

This chapter presents the main results of the mapping process and discusses some of their implications. The chapter concludes with proposed areas for action and areas that need deeper analysis.

4.1 Main conclusions

4.1.1 Increased working from home has entailed an individualisation and digitalisation of the work environment and of work

Our mapping shows that the transition to increased working from home has impacted the conditions and assumptions surrounding an acceptable work environment in mainly two ways. *First*, these conditions and assumptions have undergone individualisation. This means that the individual employee's circumstances, e.g. residence size, family circumstances, technical equipment in the home and ability to design a good work environment play a bigger role in the employee's work environment than when they work at the office. Working at home also means that the employee must, to a greater extent, personally regulate their working conditions in terms of the time and place used for their work. External guidance decreases, while the need for self-regulation and structuring of the working conditions grows.⁴² An individual employee's work environment during the pandemic is thus dependent on a combination of specific conditions in a different way than before the pandemic. This combination of covariant conditions needs to be taken into consideration in order to understand the risk- and health factors that are present in the employee's work environment.

Second, the transition has resulted in work being increasingly impacted by the function of digital tools, and by the ability of supervisors and employees to adapt to them. Broadband connections and hardware and software functionality become impactful for the physical organisational and social work environment. But just having the technology in place

⁴² Swedish Work Environment Authority (2018) *Gränslöst arbete - En forskarantologi om arbetsmiljö utmaningar i anknytning till ett gränslöst arbetsliv. Kunskapssammanställning*. [Boundaryless work – A researcher anthology on work environment challenges tied to a boundaryless working life. Knowledge compilation.] Report 2018:1, p. 85.

is not enough. The ability of supervisors to lead and guide work via digital tools is very important for an acceptable work environment when working from home. The ability of the employee to collaborate is important in the same way, and the ability to structure one's own work in a digital context is essential for both the organisational and the social work environment.

4.1.2 Working from home has improved the work environment in some respects, but the situation is polarised

The transition to increased working from home has proceeded without major practical or technical obstacles. This is evident from both the literature and interviews with supervisors. Working from home has also led to an improved quality of life and a better work environment for many, due in part to reduced stress as a result of not having to commute, greater opportunity to concentrate on the work, and more flexibility in terms of combining work and leisure. But the picture that emerges in the literature and the interview study is not unambiguous.

At the same time as it is asserted that working from home has led to improvements in important aspects of the work environment, there are also reports of ergonomic problems and social isolation. The work environment for the individual employee is not, first and foremost, determined by the particular industry or organisation in question. It is rather factors at the individual level that assume decisive importance in terms of whether the work environment is improved or degraded. The winners are those individuals who have a competence profile that is suited to working from home, who prefer working methods that fit in with a digital interface, who have a favourable family and living situation, and who have good broadband connections.

4.1.3 A number of work environment risks have arisen in working from home during the pandemic

Even as the general picture is that working from home offers advantages from a work environment perspective, our mapping shows that a number of work environment risks have arisen in connection with working from home during the pandemic. Ergonomic risks have arisen in connection with working from home, as have risks associated with technical deficiencies. For example, the Swedish Confederation of Professional Employees member survey indicates that such risks have also led to obvious back, shoulder and neck problems among its members, and particularly among women.⁴³ There may also be hidden cumulative workload problems that will become apparent over time.

⁴³ TCO (2020) *Resultat från Novusundersökning om tjänstemännens arbetsmiljö under coronapandemin* [Results from Novus Survey of professional employees' work environments during the Corona pandemic], pp. 3–4.

Both the interview study and the literature also point to a number of risks associated with altered conditions surrounding the supervisor/employee relationship, altered working methods and changed forms of social contact. There are also risks associated with the blurring of boundaries between work and leisure. These organisational and social work environment risks can lead to increased stress, as well as to a lack of motivation and, in the worst case, poor mental health. A number of those interviewed in the mapping process have specifically expressed concerns over the negative mental health effects of working from home. In particular, problems with isolation appear to have increased during the pandemic over time. The continuing need to work from home leads to a higher risk of poor mental health.

4.1.4 Some of the risks are tied to the pandemic and will decrease in importance

Working from home during the pandemic has happened under special circumstances; a number of the risks are tied to the compulsory duty to work from home that was imposed in many enterprises. This pertains, for example, to the risk that social isolation when working from home will lead to a lack of motivation or, in the worst case, poor mental health. After the pandemic, society will be more open and will enable social contacts between people in other locations, which will likely reduce the problems associated with working alone at home. A number of interviewed supervisors believe that working from home will continue even after the pandemic, but on different terms. Once the pandemic is over, employers and employees will be able to choose to a greater extent whether they wish to work at the office or from home. Overall, this will mean that the work environment risks that arise while working from home will diminish in importance after the pandemic.

4.2 Proposed measures to reduce risks

After the pandemic the question of where work is to be done will again be resolved in dialogue between employer and employee. The positive experiences that have been reported indicate that working from home will be more commonplace after the pandemic than it was before. Regardless of the future scope of teleworking in the Swedish labour market, there is reason to take the work environment risks seriously – both those that have arisen during the pandemic and those that will remain after it. The section below presents proposed measures for the short term, i.e. measures to manage risks during the pandemic, and for the long term, i.e. measures to manage work environment risks post-pandemic. Many of these measures could advantageously involve relevant government agencies and labour market parties.

4.2.1 Short-term measures

The mapping shows how the work environment risks during the pandemic developed, i.e. in terms of ergonomic problems and gradually increasing problems with social isolation. When the boundary between the employer and employee roles and responsibilities in the new situation becomes blurred, there is a risk that work environment risks will not be discovered or addressed in time. This justifies measures aimed at strengthening systematic work environment work during the pandemic.

- *Enhance employers' competence and ability to engage in systematic work environment work when the workplace is not at the office:* The roles in work environment work change when the work is being done from home. Employers, safety representatives and employees need to act in new ways in the new situation. Both employers and employees need support in terms of how systematic work environment work can be carried out when the work is being done remotely, e.g. at home. During the pandemic many employers have, together with their employees, developed ways of doing work environment work. This knowledge needs to be compiled and disseminated to first-line supervisors who operatively carry out the work environment work.
- *Enhance employee competence in terms of how they can adapt their personal workplace for a good work environment:* The employee has no formal responsibility for work environment work, but must cooperate with their employer, collaborating and participating by, for example, reporting risks, near-accidents, illnesses and accidents, suggesting measures and offering their views on what is being done. Our mapping shows that the individual employee's circumstances become more impactful when work is done in the employee's home. The means available to the supervisor to see and perceive how the employee is feeling are also degraded. Initiatives that enhance employees' competence and ability to detect risks in their own work environment and adapt it to create a good work environment are consequently needed. Initiatives that enhance the ability of employees to create a good work environment when working remotely should be developed and carried out.

4.2.2 Long-term measures

Working remotely was a growing phenomenon even before the pandemic, and was tied to an ongoing structural transformation of working life in which digitalisation and advanced services represent a protracted trend. The pandemic has likely accelerated an evolutionary process that would have occurred regardless. It is reasonable to assume that work will be done from home to a greater extent even after the pandemic. To ensure a sustainable working life in the future, the conditions necessary for an acceptable work environment need to be present not only at the office, but also at the remote workplace.

- *Enhance employer competence in terms of how they can manage work environment work in situations where work is being done both at home and at the workplace:* Although many are looking forward to returning to the workplace, our mapping shows that many will also wish to continuing spending a large portion of their work hours at home. The employer will need to find ways of working in order to carry out systematic work environment management that addresses both those who work on the employer's premises and those staying at home. The quality of the work environment must not be determined by whether the workplace is at the office or in the home, and the work environment work processes must be appropriate for both options simultaneously. An effort is needed to enhance the competence and ability of employers to carry out work environment work regardless of where the work is being done.
- *Prepare children and adolescents for the working life of the future:* Individualisation of the work environment and altered roles in work environment management impose heavier demands in terms of the ability of the individual employee to adapt their work environment and working conditions. The ability to create a good work environment when working remotely may become a key competence for today's children and adolescents in advance of their future working lives. This is an effort that has already begun in part. The importance of introducing knowledge about the work environment in elementary and secondary school is evident in the government's work environment strategy, and the Swedish Agency for Work Environment Expertise has launched a pilot project to study the need for potential ways of developing work environment knowledge in both elementary and secondary schools.⁴⁴ This mapping underlines the importance of that effort.

4.3 Suggested areas for further analysis

The mapping shows that our knowledge of the changes that are occurring and that have occurred during the pandemic remains fragmented. More information about the work environment risks that result from working at home is needed to be able to identify, design and implement targeted and effective measures for a stronger work environment. The Swedish Agency for Work Environment Expertise considers primarily the following needs to be tied to further knowledge growth.

⁴⁴ Government Report 2020/21:92 *En god arbetsmiljö för framtiden – regeringens arbetsmiljöstrategi 2021–2025*, [A good work environment for the future – the government's work environment strategy 2021–2025] p. 26.

- *Follow up risks and expand knowledge regarding altered working life:* Our mapping shows that a number of work environment risks arose or changed character in connection with working at home during the pandemic. There are researchers and supervisors who were involved in the mapping process who warn that as-yet unseen cumulative workload problems have built up during the pandemic and will become apparent over time. Increased mental ill-health may be one result of isolation during the pandemic. Knowledge is currently lacking as to whether these work environment risks are resulting, in practice, in injuries and disease, and to what extent. Greater knowledge of the total impact of the altered work environment and work environment risks during the pandemic is needed to make future remedial measures appropriate and impactful.
- *Expand society's knowledge base regarding the work environment in connection with teleworking:* Our knowledge regarding the work environment has been focused heretofore mainly on the shared physical workplace. Knowledge about the significance of teleworking to various aspects of the work environment is limited both in Sweden and the Nordic countries in general.⁴⁵ This lack of knowledge makes it difficult for both government agencies and parties in the labour market to undertake satisfactory developmental initiatives in this area. Universities, colleges and other research funders should consequently initiate and incentivise research and other knowledge production surrounding the work environment associated with teleworking. This can occur, for example, through cooperation between the Nordic countries which, in many respects, have similar working lives and patterns in terms of people working from home. The need for knowledge pertains primarily to the conditions required for a good work environment, and to working conditions in environments other than those provided by the employer. Future research and work environment work needs to be focused to a greater degree on how work environments are created in digital spaces, and how the conditions necessary for a good organisational and social work environment can be created when supervisor and employee are geographically separated while sharing digital interfaces.

⁴⁵ Oxford Research (2021). *Fjernarbejdets betydning for arbejdsmiljøet i Norden. Rapport om reguleringen og betydning af fjernarbejde for arbejdsmiljøet i de nordiske lande* [The significance of teleworking for the Nordic work environment. Report on the regulation and significance of teleworking for the work environment in the Nordic countries], p. 8.

- *Expand knowledge regarding the conditions surrounding and work environments of men and women who work remotely:* The conditions under which men and women operate in their working lives differ. A division of labour exists which entails that men and women work in different industries, have different job tasks and occupy different positions in organisational hierarchies. Men and women have different roles outside the workplace as well. Gender equality has increased and is increasing, but women are still expected to assume greater responsibility for home and family matters. The extent to which gainful employment in the home will impact gender equality has not yet been a subject of systematic research. Neither is there any systematic research into gender differences in the current trend towards increased working from home, nor on the extent to which job tasks in “male-dominated occupations” and “female-dominated occupations” can be shifted to and performed at home. Greater knowledge in these areas will be valuable in continuing gender equality work. For example, one research question would have to do with how greater individual flexibility in organising work in space and time will be utilised by men and women. Will men make use of such flexibility in the realm of working life while women use it to a greater extent to coordinate their family and working lives? A trend in that direction may be assumed to have consequences for future careers in working life.

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