# Digital solutions and remote work during the corona pandemic –
what can we learn and how do we want to work in the future?

A follow-up study

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Abstract

This study analyses the experiences of increased digitalisation and reduced business travel at the Department of Urban and Rural Development (SOL) at SLU during the COVID-19 pandemic. By answering which digital arrangements have worked well, worse or better than their physical counterparts, the report can be used as a basis for work and travel policies at SLU and other higher education institutions. At the same time, we believe that the gathered empirical data may contribute to reflections on the social aspects emerging from digital work, in particular on group belonging, unequal access to digital solutions and general well-being. This report is a follow-up of a similar study conducted in 2020 and offers comparisons between different points in time during the pandemic.

Keywords: digitalisation, digital meetings, remote work, corona pandemic, climate change, business trips, COVID-19

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Abbreviations

HEIs   Higher Education Institutions
PHAS   Public Health Agency of Sweden
SLU   Swedish University of Agricultural Sciences
SOL   Department of Urban and Rural Development
                (Institutionen för stad och land)

1. Introduction

This report aims to reflect on the experiences of digitalisation, remote work and travel ban at the Department of Urban and Rural Development (SOL) during the COVID-19 pandemic. We do so by analysing interviews, survey responses and previously published data on digitalisation at SLU (Smidvik et al. 2020; Saco 2021). The time frame considered is the period from when the first restrictions came into force during the spring of 2020 until the end of 2021.

Through this report we hope to **1)** provide a better understanding of the experience of increased digitalisation and remote work at SOL and **2)** add to the knowledge base in order to outline adequate adjustments concerning SLU's work towards climate neutrality by 2027 (SLU 2021). We focus in particular on what types of digital meetings and work routines that worked better, the same or worse than a physical counterpart; how the decrease of business travel influenced work operations; how employees commuted and used university facilities during the pandemic; and what needs and opportunities they have acknowledged during this period. The study has been carried out by SLU students under the supervision of SOL employees.

Below, we first provide a background to the current study — including the development of the pandemic restrictions, results of a previous study on digitalisation by Smidvik et al. (2020) and insights from the latest survey conducted among SLU's employees (Saco 2021). We complement the latter with a description of climate and travel policies at SLU. Further, we list research questions and outline methodology, demonstrating the selection process and analytical sequences for the data. The study continues with elaborations on the results gathered through a survey and semi-structured interviews including recommendations.

1.1. Background

In response to the spread of COVID-19 during the spring of 2020, the Swedish public services gradually introduced recommendations that affected the Swedish educational systems. On 17 March 2020, the Public Health Agency of Sweden (PHAS) called on higher education institutions (HEIs) and upper secondary schools to start distance learning. In March 2020, PHAS also suggested that employers allow work from home whenever possible. Conferences, lectures, meetings and dissertations – among other activities – were therefore moved to digital platforms.

1.1.1. Previous study

Experiencing the new form of education and work, a group of SLU students decided to study the consequences of the rapid digitalisation and the travel ban at the university (Smidvik et al. 2020). The authors aimed to unpack possibilities for academia to reduce its climate impact by learning from changes that came with the pandemic. The study demonstrated that seventeen per cent felt that their work, in general, had been mainly negatively affected. The remaining eighty-three per cent of the respondents experienced that their work was either mainly positively affected, equal parts negatively and positively affected, or not affected at all by the decrease in business travel and increase in digital meetings. The report concluded with the suggestion for a follow-up study to investigate the experience after a year of restrictions.

Meanwhile, a survey conducted among 781 SLU-employees in October 2021 provided new insights (Saco 2021). The survey showed that more than two-thirds of the respondents visited the university on average no more than once a week during the pandemic. The majority sought a hybrid solution going forward, with over sixty per cent wanting to work from home for two to three days a week in the future.

In addition, the survey showed a demand for unique travel and work protocols for different positions rather than one overarching policy for all staff members. For instance, more than sixty per cent of all technical staff reported working from home all five days a week while no animal care staff – who understandably are required to be onsite – worked from home during the pandemic. Around half of the researchers, postdocs and lecturers, in turn, worked entirely from home while the other half spent at least one day at the university.

Despite the varying number of days spent at the university, the respondents gave a largely positive review of working from home. At least two-thirds left a positive review (rating it either 4 or 5 out of 5) and almost all categories of work positions had a less than ten per cent negative response (a rating of 1 or 2). The only exception to this were postdocs, with an eighteen per cent negative response rate. However, the generally positive experience has not convinced many respondents to work entirely from home, with less than ten per cent expressing a desire to work completely from home.

1.1.2. Climate frameworks and plans

The mentioned studies correspond with the call to address the climate crisis by looking at work operations, proposed by the Climate Framework for HEIs in Sweden. The framework was introduced in 2018, and institutions who have agreed shall set goals and implement actions to meet the 1.5°C target by 2030 (KTH n.d.). According to this document, international air travel constitutes the largest environmental impact of multiple HEIs in Sweden (ibid.). Therefore, replacing physical meetings with online ones, explicit guidelines and policies for air travel, and initiating dialogue about how internationalisation can become more sustainable are stated as recommended actions.

SLU has signed the climate framework and established its own action plan to reduce emissions from business travels. The plan includes three areas of change – infrastructure, behavior and working culture, and emissions when flying is unavoidable – and twenty-four goals aiming to encourage train travel, increase digitalisation and introduce a prioritisation system for travel. The goals relating to emissions when employees do fly are to:

"Investigate the possibility to introduce a Co2 budget on institutional and department level;

Evaluate and adjust the climate fund for best effect;

Examine the possibility to purchase green fuel for airplanes;

Examine the possibility to buy emission rights" (see Appendix 1).

SLU has also set environmental objectives that are divided into six focus areas, with business travels and education constituting two of them. Other related areas of change have been outlined for the university's energy use and its facilities. Within the area of business travel, a decision has been made to reduce SLU's "total fossil fuel emissions from air travel by 60%, compared to 2019 per full-time [employee] equivalent" (SLU 2021). The focus area for education does not include any criteria for digitalisation but it aims to integrate sustainable

development and sustainability into all educational programs SLU offers. The university has also been commissioned to increase the proportion of digital meetings since 2016 (REMM u.å).

Moreover, in December 2021, the Swedish government has specifically asked governmental institutions to present measurable travel targets for 2025 in order to reduce their impact on the environment and the climate (Finansdepartementet och Miljödepartementet 2021). The targets should focus on reducing the number of physical meetings for business travels (ibid.).

Altogether, reduced business travel and increased digitisation have long been on SLU's agenda and the changes have been accelerated by the pandemic. Consequently, this new experience can inform the work towards climate neutrality by outlining social and technical aspects of the transition and, not least, provide ideas from the employees themselves.

1.2. Aim and research questions

The purpose of this study is to gather insights from experiences of remote work and decreased business travel at SOL during the pandemic. We believe that this study can help in harvesting new thoughts, collective experiences and creative solutions that sprung from the changed work circumstances during the COVID-19 pandemic.

To fulfill the aim the study answers the following questions:

Q1: How has the increased digitalisation and decreased travel affected the work of SOL's employees?
Q2: What types of digital alternatives have they found to work well enough, well, or better than the physical counterparts?
Q3: What types of activities have had worse results than physical counterparts, or were not possible to carry out at a distance?
Q4: How do SOL's employees envision their work situation after the pandemic?
Q5: What needs do they have in the face of future transitions related to SLU's climate objectives?

2. Methodology

This is a mixed-methods study that combines a survey with semi-structured interviews. The survey responses constitute a quantitative base and provide visualisations of the trends related to business travel and commuting, work routines as well as different views on how various activities were impacted during the previous year. The qualitative data gathered through the interviews complements this information with in-depth individual reflections.

2.1. Data gathering

With regards to the survey, the questions used were mainly from the study conducted by Smidvik et al. (2020) as we wanted to compare and contrast the results where applicable. Yet, there are a few adjustments applied (see Appendix 2). Firstly, the survey was supplemented by questions about commuting and the staff's experiences of working at SLU's facilities during the pandemic. Secondly, we added open-ended questions where respondents could share examples of successful tools and techniques they use, as well as needs and wishes that they have. A few edits were also made to the set of answers, taking into consideration limitations listed by Smidvik et al (see ibid. p. 60).

The survey was piloted for seven days with the help of library employees at SLU. It was available online for SOL's employees through the Netigate platform from November 21 until December 11, 2021.

Additionally, we conducted fifteen semi-structured interviews to complement the quantitative data with personal reflections. For this purpose we applied a selective approach, focusing on the representation of varying travel patterns as well as different positions and divisions within SOL, including project leaders, researchers, teachers, management and administrative staff. The interviewees were recruited via email. The interview guide covered questions relating to digital meetings, business travel, commuting, needs and insights (see Appendix 3). Following the example of the study by Smidvik et al. (2020), we included control

questions to ensure we covered different commuting habits and environmental protection affiliations.

Interviews were recorded and transcribed verbatim. As an ethical remark, all interviewees agreed on voluntary and anonymous participation, recordings and citing without specifying personal information. Therefore this study does not provide the description of work positions of our respondents since that can make some of them identifiable.

2.2.   Data analysis

We used files generated by Netigate with the gathered data when interpreting the survey responses. We also conducted a thematic analysis of the survey comments and transcripts. The steps taken were: **(1)** familiarisation with the data, **(2)** creation of initial codes, and **(3)** organising the data into themes. The flexibility of this method can be both positive and negative due to the absence of solid guidelines (Braun & Clarke 2006). Hence, we were aware of the abductive manner of our study, especially since "researcher judgement is necessary to determine what a theme is" (ibid.: 82). In other words, we could not avoid having a preliminary pre-understanding of the climate crisis agenda, digitalisation and remote work issues within SLU and thus consciously tested them while interpreting data.

Additionally, we chose to distinguish the results from the discussion by separating what we received from the respondents (see Sections 3 and 4) and our own reflections (see Section 5).

2.3.   Definitions and limitations

The framing of a few survey questions was said to be confusing or lacking options. Particularly, one concern about the first question (Q1) was that it brought up two different factors: both the effects of an increased number of digital meetings and the effects of a decreased number of longer business trips. Further, when we asked what activities our respondents believed can be replaced with digital solutions and to what extent, one respondent felt that our category options might overlap (see Q8 in Appendix 2). Another comment stated that there should have been a category for "writing research applications" as such meetings have now been moved online.

In addition, when we asked what would facilitate the continued use of digital meetings, two respondents felt that our question was loaded and took a pro-digitalisation stance (see Q9 in Appendix 2). One of them suggested that "it would be catastrophic if it [digital meetings] were forced on us…". We also received a comment similar to this during the piloting of our survey but after deliberation we felt that asking what can be done to improve digital meetings is not the same as advocating them, especially since several previous questions asked respondents directly about their opinion regarding digitalisation.

Another limitation relates to one of the open questions at the end of the survey (see Q14 in Appendix 2). The intention behind this question was to see whether there were any trends in terms of tools and techniques that employees have been using during the pandemic. However, seven out of fifty respondents stated that the question was unclear.

3.   Results: Survey

The results of the survey are presented below in two sections: Section 3.1 contains background information about respondents, including their business travels and commuting patterns, while Section 3.2 elaborates on results regarding different aspects of digitalisation, remote work and reduced business travel as well as how respondents want to work in the future. The latter section also includes a summary of comments from two open-ended questions, where respondents shared their insights on digital alternatives that successfully replaced physical counterparts, as well as needs that occurred during the pandemic.

3.1. Background information and general travel habits

There were eighty-one people who started the survey and seventy-four who completed all the questions. The number of responses varied with each question. In total, 38.5% of all SOL employees responded to the survey. The majority of the respondents were female (71%).

We wanted to ensure that we covered different business travel patterns within our survey. In this regard, we asked respondents how many annual business trips over 300 km they usually made either by plane or by train before the pandemic. This question received seventy-eight responses, with a majority (53%) of the respondents reporting 1-5 business trips per year via air travel. Thirty out of the seventy-eight respondents did not travel by air at all, while seven of the respondents (9%) had more than five business flights per year. Train trips were more common but still a majority of the respondents (55%) took one to five business trips per year.

We also aimed to cover different commuting patterns within the department. Therefore, we asked our respondents to answer how and how often they commuted to work during the previous year. Overall, forty-one per cent of our respondents commuted once per week on average during the previous year while twenty-nine per cent did not commute to the university at all. A total of thirty per cent were at the university two to four times per week while five per cent

commuted five to seven times per week. There were no obvious trends showing that work positions impact the amount of commuting people did. Transport modes were relatively evenly distributed, with fifty-two per cent using cars, while forty-five per cent cycled and thirty-seven per cent used public transport. Note that respondents could choose multiple options, which is why the total percentage exceeds 100. Also, the university's recommendations on working from home during this period changed as well, which could have had an influence on the answers.

3.2. Survey answers

3.2.1. General overview

The survey results showed that the changed work situation affected almost everyone, with just one respondent stating that they experienced no impact on their work (see Figure 1). A majority reported an overall positive or neutral experience of increased digital meetings and reduced longer business trips.

Figure 1. *How has an increased number of digital meetings and a reduced number of longer business trips affected your work in general? (76 respondents)*
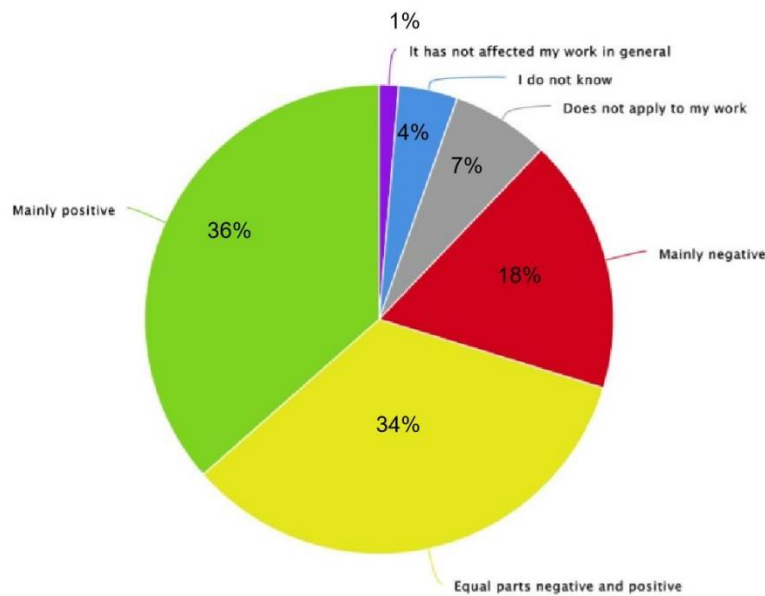
The impact on research was slightly different with eighteen respondents stating a neutral impact. The positive impact still outnumbered the negative effects but the difference was less pronounced compared to the previous question (see Figure 2).

Figure 2. How has an increased number of digital meetings and a reduced number of longer business trips affected your research? (70 respondents)
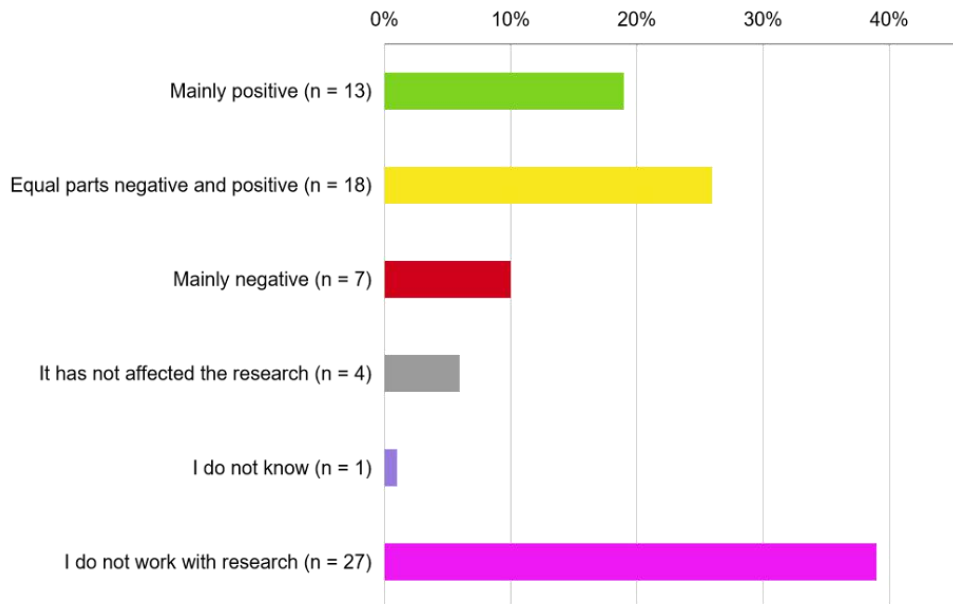
Comment sections throughout the whole survey provided multifaceted insights on positive and negative aspects of digitalisation (see Table 1). Increased attendance in meetings and seminars is the most mentioned pro, along with more disposable time and less stress due to reduced commuting. The most common negative impacts related to poor social and business networking, reported by over fifty per cent of respondents. Other negative aspects had to do with mental well-being as respondents found it difficult to deal with "Zoom fatigue". Some respondents complained about increased screen time causing physical inconveniences, such as neck and back pain. Many people also missed having meetings in person and said that digital meetings were more tiring.

Table 1. *The most mentioned pros and cons of increased digitalisation and reduced travel*

*quantity of mentions through the whole survey

Pros	**Opportunity to participate in more activities, meetings *50**
	Reduced stress and better quality of life *37
	Saving time in general *22
	More time to compile, analyse and publish data *18
	Easier to maintain ongoing contact with colleagues and partners *18
	Easier to establish new contacts *11
	More flexibility *9
Cons	**Deterioration of business networking *37**
	Deterioration of social interaction with colleagues *32
	Negative impact on health and general well-being *26
	Difficult to establish new contacts *24
	Failed to perform fieldwork and exchanges *17
	More difficult to attend project meetings *11
	Requires more energy. Extra work appeared *9
	More difficult to attend conferences, workshops and seminars *7
	Reduced quality of research *6
	Job has become less entertaining *4
	Restrained access to digital platforms in other countries *3

In regard to work activities, that could be replaced with digital alternatives in future most respondents believed that work tasks and events (except fieldwork and research conferences) can be at least partially replaced by digital solutions (see Figure 3). However, regardless of the activity, very few respondents leaned towards either extreme. The only exception to this was administrative meetings, where forty-four per cent of the respondents thought that 75-100% of all such meetings can be replaced by digital solutions.

Figure 3. What type of activities do you believe could be replaced with digital solutions after the corona crisis and to what extent? (40 respondents)
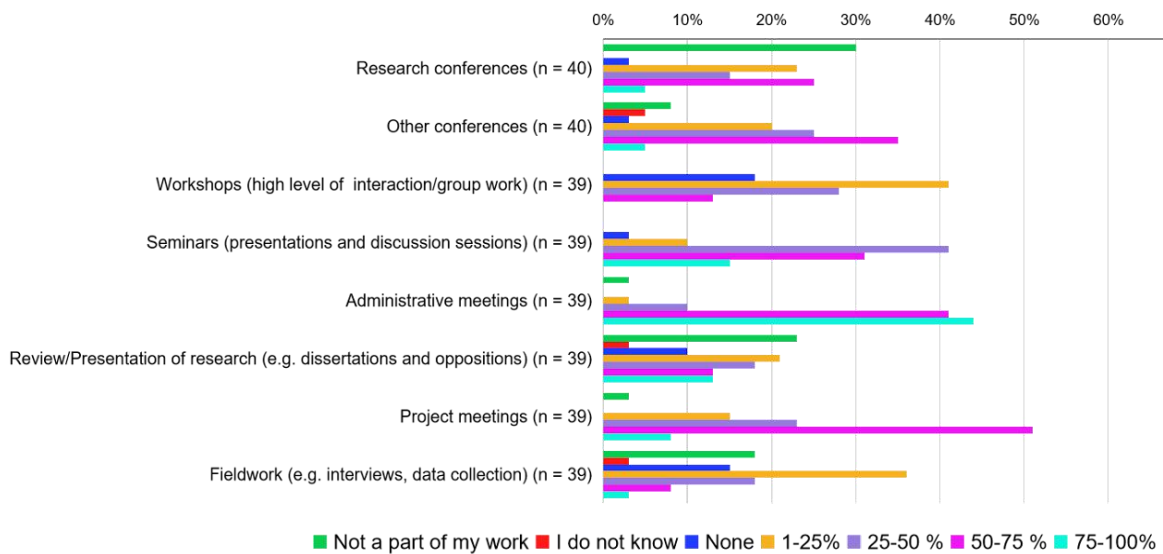
On the flip side, many of the respondents felt that workshops and fieldwork that require a high level of interactivity are more difficult to be moved online, with more than half stating that no more than twenty-five per cent of the activities can be moved online.

3.2.2. Networking, conferences and seminars

According to the survey results, sixty-three per cent of the respondents found it difficult to maintain ongoing contact with colleagues and research or business partners, fifty-nine per cent found it difficult to establish new contacts, while fifty-one per cent reported a negative impact on their ability to connect with colleagues.

In regard to online seminars and conferences, sixty-five per cent of the respondents stated that networking was impacted negatively while presentations were impacted positively (see Figure 4). Respondents thought that it was difficult to reach out to new people "without having a specific purpose or question", which makes it more formal and difficult to create social connections during online

events. One comment also pointed out that online presentations have suffered from reduced focus as people are now doing other work alongside them. However, another comment said that "a bad presentation is always a bad presentation" regardless of where it is delivered but added that "working online means that I pay more attention to the quality of my presentations."

Figure 4. How do you think the quality of conferences, workshops and/or seminars was affected by taking place digitally? (40 respondents)
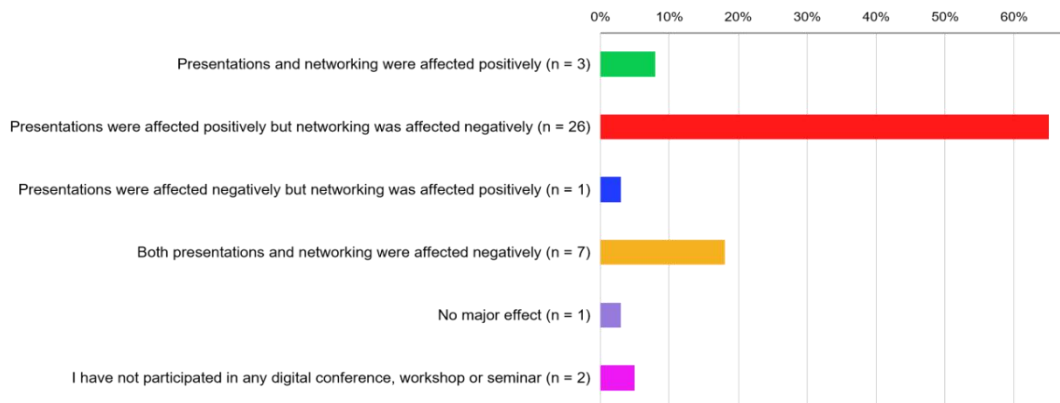
Diversity in the experiences of digitalisation is also highlighted in the answers about participation at online events as thirty-two per cent of the respondents participated in more conferences than they would have otherwise, while twenty-four per cent were able to attend a few of the ones planned (see Figure 5).

Figure 5. Have you been able to participate in digital versions of conferences, workshops and/or seminars you had planned to travel to during the travel restriction period? (41 respondents)
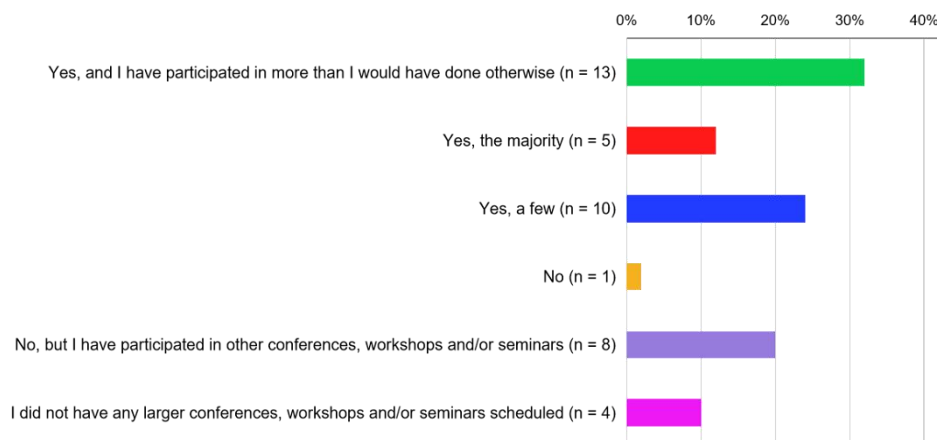
Comments stated that conference participation was impacted by cancellations but some also said that the range of conferences and seminars increased during the year. Others thought that the motivation to attend conferences diminished by autumn 2021 while the conferences that were still being held in person represented missed opportunities for collaborations.

3.2.3. International collaboration

While most people said that networking had been difficult, the process of initiating international collaborations was reported to have become easier but not as effective or efficient. There were slightly more respondents, who were attempting international collaborations and could establish new contacts online than those who could not (see Figure 6). One person noted that this was a tricky question to answer because it was difficult for them to know how easy or complicated collaborations would have been without the remote work.

Figure 6. Have you been able to initiate international collaborations during the travel restriction period? (30 respondents)
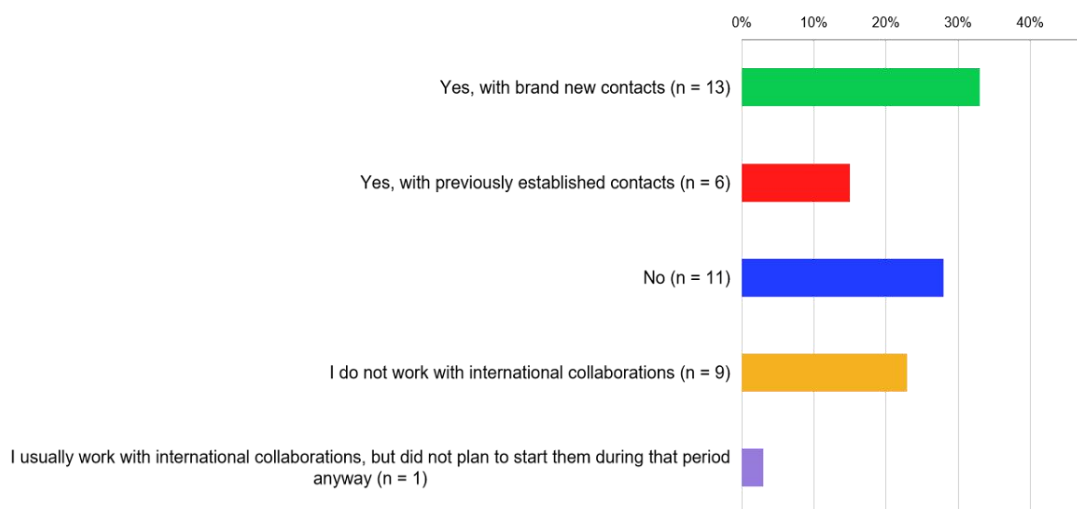
On the other hand, one respondent said that international collaborations "to some extent have been facilitated by the new digital meeting landscape", adding that they were able to deliver four international lectures because of digitalisation. Another respondent also highlighted new international collaborations that have come about due to the pandemic, stating that: "We have initiated an exchange of experience on distance solutions with other Nordic universities due to the pandemic."

3.2.4. Teaching

Regarding teaching, we cannot see a dominant trend among our answers. There are respondents that found it less stressful to deliver lectures online while some think that online lessons lacked quality compared to those at SLU's facilities. Seminars where students deliver presentations and receive feedback were said by some respondents to work better than their physical counterparts, alongside digital meetings. Something positive with digital teaching is that lectures could be recorded and distributed to the students.

However, teachers in our study also mentioned that it is important to keep 'a group feeling' in a class. It is possible online but requires extra attention when performed remotely. We elaborated on this aspect during personal semi-structured interviews (see Sections 4.1. and 4.2.). Also, since online teaching is a different mode of communication, there are reports where our informants wish to have workshops or guidelines about how to facilitate distance learning successfully. As one survey respondent summarised: *"Teaching in real life is better than via digital tools. However, lectures can be recorded and distributed digitally. Time in the classroom is important for seminars and practical work. Students need to get to know each other and their teachers to create a trusted 'safe space' for open discussion about complex issues"*.

3.2.5. Work at the university facilities

Thirty-six of the respondents stated that they wish to work from home to a certain extent (see Figure 7). The most common answer was to work from home half of the time, while only two respondents wanted to never work from home while one wanted to always do so. Other comments demonstrated a wish to choose when to work from work, depending on the tasks at hand.

Figure 7. How much do you wish to work from home in the future? (38 respondents)
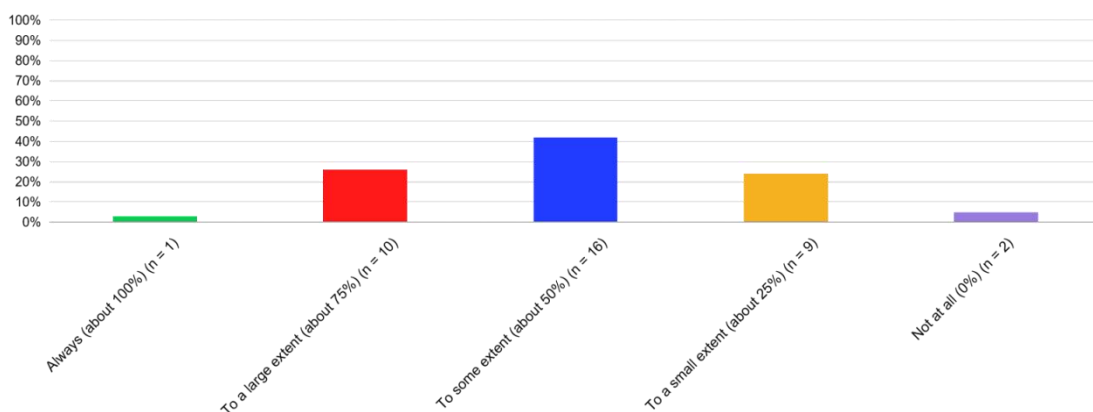
We also asked the respondents what kind of working space employees prefer to have at the university in the future if remote work continues to be part of the work situation (see Figure 8). Fifty-seven per cent wanted their own room at the university. Sixteen per cent of the respondents suggested their own options, e.g. "I can imagine sharing a room if needed" and "Need to have access to a computer and printer but not my own room". One person suggested having access to smaller bookable rooms that can be used for collaborations and supervision of students along with having their own zoned space for work. Another two respondents preferred working in open spaces, but others highlighted the difficulties of focusing when working out in the open.

Figure 8. *What kind of working space at the university facilities will you need if working more from home than previously? (37 respondents)*
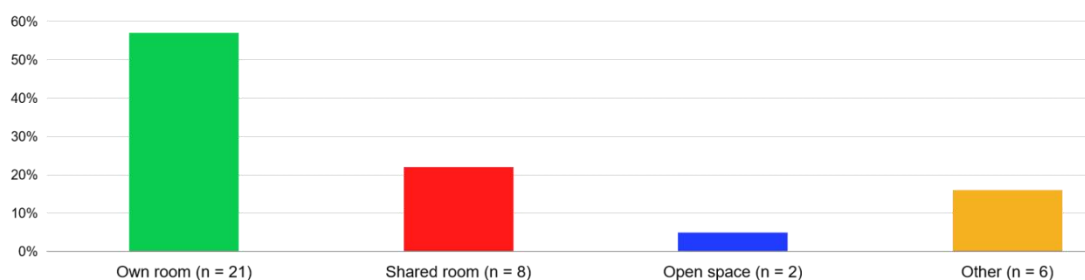
Many could imagine sharing a room if there is a possibility of being isolated when needed. Some respondents said that it depends on the colleague with whom you share the space. One person stated: "I think that your own room in the workplace is important. However, the workspace can of course be kept available to others when I am not there". Two people stated they do not consider working from home at all and want their own office at all times.

3.2.6. Visions of the future and university support

Thirty-one out of thirty-eight respondents answered that it is important that the university reduces its climate impact. The respondents seemed to mostly agree on this part but a comment suggested that what is "even more important is that we contribute to a positive development by strengthening the sustainability perspective in all teaching." Another respondent commented "should not be too much" of digital meetings even if they reduce the university's climate impact.

In regard, the responses to the question about further use of digital meetings showed that the biggest problem, alongside technical issues, is a lack of clarity and certainty (see Figure 9). Nearly sixty per cent of all respondents believe there is a need for better technical tools while forty-three per cent feel they require more technical support. Several respondents commented that "digital meetings are here to stay" but urged that "they must be developed technically". Others expressed frustration at colleagues who do not use collaborative platforms, such as Microsoft Sharepoint, to work on documents simultaneously, stating that "education is needed at the department". Another respondent pointed out that support for hybrid meetings is especially poor, saying that such meetings currently are not "very feasible".

Meanwhile, many respondents sought clarity and felt uncertain with the guidelines provided. Over forty per cent wanted clearer rules and incentives from the university, while sixteen per cent requested clarity from research funders. Respondents also appeared unsure of their roles within meetings and fifty-four per cent believe there needs to be clearer general routines for conducting digital meetings, with one respondent complaining that those leading the meetings tended to skip breaks.

Figure 9. *What would facilitate the continued use of digital meetings? (37 respondents)*
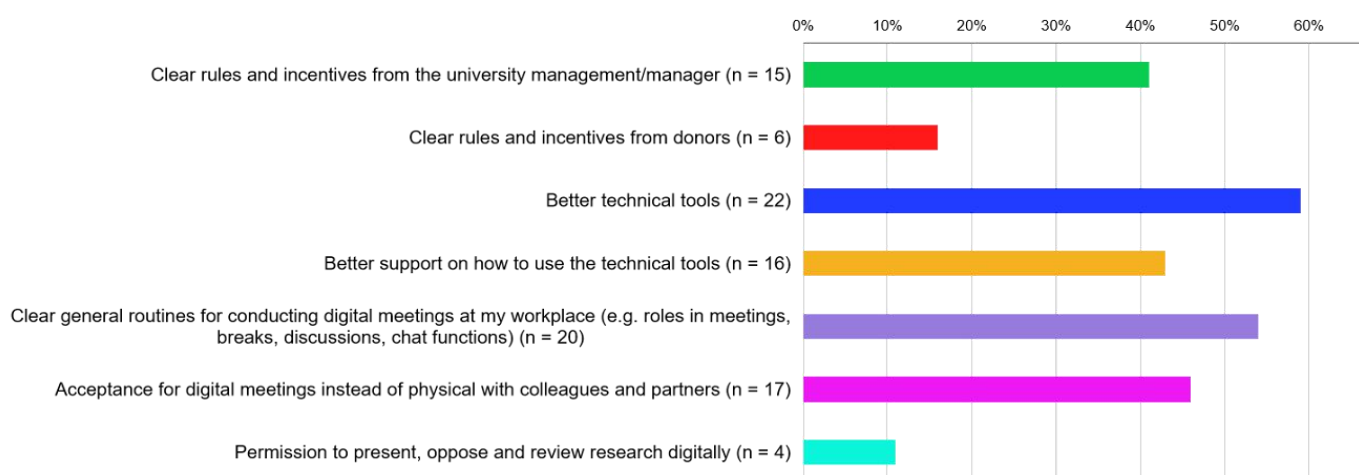
Forty-six per cent of the respondents would like digital meetings to become more accepted. This was reflected in a comment saying that outside parties often want a physical meeting instead of a digital one, and that "it can be hard to say no" when the rules are "unclear on the part of SLU".

Figure 10. What percentage of your longer business trips do you think you could replace, and are willing to replace, with digital alternatives in the future? (36 respondents)
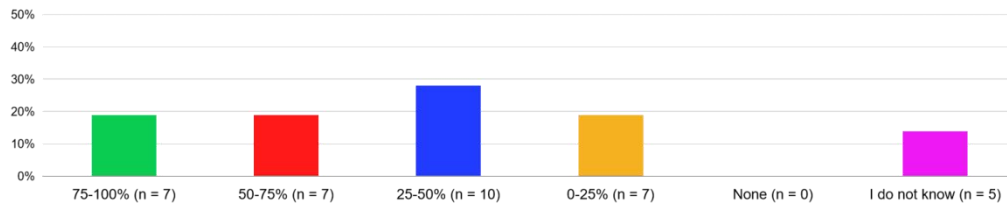
Eighty-six per cent saw the possibility of reducing at least some amount of their travels (see Figure 10). One of the respondents stated that: "Anything that is not possible [to travel to] by train should not be considered as an option unless [it is] online. The university should provide support and encouragement for this". However, another person stressed that fieldwork is always desirable to do onsite.

The survey ended with two open questions where respondents were asked to reflect on how digital solutions have substituted their offline work. There were forty-three answers suggesting different online solutions and tools used by the respondents. The most frequently mentioned (at least fifteen mentions) was the use of Zoom, which was referred to as being a comfortable tool for individual calls and teaching. For example, one respondent commented: "Some parts of the teaching was made easier with Zoom, including a higher participation of students and easy to do group exercises in breakout groups". However, two respondents stated that no digital tools can replace working offline and one of them concluded that Zoom cannot cover all the needs of the working process: "Zoom has been able to solve parts of my work in a good way, other things have clearly deteriorated". Other tools used were collaborative digital boards (such as Conceptboard and Mural), electronic document exchange and correspondence (e.g. EduSign, Microsoft Teams, Google Docs, OneDrive and Outlook), and digital presentations (Prezi, Google Presentations and Menti). Two respondents said that "replacing is not the right word", while several comments point out that SLU does not offer subscriptions to several desirable platforms.

The last question dealt with what support people needed from the university to reduce business travel, commuting and increased digitalization. The most common responses were: **(i)** better technical support and appropriate software at the university's facilities; **(ii)** better technical support and equipment for remote work from home, (such as screens, tables and ergonomic chairs); and **(iii)** better informational support from SLU, i.e. clear guidance on hybrid meetings, short courses about digital tools, online education and project planning. For instance, one person concluded that: "The support for distance education and guidelines has

been very weak from SLU". In relation to technical support, the need to work on hybrid solutions was mentioned the most, together with internet support and software licences. Other responses suggested rethinking the practicalities of meetings, understanding that online meetings are different and therefore might be shorter, less frequent and require a different approach.

Further, there were several suggestions to include an increased amount of wellness and travel compensations. The first could be provided by more breaks and visits to a naprapath or chiropractor. One of the respondents suggested having "two wellness hours per week due to less physical activity, [since] money (in the form of health care allowance) does not buy time". In relation to business travel, there was a suggestion to initiate discussion about bringing family members on longer trips. Respondents also sought better support from travel agencies when planning trips, monetary compensation for time spent travelling by train or working remotely. In particular, the latter included having "financial incentives for not using office space and thereby saving the department money".

In conclusion, a few of our respondents wanted encouragement of environmental efforts within the department and shared acceptance to work from home as a new norm. On the other hand, seven per cent of those who commented in the open questions do not want to consider reducing business travel and/or working remotely at all.

4. Results: Interviews

In this section, findings of the interviews are presented in four themes. We interviewed fifteen people with various roles in the SOL department. The results from the interviews indicated that digitalisation is considered a new norm at the department. Many informants perceived the possibility to join various conferences and the increased attendance on digital conferences as positive. However, participants were generally not as engaged in digital conferences as in physical conferences. Further, the results showed that informative meetings worked well online but meetings that required brainstorming and spontaneity did not. Fieldwork was considered almost impossible to carry out online while informants asked for clearer guidelines on how to conduct hybrid meetings. Lastly, the results showed that mental and physical health was negatively impacted.

4.1. Digital interaction and remote work

In general, digitalisation was described as 'a new norm' and/or 'feasible' by the majority of our interviewees. Digitalisation of paperwork and administrative meetings were described frequently as 'working well' or 'better than usual'. Most of our interviewees who commuted to the university during 2021 stated that they mostly did so for paperwork. At least two informants stated that printing and signing documents were especially challenging at the beginning of the restrictions, but that increased digitalisation decreased their commuting time:

> "Signing of contracts and all the paperwork is just way easier to do online. [...] People are just sometimes stuck in what they did for twenty years," concluded one of them.

At least seven interviewees cited administrative meetings as examples of what worked well digitally. This was because digital meetings have kept employees updated without wasting time on commuting while also being easily accessible to more participants:

> "I think the Wednesday [weekly department] meetings are a good example of things that have actually been very good to the whole department. Suddenly, instead of twenty people, we have seventy people participating," shared one of the respondents.

The majority of our interviewees mentioned the possibility of joining various digital international conferences and seminars as one of the positives of digital work. Twice this perspective was complemented by the idea that it has become possible because certain levels of forced digitalisation also occurred at many other institutions, including those abroad. However, there were also opposite reflections on how networking at international events and projects has been influenced negatively by digitalisation. For instance, three respondents expressed that international cooperation was feasible only within established cooperation. Suggestions of how international collaboration could be improved and result in fewer long business trips were also provided. For example, delegation of tasks such as fieldwork to overseas colleagues might make international projects more viable, but for different reasons it was not always possible or encouraged:

> "I think we should explore much more local collaboration that allows people there to actually go and collect the data, instead of us having to travel there. And that hasn't really been done to enough extent so far. But also it's been difficult, like funders in Sweden don't allow us to pay people abroad sometimes for working on our projects."

In contrast, at least two people said it had been possible to have international collaboration with brand new contacts during the pandemic, and that it worked better than expected. For instance, one of them stated:

> "It's been working better and better. [...] In our PhD course that I developed this spring, because it was digital, it enabled us to have participants from all over the world: Europe, Africa, Canada, and Costa Rica."

Meetings in pairs were generally mentioned as 'working well enough' and even as 'working better' but meetings that required brainstorming and collaboration were generally referred to as 'not working well', 'draining' and 'losing efficiency'. The interpretations of what is considered as 'not working' differed across responses. The most common reason was that in-person discussions are more conducive to spontaneity and creativity while digital meetings require unmuting before speaking, which makes communication 'formalistic'. Additionally, at least four respondents pointed out that speaking and facilitating in a physical setting is easier since it is possible to gauge body language as well as the mood of the room:

"In my work, it's hard to have some kind of brainstorming activity if you want to be really creative. You need to be able to just say things right out in the air. It's more limited [in video meetings] and it's like in a box," concluded one of them.

An example of brainstorming not working online was discussions on data gathering and information storage within social science research at SLU:

"Those kinds of discussions, we didn't want to continue on Zoom, because we thought we needed more possibilities to be more spontaneous and we needed to talk in small groups more."

Onsite fieldwork was always described as 'the most challenging' or 'impossible' task to carry out remotely. Solutions to such situations were change of research case, delegation of certain responsibilities to other colleagues and an increase in online meetings. This difficulty was exemplified by two respondents from different divisions:

(1) "Maybe we have different views on what is good research and how to collect data, and so on? At least in the disciplines where I'm working, it's quite important that you, who's going to analyse the data and draw conclusions, actually have been there, and looked at the local situation, understood it and talked to the people yourself."

(2) "Before the pandemic, we were able to travel to various Swedish development projects to meet people in the field. Farmers, fishermen, foresters, indigenous people — how have they been benefitted or negatively affected by these projects. Now in order to meet beneficiaries we have to… we are trying to meet with them digitally which is almost impossible as they have limited access to digital infrastructures."

There were contrasting experiences of digital teaching, with some interviewees reporting reduced stress when delivering lectures online while others believe interactions beyond the lectures have lost 'quality' due to reduced levels of student involvement. One of the teachers, who joined the university during the pandemic restrictions, said that:

"It is frustrating because you don't know how much of what you are saying arises with students, to which level you can have dialogue or exchange. So I think it becomes much more monotonic, less interactive, and I believe that in person contact is super important for sort of shaping a community."

4.2. Understanding of participation, inclusion and involvement

Increased attendance at digital seminars and conferences compared to physical counterparts is also one of the positive aspects brought up by our informants:

> "We have several conferences and seminars per month, actually. And most of them have been digital, and that's been working perfectly fine. It's really nice because our network extends from the southernmost part of Sweden to the northernmost part of Sweden," stated one of them.

The increased attendance was not only limited to conferences. PhD students conducting international research also discussed the benefits of being able to meet multiple supervisors simultaneously.

However, while attendance generally increased across different kinds of meetings and activities, there were concerns about the quality of participation. For example, our informants mentioned that it can be difficult to stay engaged in online meetings: that it is easy to start checking emails in meetings with many participants, to lose other participant's attention. Besides, two respondents discussing administrative meetings mentioned that there is a loss of informal talks, which existed previously and nurtured communication within the department:

> "You can go to a meeting, and no one will notice that you're there, because you can only see twenty people at the same time. And most of us do not have cameras on. I mean, it's a meeting that becomes only for information. Before it was also an occasion that people gathered in the room, and there might be new employees, and at least someone would say 'Oh, who are you?''

The lack of engagement also made it tough for those facilitating qualitative research and discussions in groups. The interviewees found that these meetings exacerbated participation imbalances since those uncomfortable speaking up found it even more difficult to do so digitally. This was highlighted by five interviewees, with one of them stating:

> "Hierarchies become much more prominent when people are online. People higher up in the hierarchy were more likely to take the word. Body language and lack of eye contact for example makes it harder to notice if someone would like to comment or say something. It also becomes a lot more difficult to facilitate meetings as well."

Yet, three interviewees mentioned that keeping 'a group feeling' within work tasks, such as for data gathering and teaching, is possible but requires different approaches. One of the interviewees provided an example:

> "During the research project that I mentioned, we worked much more with actually acknowledging, recognizing who we were, and tried to have these check in questions and check out questions. And also to be sure that they actually approach everyone with them. We were more aware of that we had to do something to create the group feeling."

Meanwhile, all informants felt that digital alternatives for informal interaction 'did not work well' or 'did not work at all'. Examples of such failed endeavours included fika-breakout-rooms in Zoom or dedicated informal meetings or so-called 'digital parties'. However, some felt online fikas were at least better than nothing by providing regular contact to colleagues at different geographic locations even if they did not work as intended:

> "I believe that if we were in person we would have a lot more exchange during fika, during lunch, maybe during seminars when you can just have a chat for five minutes before or afterwards. I think that creates a lot more connection, that makes the basics for shared working. So I think there is a case for being on campus and sort of having physical interactions with colleagues because I think those casual interactions make you understand what other people are interested in and you are more able to relate to that and to connect and make new ideas of what you want to work with in the future."

More than half of our interviewees also expressed a feeling of alienation from both their coworkers as well as their organisation. These answers were complemented by phrases like 'loss of SLU's identity', 'weakening connection to SLU' and 'weak group belonging':

> "I would say if someone asked me I wouldn't say that I'm working at SLU, I would say I'm working with these and those issues, because it becomes much more rooted in my research projects than I am at some SLU school," one person shared.

Trust building was also considered difficult to carry out online. Trust was portrayed as a key factor for successful coworking by several participants, who said that it was hard to build trust from scratch online:

> "It is the things around: the humor, how you respond, if they are ironic, sarcastic, if they want to do things certain ways, if they are pedants. Things that you cannot spot and see on a video. Of course, there are some things you can do, but it is not as easy. People are more complicated than their work. That part is so underestimated," an interviewee said.

Meanwhile, two respondents felt there has been a reduction in quality of academic cooperation and a certain degree of exclusion caused by the reduction of business trips. This perspective is expressed in the following quote:

> "My colleagues in the sector I work with are experiencing the same situation so we have been on the same level not being able to travel, sort of raced to the bottom. We have experienced the same setback. And the small elite of researchers or development cooperation officers were able to travel and sort of left the rest of us, office workers, behind. Nobody has left an inch in these two years you could say. We have lost competence and the ability to acquire new experiences and new relationships with other geographical and political contexts."

In conclusion, respondents with leadership responsibilities shared that informal talks 'in corridors' and coffee breaks are important to gauge if someone is overburdened or not feeling well. Interviews with people carrying out administrative tasks also showed that it is only possible to support employees if their needs are successfully understood, and that understanding those needs can be more difficult online than in-person.

4.3.   Support from the employer and visions for the future

While all informants stated that they received some informational support, they still expressed that there was an absence of clarity around existing guidelines over hybrid meetings and project planning. In relation to hybrid meetings, the most common problems were in deciding when and how to execute them, as well as a lack of facilitation and technical support. One of our informants shared:

> "Central decisions from the principal or heads come quite late and, as a teacher, you have to have already decided those things. For example, now, we meet at campus but, there are a lot of students that for different reasons, don't want to come. What do we do with that? I mean, as a course leader, I get that question each week [...]. They say that, well, it's up to you as a teacher to buy some kind of second camera, web camera and then arrange them by yourself in the room."

In regard to project planning, interviewees wished to get advice and inspiration on how to reduce emissions within research from colleagues and the administration. As a solution, short courses and/or workshops were mentioned by two respondents:

> "I'm thinking now that SLU should reduce [emissions by] sixty per cent. So we should have a workshop now thinking how do we rethink our projects? I mean, it's not just taking away one trip. Another is you have to rethink our projects at the planning stage," said one of them.

Some participants explained that they prefer to work at the university due to the better facilities available. Living conditions played an essential role in this case since the ability to allocate a dedicated working space at home differs from person to person. It is also considered important by at least seven respondents to keep their office space, or at least have some dedicated spaces where they know that they can sit if and when they do come into work:

> "It was different during 2020. Actually, I choose to sit at work. Because I'm living in a pretty small apartment. I'm occupying my kitchen table now, so I can't do anything else here. I chose to sit there [at work] because it's ergonomic, you have a better chair, better table. I easily get an aching neck or back."

Moreover, there were interviewees wishing for a travel agency with better knowledge of how to plan trips by train. In particular, they wanted an agent who could provide different alternatives, such as routes, time spent at changing trains and stopovers as well as help when trains are delayed or cancelled.

> "Once I travelled to Germany and asked for a night train and they [the travel agency] said that it wasn't possible. But afterwards I heard that others had travelled there by train and then I found out they had just taken another route," complained one of our interviewees.

Another need expressed by the respondents was the development of different policies for differing projects and work tasks. That included guidelines on which business trips should be prioritised:

> "I think they would need to have clear guidelines on why and who needs to cut [emissions/trips] down. For example, it's difficult for them to just say that everybody needs to have a certain amount, because it's different if somebody goes to a conference, or has to collect their data. […] I think we also should get incentives to cut down on our travels, even if we have more of a need for travelling than some others," suggested one of our respondents.

Lastly some respondents asked for financial compensations for travel time and work from home.

4.4. General well-being

At least half of the interviewees mentioned the negative impact of remote work on their mental and physical health. Some of the mentioned downsides were reduced attention and focus and increased fatigue. "Some research shows that [working online] demands more cognitive work from you. I feel more tired when I have digital meetings," said one respondent. Another issue was the blurring of lines between work and personal time, with people finding it more difficult to relax

during their downtime when working from home. As one of our interviewees shared: "It is nice to be at the office. When you're working from home, there are no clear time boundaries between what you're doing".

However, at least four interviewees saw the benefits of decreased commuting through reduced stress and ability to spend more time with family. "I'm not so sure that the efficiency is lost, because for me, the stress is reduced at first because I don't have to commute," said one of them.

5.   Discussion

In the following section, we reflect on received data. We start with a comparison to the previous SLU's report by Smidvik et al. (2020) where applicable. Further we summarise on how SOL's employees envision work in the future. The section concludes with recommendations.

5.1.   Comparison to the previous study

In 2020, Smidvik et al. conducted a study at several departments at SLU, while this study only was made at SOL. Despite this, there were certain similarities with the previous report in terms of what tasks have worked better or well enough digitally.

According to the results of both the survey and interviews, brief administrative and project meetings, where the purpose is to provide updates, are still the most popular examples of what can to a large extent be executed digitally after the pandemic. However, those meetings requiring group collaboration generally remain difficult to perform or lose quality on digital platforms.

In this regard, digital tools for collaborative work such as Zoom, Office 365, Google Docs, Robin, Conceptboard and Mural were mentioned to ease digital group work to a certain extent, but not all of them are provided by the university. Additionally both the survey respondents and interviewees reported that consistent support in the form of short courses and better IT assistance from the employer is still lacking.

Another correlation we see with the previous report in relation to work tasks is that fieldwork has remained difficult or impossible to perform. The latter refers to **(i)** fieldwork that requires observations onsite; and **(ii)** fieldwork that requires conversations with people with limited digital access. A few times, it was also described as difficult to conduct fieldwork within ongoing projects. Additionally, there were examples when our respondents postponed certain projects even after

one year of restrictions or have changed their case study because of a ban on business travel.

Further, networking is generally described as being affected negatively. This relates to business communications, with a few exceptions, and to informal communications with almost no exceptions. The variety of answers showed that any kind of digital informal communication lost its dynamic and purpose after a while. Besides, international collaboration was stated to be digitally feasible predominately (40%) with established contacts in the previous report. This year's interviews showed there were a few success stories about creating new international contacts this year as well. The mentioned cases relate to PhD education, where students helped each other with accessing course literature while frequently asking questions and interacting during events to ensure participation remained high.

Lastly, respondents also preferred to sign documents digitally now. In general, paperwork, especially within administrative tasks, has been one of the main reasons to commute to the university facilities by most of our interviewees. During this year, the situation has improved by the use of electronic signatures.

5.2. Visions of the future: needs and wishes

The dichotomy and diversity between responses showed how important it is for people to have flexibility regarding their work patterns and schedules within a reasonable threshold. Responses to how employees wanted to continue working in the future ranged across both extremes, as some saw no point in going into work unless necessary while others dismissed continuing working from home altogether. Our findings suggest that personal preference can be impacted by various factors — some of which are outside of the university's control — such as the quality of the internet, working conditions at home, personal and social preferences as well as the nature of work. Most respondents found positives and negatives in both solutions and therefore would appreciate the freedom to come up with a solution that works best for them.

There were also outliers on both extremes, with some people not seeing any benefit at all in remote work while others were eager to continue remote work indefinitely. Most respondents though were somewhere in the middle and were willing to accept digitalisation to some degree as long as they were provided the right tools, compensation and support. These needs can vary depending on the type of activity and the amount of interaction it requires, how sensitive the

discussed topics are as well as whether the participants will continue meeting in the future. Hence, employees and projects have different needs and it is crucial to consider this when opting for increased digitalisation and creating guidelines.

Overall, employees wished that SLU would have clearer policies and guidelines within different areas. This included routines and norms to work from home, clear guidance regarding what kinds of business trips are to be prioritised and on when to have hybrid meetings, lectures, seminars and workshops. Another area that needs rethinking regarding guidelines and policies are compensations and incentives, e.g. for more sustainable choices when travelling.

To be able to work well from home is also a matter of space and health. While some employees have a lot of space, others cannot accommodate an adequate working station at home. For several of our informants, a sufficient working station would include a secluded space and equipment such as a table, an office chair and in some cases multiple screens. Furthermore, some employees expected SLU to provide two sets of office equipment to have sufficient working stations both at home and the office. The provision of two sets of office equipment would, however, increase the environmental impact of the university, which also needs to be considered. Additionally, increased digitalisation tends to lead to increased screen time, which has led to several physical inconveniences during the pandemic. While some troubles can be solved with more frequent breaks, some employees said they would benefit from extended wellness grants, which would cover visits to chiropractors or more paid wellness hours for rest.

When commuting by car to the university's facilities, better charging stations for electrical cars are expected. Additionally, the respondents suggested that higher parking fees are desired as incentives to use bikes for commuting. When working at the university, secluded spaces for meetings and improved meeting rooms equipped for hybrid meetings are important. The majority of the respondents wanted to have their own room at the university but some expressed a willingness to share their space when they are not present.

Employees also wanted IT support to be more adapted to distance work, alongside the provision of new software and licences. In addition, employees sought support from a better travel agency aimed towards the incentivisation of train travel.

5.3. Other issues to consider

The respondents' visions for future work are diverse, ranging from going back to work as it was before the pandemic to working from home as a norm. Hence the question arises: how can SLU and its employees align their business travel to their climate goals while also listening to those who feel discomfort with the new norm of increased digitalisation, distance work and reduced travel? Since research projects at SLU aim to produce knowledge for sustainable societies, multiple aspects need consideration in relation to business trips. Can long-distance trips be justified if they contribute to a long-term perspective for sustainable societies and do more good than harm? Can we achieve the same results with less emissions? These are some examples of questions that could be discussed in relation to guidelines and prioritisation of travel.

A frequently recurring theme in both interviews and survey answers is participation. However, participation is mentioned in different contexts, for example having access to international conferences around the world, the number of participants attending, and engagement in seminars and workshops. The overarching conundrum with participation via digital solutions seemed to be that while the total quantity of participants increased due to ease of access, quality of participation in terms of interactivity, comfort and efficiency decreased. This conclusion is also reflected in that a majority of the respondents found presentations worked better while networking suffered. Presentations where sharing information is the main objective worked well while interactive seminars and workshops did not. Hence, we suggest thinking of participation as a multi-faceted phenomenon where the focus is not only on the number of participants but also involvement in activities, since a larger number of participants does not necessarily increase quality.

Meanwhile, there is also a risk of segregation in the future between employees who work more often from home and those who work more often from the office, since feelings of group belonging and shared contexts are largely different. Therefore, it is important to make sure that SLU's guidelines and policies support a healthy working environment while also affording employees a certain amount of freedom and autonomy.

6.   Concluding remarks

The purpose of this report is to gather insights from the work experience at the SOL department at SLU during the restrictions period, including the impact of increased digitalisation, remote work and decreased business travel and commuting. It is a mixed-methods study, which demonstrates gathered empirical data within the survey and interviews conducted at SOL in the fall and winter of 2021.

The results suggest insights on what activities worked better or well enough digitally, i.e. documentation, presentations, administrative meetings and updating projects meetings. However, there are activities which remain difficult or impossible to perform remotely, such as fieldwork and networking. Among new issues are increased need for solid informational support from the employer, such as clear guidelines on hybrid meetings, project planning and travel planning (e.g. sufficient support from travel agency), as well as wishes to have short courses on facilitation techniques and digital tools. Besides, alienation and segregation among the employees have appeared to be intensified during the last year.

To conclude this report, we have summarised suggestions to consider, compiling insights from both the results and discussion (see Figure 11).

Figure 11. *Recommendations*

SUGGESTIONS

REMOTE WORK

- Giving employees the opportunity to partly work from home.

- Meetings with the objective to distribute information or provide updates are preferred to be online.

- Ensuring that employees have an adequate office at home.

OFFICE SPACE

- Increasing the quality of hybrid meetings by providing clear guidelines and IT support.

- Offering onsite activities to build and nurture the feeling of group belonging.

- Reducing number of online meetings that include a considerable amount of social interactions.

SUPPORT

- Initiating dialogue about incentives for decreasing emissions from business trips.

- Offering licences and workshops for appropriate use of digital tools (e.g. Zoom, EduSign, EndNote, Conceptboard, Mural, Office 365).

- Offering short courses on **(i)** planning to reduce the environmental impact of projects and other activities **(ii)** online teaching and **(iii)** facilitation in digital environments.

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Acknowledgements

Appendix 1 SLU's action plan 2021 (Handlingsplan resmål)

Åtgärd/Aktivitet	Ansvarig (**fetmarkerad** har samordningsansvar)	Med vilka resurser	Tills när ska det vara gjort?
Infrastruktur			
SLU:s strategiska fokusområde *3.2 SLU i det digitala samhället* innehåller många beröringsytor med det här målet, se delkomponenter a-d.	**Universitetsledning**	Befintliga	utgången av 2022
Utreda möjligheten att skapa infrastuktur för högkvalititativa konferenser m.m. på alla huvudorter med t ex inspelningsstudio.	**Universitetsledning**	Befintliga	utgången av 2022
Utreda restidsavtalet. Skapa reseersättningsregler som är lika och tolkas liknade över hela SLU och som gynnar icke fossila transporter.	**Personalavdelningen**	Befintliga	utgången av 2022
Kontinuerligt avtalat samarbete med resebyrån angående kompetens vad gäller miljöeffekt och alternativa resvägar och transportmedel.	**Miljöenheten** och Personalavdelningen	Befintliga	kontinuerlig
Kontinuerligt avtalat samarbete med tågbolag angående biljetter, rabatter, tidtabeller och statistik.	**Miljöenheten** och Personalavdelningen	Befintliga	kontinuerlig
Utvärdera efterlevnaden av reseriktlinjerna och beslutstrappans samt deras effekt på målet.	**Miljöenheten** och Personalavdelningen	Befintliga	utgången av 2023
Fortsätta utveckla digital infrastruktur i framkant.	**IT-avdelningen**	Befintliga	kontinuerlig
Kompetensutveckling av medarbetare, inklusive utbildning för nyanställda, för att kunna hantera digitala möten.	**IT-avdelningen** och chefer	Befintliga	kontinuerlig
Utreda möjligheten att skapa riktlinjer för helt eller delvis digitala disputationer.	**Rådet för forskarutbildning**	Befintliga	utgången av 2021
Undersöka möjligheten om det i bokningssystemet går att visa olika resealternativ och tillhörande koldioxidutsläpp.	**Miljöenheten**	Befintliga	utgången av 2022
Utreda möjligheter att europeiska utbytesstudenter i första hand bör resa med tåg till oss. Det kan vi göra tex genom ett tilläggsstipendium för tågresor.	**Utbildningsavdelningen**	Befintliga	utgången av 2021
Fortsätt föra dialog med finansiärer för att se hur klimatpåverkan från forskningsprojektets resor kan minska.	**Avtalsansvariga**	Befintliga	kontinuerlig

	45		
Beteende och arbetskultur			
Samarbeta med andra universitet i frågor rörande beteendeförändringar och effektivisiering gällande resor via t ex SUHF.	**Universitetsledning**	Befintliga	kontinuerlig
Ledningspersoner på olika nivåer bör gå före och visa gott exempel i val av resor. Detta bör också kommuniceras i organisationen.	**Chefer** och Kommunikationsavdelningen	Befintliga	kontinuerlig
Tillsammans med resebyrån utreda möjligheten att skapa en CO2-kalkylator där man vid bokningstillfället kan se hur mycket utsläpp tjänsteresan kommer att gett upphov till.	**Miljöenheten**	Befintliga	utgången av 2023
En beslutstrappa på fakultets- eller institutionsnivå där fakulteterna prioriterar vilka resor som är viktiga.	**Fakultetsledning/ institutionsledning**	Befintliga	utgången av 2022
Kontinuerligt kommunicera reseriktlinjer och mål för tjänsteresor samt uppföljning av statistik.	**Miljöenheten**	Befintliga	kontinuerlig
Lägg med frågor om tjänsteresor i mall för medarbetarsamtal med avseende på arbetsmiljö, säkerhet och miljö.	**Personalavdelningen**	Befintliga	utgången av 2021
Utvärdera effekterna av nya resemönster efter Coronapandemin. Vad har fungerat bra och mindre bra inom verksamheterna, vad har det fått för konsekvenser för kvalitet och arbetsmiljö?	**Fakultetsledning/ institutionsledning**	Befintliga	utgången av 2022
Utvärdera handlingsplanens effekt på målet och justera minst vart annat år.	**Miljöenheten** och Personalavdelningen	Befintliga	utgången av 2022
Utsläpp när vi ändå flyger			
Utreda möjligheten att införa en koldioxidbudget på institutions- och avdelningsnivå.	**Miljöenheten**	Befintliga	utgången av 2023
Utvärdera och anpassa klimatfonden för bästa effekt.	**Miljöenheten** och klimatfondens styrgrupp	Befintliga	utgågnen av 2022
Undersöka möjligheten att köpa grönt flygbränsle.	**Miljöenheten** och SLU:s ledning	Befintliga	utgången av 2021
Undersöka möjligheten att köpa utsläppsrätter som kompensation.	**Miljöenheten** och SLU:s ledning	Befintliga	utgången av 2021

Appendix 2 Survey

The purpose of this study is to gather insights from remote work at SOL during and after the pandemic. We believe that it will help us highlight the needs and opportunities of employees in the face of future transformation needed to reach a sustainable future. This includes SLU's environmental objectives and travel policy and can thus harvest new thoughts from the collective experience of increased digital- and remote work.

The questions below are to determine whether digital options have worked well enough, better or worse than their physical counterparts, and whether there are activities that have been impossible to carry out digitally. The survey questions about the previous year refer to the period from September 2020 till September 2021. We also include questions about your future preferences regarding work from home, travel to SLU and on business trips.

All information you provide is protected and anonymous. Your answers will be processed so that unauthorized persons cannot access them. By answering all questions and pressing "submit" at the end of the survey, you consent to your answers being used in a compiled report.

The questionnaire takes about 10-15 minutes to answer.

Please comment/ clarify your answers where possible, it would help us to get a fuller picture of your experience.

Page 1.
Background questions

Age
A. Under 30
B. 30-39
C. 40-49
D. 50-59
E. 60 or older

Gender
   A. Woman
   B. Man
   C. Non-binary
   D. Other alternative
   E. Uncertain
   F. I do not want to answer

Title (changed to alphabetical order)
   A. Title (changed to alphabetical order)
   B. Administrative staff
   C. PhD
   D. Researcher/Teacher
   E. Postdoc
   F. Professor
   G. Other academic staff

Page 2.
How many business trips over 300 km* did you usually make per year before the pandemic? *counts as a round trip*

By airplane
   A. More than 20
   B. 10-20
   C. 5-10
   D. 1-5
   E. 0

By train
   A. More than 20
   B. 10-20
   C. 5-10
   D. 1-5
   E. 0

Page 3.
Commuting

How many days on average per week have you been commuting to the university facilities during the previous year?

    A. 5-7
    B. 4
    C. 3-2
    D. 1
    E. 0

(if a-d) How have you been commuting to the university facilities during the previous from September 2020 till September 2021 (it is possible to choose more than one option)?

    A. By car
    B. Cycling
    C. By foot
    D. Public transport
    E. Other (clarify)

Page 4.
Survey questions

1. How has an increased number of digital meetings and a reduced number of longer business trips affected your work in general?

    A. Mainly positive
    B. Equal parts negative and positive
    C. Mainly negative
    D. It has not affected my work in general
    E. I do not know
    F. Does not apply to my work

Comment:

2. How has an increased number of digital meetings and a reduced number of longer business trips affected your research?

    A. Mainly positive
    B. Equal parts negative and positive
    C. Mainly negative
    D. It has not affected the research
    E. I do not know
    F. I do not work with research
Comment:

3. If there are positive aspects, what are the main reasons for these? You can choose several options if you want and add other aspects in the comment field.

A. More time to compile data, analyze and publish
B. More time for interaction within the research group (e.g. with doctoral students/supervisors/co-workers)
C. Easier to attend conferences/workshops/seminars
D. Easier to maintain ongoing contact with colleagues and partners
E. Easier to establish new contacts
F. Indirect positive due to reduced stress in work and better quality of life (e.g. more time for family/friends)
G. No positive aspects
H. Other (please clarify)

Comment:

4. If there are negative aspects, what are the main reasons for these? You can choose several options if you want and add other aspects in the comment field.

A. Failed to perform fieldwork and exchanges (longer stays)
B. More difficult to attend project meetings (shorter stays or daily meetings)
C. More difficult to attend conferences/workshops/seminars
D. Digital conferences/workshops/seminars lack quality
E. Difficult to maintain ongoing contact with existing colleagues and partners
F. Difficult to establish new contacts
G. Negatively impacted my ability to connect with colleagues
H. Impacted my mental health negatively due to isolation and zoom fatigue
I. No negative aspects
J. Other (please clarify)

Comment:

5. Have you been able to participate in digital versions of conferences, workshops and/or seminars *you had planned to travel to* during the travel restriction period?

A. Yes, and I have participated in more than I would have done otherwise
B. Yes, the majority
C. Yes, a few
D. No
E. No, but I have participated in other conferences, workshops and/or seminars
F. I did not have any larger conferences, workshops and/or seminars scheduled

Comment:

6. How do you think the quality of conferences, workshops and/or seminars was affected by taking place digitally?

    A. Presentations and networking were affected positively
    B. Presentations were affected positively but networking was affected negatively
    C. Presentations were affected negatively but networking was affected positively
    D. Both presentations and networking were affected negatively
    E. No major effect
    F. I have not participated in any digital conference, workshop or seminar
Comment:

7. Have you been able to initiate international collaborations during the travel restriction period?

    A. Yes, with brand new contacts
    B. Yes, with previously established contacts
    C. No
    D. I do not work with international collaborations
    E. I usually work with international collaborations, but did not plan to start them during that period anyway
Comment:

8. What type of activities do you believe could be replaced with digital solutions after the corona crisis and to what extent? Please use the comment section to elaborate on your estimations. (Answers are given as a percentage in the table: Not a part of my work, I do not know, None, 1-25, 25-50, 50-75, 75-100%)

    A. Research conferences
    B. Other conferences
    C. Workshops (high level of participant interaction/group work)
    D. Seminars (presentations and discussion sessions)
    E. Administrative meetings
    F. Review/Presentation of research (e.g. dissertations and oppositions)
    G. Project meetings
    H. Fieldwork (e.g. interviews, data collection)
Comment:

9. What would facilitate the continued use of digital meetings? You can choose several options if you want and add other aspects in the comment field.

    A. Clear rules and incentives from the university management/manager
    B. Clear rules and incentives from donors
    C. Better technical tools
    D. Better support on how to use the technical tools

E. Clear general routines for conducting digital meetings at my workplace (e.g. roles in meetings, breaks, discussions, chat functions)
F. Acceptance for digital meetings instead of physical with colleagues and partners
G. Permission to present, oppose and review research digitally

Comment:

10. Is it important for you that your university or college reduce its climate impact by looking at travel policy, use of facilities and digitalisation?

A. Very important
B. Fairly important
C. Not so important
D. Unimportant

Comment:

11. What percentage of your longer business trips do you think you could replace, and are willing to replace, with digital alternatives in the future?

A. 75-100%
B. 50-75%
C. 25-50%
D. 0-25%
E. None
F. I do not know

Comment:

12. How much do you wish to work from home in the future?

A. Always (about 100%)
B. To a large extent (about 75%)
C. To some extent (about 50%)
D. To a small extent (about 25%)
E. Not at all (0%)

Comment

13. What kind of working space at the university facilities will you need if working more from home than previously?

A. Own office
B. Shared office
C. Open space
D. Other

Comment:

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Suggestions and ideas

14.What new forms of online software/digital solutions have been able to substitute your offline work? *(e.g. how more sustainable international work can be developed; effective learning be conducted; project planning etc.)*
Comment:

15. What kind of support do you expect from the university while reducing business travel, commuting and increasing digitalization?
Comment:

Appendix 3 Interview guide

Inform of:
- Nothing will be linked to the personal information of a respondent. We might publish work positions.
- Is it ok to record the interview? Anonymised transcripts might be shown to our supervisors.
- The informants may skip questions whenever they would like.
- We distinguish two types of trips: (i) business travels, i.e. long-distance trips for work purposes (usually equal or longer than 300 km); (ii) commuting from work to home and vice versa.

Short, opening questions:
- How many years have you worked at SLU?
- What different types of business trips and how many do you normally do in a year?
- (e.g. conferences, field studies, project meetings, network meetings, EU projects).

The main part of the interview:

1. How has the sharp reduction in business travel affected your work?

- Applications / Articles/ Research conferences/ Field studies/ Project meetings (Based on the different meetings they have mentioned before).
- Examinations / Defenses
- Overall well-being

2. What is your experience of replacing physical meetings with digital ones during the pandemic?

- What types of meetings have worked equally well as physical meetings? How do you define 'well'?
- What types of meetings have worked better than the physical equivalent? Why?

3. What types of meetings have lost in function/performance compared to the physical equivalent? Why?

- And in those digital meetings, did you know each other before or not? (social aspect)
- What new forms have you, your colleagues or students found as a new solution for remote work\research\study, which ended as a satisfying substitute for physical counterparts? Which one of them do you think might stay after the pandemic? (Examples - as concrete as possible).

4. What has made certain meetings less successful, or even impossible to carry out?

- What exactly has not worked well? Why?
- Are there any suggestions on how things could have been done better?
- How did you reason regarding physical versus digital meetings before the travel restrictions were put in place?

5. What would make the continued use of digital meetings easier for you?

- What is missing?
- Is there anything concrete that would help you?

6. Work at the university facilities vs. work from home.

- How many days have you been working at the office during the pandemic? What do you want to leave\ change in this routine in the post-pandemic period?

7. How has the pandemic affected your view of reduced travel and increased digital meetings?

- How did you commute to work prior to and during the pandemic restrictions?
- Do you think versions of this can work long term? What would you want to keep in the future?
- What kind of support do you expect from the university while implementing climate plans, reducing business travels and introducing new formats?
- Do you think you will change your travel pattern in the future, compared to before COVID-19?

Control questions:
- Are you part of any environmental association?
- Is it important to you that universities reduce their climate impact by looking into their travel habits and work routines?

Is there anything you would like to add?