Future of work – Work environment and occupational health

A modified Delphi survey of work environment experts in Norway and Denmark

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A modified Delphi survey of work environment experts in Norway and Denmark

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PREFACE

This report is part of Pillar V of the project "The Future of Work - Opportunities and Challenges for the Nordic Models", and elucidates potential implications of changes in the Nordic world of work for the work environment and - consequently - for occupational health. While the work environment comprises a wide range of different conditions and exposures, the current report places a special emphasis on the psychosocial work environment. "Stress" is often cited as a contemporary and increasing threat to public health and work is a significant contributor to this problem. Hence, work may also be a significant contributor to solving it.

The team that has worked on this report has consisted of researchers from the National Institute of Occupational Health, Norway, STAMI (Jan Olav Christensen, Live Bakke Finne, Jolien Vleeshouwers) and the National Research Centre for the Working Environment, Denmark, NRCWE (Jesper Kristiansen, Kathrine Sørensen, Lene Rasmussen).

We would like to extend our gratitude to the Nordic Council of Ministers for project funding and helpful feedback along the way. We also wish to thank Jon Erik Dølvik, Kristin Alsos and Kristin Jesnes for project management of the overarching project, as well as all the researchers of the other Pillars for doing important and timely research. Finally, a special thanks to the experts that participated in our survey, providing vast, essential and thought-provoking information on a challenging topic with many nuances.

Oslo, January 2021
Jan Olav Christensen, project manager

EXECUTIVE SUMMARY

To explore the challenges and opportunities the Nordic work environment will face in the future, we conducted a Delphi study, i.e. a survey of experts on the Nordic world of work. The aim was to collect, describe, and evaluate agreement on viewpoints that experts expressed about which work environment challenges and opportunities will be particularly pertinent the coming decade. The focus was on the psychosocial work environment in particular, since it is relevant to all workers.

The study gathered views from 52 experts located in Norway and Denmark, representing the social partners, labour inspection authorities, consultants, researchers and occupational health professionals. For the initial data collection, open-ended questions were presented about the expected developments during the next decade for work and the work environment. Findings were then structured by the researchers according to established drivers of change; 1) Technology, 2) demography, 3) globalization, and 4) climate change. Additionally, the themes 5) skills/competence and 6) political, social and cultural developments were constructed to cover content reflected by the collected statements. An open theme denoted 7) "other statements" was also added.

Agreement was generally high among the experts, with few controversial views forwarded. With regard to 1) technology, automation and robotization were highlighted as important developments, but there was slightly less agreement about potential consequences for the work environment. Both positive and negative consequences were proposed. Regarding 2) demography, the ageing population and cultural diversity due to immigration (and communication across borders) were highlighted as important developments. Regarding the question of whether such changes will represent opportunities or challenges, the agreement was slightly lower. Views on 3) globalization pertained mainly to culture and language, competition and productivity, and the increasing geographical borderlessness of work. These developments were generally considered opportunities as well as challenges. Relatively few views were forwarded on 4) environment and climate change, but seemed to reflect a general optimism about opportunities for innovation and economic activity as a result of adaptations to a greener economy. Many views pertained to 5) skills/competence, reflecting high agreement that contemporary and future developments will necessitate upskilling and reskilling to ensure appropriate competence, presenting both opportunities and challenges for workers and businesses. A certain general optimism seemed to be reflected by these statements. Views on 6) political, social and cultural developments addressed issues of diversity and legislation. Although agreement was generally high, relatively high disagreement was observed for views on legislation, control, gender issues and social security. Finally, the 7) "other

statements" category comprised statements addressing a variety of themes, e.g. challenges associated with looser labour market attachment and increased "pressure" on the psychosocial work environment. Some views were optimistic views, however, such as those reflecting notions about a raised awareness and prioritization of psychosocial work characteristics, also as a competitive advantage for businesses.

The closing chapter of the report offers some reflections and discussions to supplement the results of the study. We note that although the experience of many valued features of work will be affected for many in fundamental ways, no dominant pessimistic or optimistic take on the future was conspicuous among the experts. This implies a great potential for successfully managing future scenarios, highlighting not only challenges, but opportunities that may help cope with them. Worker autonomy seems to be an example of such a resource, which, if prioritized in the design of future jobs, may facilitate meaningful and healthy jobs. Another conclusion derived from the present study was that although the discourse often pertains to "new" and "emerging" work characteristics, most of these seem to correspond in some way with "traditional" work factors, albeit sometimes in new forms. "Telepressure", "technostress", or "video call fatigue", for instance, are examples of relatively novel job demands. Interestingly, some issues that were frequently cited by the experts have become particularly relevant after the survey was conducted, as a result of the Covid pandemic. In particular, remote work (e.g. "home office") has been raised to collective awareness. Digitalization and integration of ICTs used for work- and private purposes have enabled quick adaptation to novel circumstances, but also bring questions of how to define boundaries in a "boundaryless" world of work. Remote work can facilitate autonomy and freedom, but in the long run it could also instigate such challenges as work-private life conflicts, social isolation, and impaired social support from leaders and colleagues.

Psychosocial work characteristics evolve with the world of work, but can be strategically modified by conscious approaches to work design. Awareness of the issues described and discussed in the current report should provide decision makers with resources to manage upcoming challenges, and help raise a basic awareness of how the work environment is crucial to promoting a healthy and sustainable future of work.

Chapter 1

BACKGROUND

1.1 The future of work - drivers and development

Society and work life are continuously undergoing change. Most of the time changes may appear as relatively minor adjustments resulting in "evolutionary change" in the long run. However, at other times changes accumulate and appear as disruptive and revolutionary, as reflected by the term "industrial revolution". Contemporary work life is often said to be undergoing a "fourth industrial revolution", driven to a large extent by rapid technological advances [19]. However, technology is not the only driver of change, and Dølvik and Steen (2018) recently pointed to four drivers of change, or mega trends, which may shape the future for the Nordic labor market models, namely technological change, demographic change, globalization, and climate change.

Technologies such as (but not limited to) artificial intelligence (AI), machine learning, robotics, cloud computing, nano-technology, 3D printing, and the internet of things (IoT) are predicted to fundamentally transform societies and economies within the coming decades. In contemporary society, technology and technological developments seem to affect all parts of our lives, including the way we work and how we experience work. While technological changes and innovations have benefits, and are usually intended to solve problems, they also pose numerous challenges. For example, automation and robotization of work tasks can increase productivity and efficiency, which may make work easier and less physically demanding, but it may also foster anxiety and worry by threatening job security for some employees [16]. Additionally, information and communication technologies (ICTs) enable considerable flexibility in timing and location of work activities ("new ways of working", [21]), which may be empowering and convenient, but may also increase work pressure, impair the boundary between work and non-work time, and may instigate work-private life imbalance [29, 37]. There are many ways in which technological change may influence working conditions, some less dramatic than others, and while some debates seem to reflect a polarization between techno-optimists and techno-pessimists, it remains uncertain what the net effect of technological disruption will be.

Changing demography is another mega-trend that will drive changes in work life. According to

Dølvik and Steen [7] the current demographic trend has three components: 1) aging population, 2) migration, and 3) urbanization.

The trend of an aging population is caused by the combination of both increasing life expectancies and a reduction in the general fertility rate in most Western countries [41]. The consequence is that the elderly (that is, 65+ years) will constitute an increasing proportion of the population. Demographic change due to aging is highly predictable, and the old-age dependency rate (the ratio of the number of people beyond age 65 per 100 people of working age 15-64) is increasing in Europe. In the Nordic countries the ratio is expected to increase from 21.1-34.2 in 2018 (with Iceland as the lowest, and Finland as the highest) to 28.4-42.5 in 2030 (again with Iceland and Finland exhibiting the lowest and highest ratios) [7, 8]. Most European countries, including Denmark and Norway, have implemented political reforms to increase retirement age in an attempt to maintain a sustainable pension system with an ageing population. This could have implications for the working life of elderly workers, as cognitive ability and physical capacity generally deteriorate with age [33, 38]. As a result, workplaces may need to adapt to an ageing workforce both to assure working conditions facilitate productivity and do not accelerate health loss and to stay attractive to and retain older employees [4]. In this respect, the aging workforce poses new challenges for workplaces with regard to organizing and managing work.

As opposed to population aging, migration patterns and tendencies are harder to predict. Whereas the proportion of people beyond working age grows in Europe, the working age population will increase in coming years in developing countries [7]. Differences in standards of living between European and African countries, together with the increasing working population, are likely to represent economic drivers of migration towards European countries [7]. A growing proportion of immigrant workers in the working population may pose new challenges to the labor market or exacerbate existing ones. Migrant workers are more likely to hold precarious and strenuous jobs [26], which, together with other socio-environmental issues, may contribute to poor psychological health [6]. Language barriers are source of various difficulties, such as not being able to understand instructions or safety regulations, etc. [40]. Moreover, racism and discrimination are also issues that workplaces employing many immigrant workers need to address [34]. Therefore, it seems likely that migration will represent challenges to actors in the labor markets in various ways that may influence work environments and occupational health.

The third important component of the demography driver is urbanization. This trend is seen in the Nordic Countries from 2011-2016 [10], and the growth in urbanization is as fast as ever before [27]. In urban areas the number of jobs within commuting distance is larger, wages are usually higher, and people are more productive and innovative [27]. With more people living in urban areas, more will have access to this competitive labor market. More jobs within commuting distance makes job change less problematic from the viewpoint of the employees. In order to attract and retain the most competent, productive and innovative employees, workplaces need to focus on parameters that can give them a competitive edge. This could be, for example, the ability to offer good working conditions and a good work environment.

Globalization has been a powerful driver of workplace changes for many decades. Technological developments have expanded what we consider "local" markets, have cut the costs of in-

formation exchange, and have broken down not just geographical, but also political and cultural barriers [43]. Opportunities for expanding production- and labor markets abroad means few businesses today operate in a single location with a permanent workforce; rather most organizations are structured to embrace a flexible and diverse workforce. In some instances, this may further the existence of precarious work and increase levels of job insecurity for some employees [32]. The globalization of work also comes with a number of other challenges, such as increased competitive pressures, outsourcing and offshoring. Furthermore, a global workforce may result in cross-cultural challenges associated with differing cultural values, communication challenges, and challenges with skill translation [43]. Moreover, redistribution of work tasks across borders might mean employees may have to change job tasks and adapt by acquiring new skills/competence. Overall, it seems plausible that technological developments and globalization combined may have direct and indirect effects on employee health- and well-being on a large scale.

Efforts to slow down global warming and counteract human-induced climate change have gained considerable traction during the previous decade. Production often has an environmental impact, such as draining natural resources, energy consumption, waste production, and emissions. Hence, legislation put in place to limit detrimental environmental consequences often have a corresponding impact on companies [20]. While we may sometimes deem business efforts to become "sustainable" to be company PR stunts disguised as corporate social responsibility [45], many leading companies seem to pursue sustainable production to enhance profitability [45]. The implications of the intended transition to a more sustainable economy are vast, potentially affecting many industries and destroying as well as creating jobs. For example, many industries may choose to outsource production overseas to countries where environmental laws are less limiting. This may also affect jobholders as many industries may be facing more uncertain times in which the content and existence of jobs will be less predictable than previously. However, environmental demands may also come with benefits to employees, as optimizing industrial production processes may reduce emissions and facilitate the construction of production plants in urban areas. In addition to environmental benefits this may also create jobs locally and improve work-life balance due to less time commuting (which in turn also has an environmental impact) [20]. Moreover, workers' perceptions of a company's sustainability and environmental responsibility could directly affect their job identity, work behavior, engagement, organizational commitment, job satisfaction, well-being, and experience of meaningfulness [13].

All these drivers of change could have far-reaching implications for future work life and working conditions. The content of existing jobs may change, new types of jobs and industries may be created, and some jobs and industries may perish. As contemporary labor markets are facing, and will continue to face, widespread workplace changes one must expect working conditions and the work environment to evolve and change as well, which may have consequences for occupational health and well-being. While the totality or specifics of such changes cannot be comprehensively foreseen, attempts can be made to delineate significant future developments that may be anticipated so that desirable effects may be reinforced and undesirable ones may be prevented. The current study represents an attempt to put forth potential consequences and challenges for the future work environment in the Nordic countries, as suggested by leading experts in the field of

work environment and occupational health. While true, accurate, and precise predictions of future events is not an aim, drawing on the totality of the expert participants allows conclusions that may be more informative than each expert's view in isolation. Hence, the overarching aim of the current study was to obtain expert views on what the main challenges and opportunities pertaining to working conditions and occupational health will be in the not so distant future (i.e. 10-15 years from now). Furthermore, we wished to determine the extent to which of the participating experts agreed and disagreed about these future possibilities. While no certain projections can be made about the state of the future work environment or its influence on workers' health and well-being, the aim of the current study was to consult experts on Nordic working conditions and reflect their judgement of what the Nordic countries should pay particular attention to during the coming decades.

1.2   The Nordic model

The Nordic Model refers to the welfare state specific to the Nordic countries, which relies heavily on collective risk-sharing through social security incentives while embracing a market economy and economic efficiency. Hence, the Nordic model is often seen as a combination of capitalism and socialism [7]. Through tax-funded childcare, education, benefit schemes, and pensions, a strong safety net characterized by risk sharing protects the labor force against changes in the economy brought upon them by for example increased global competition.

In order to sustain economic growth without risking the safety of the social welfare state, Nordic countries rely heavily on the participation of the labor force, which explains the significant history of unionization, collective bargaining, and social partner cooperation in the Nordic countries [7]. A central question for the future of work in the Nordic countries is therefore to what extent these principles can be applied to ensure a sustainable work life and meet future challenges for working conditions and occupational health in the Nordic countries, and to what extent the Nordic model may be influenced by these current and future developments.

1.3   Aim of the present study

Psychological and social characteristics of the job and work environment contribute to worker health, well-being and productivity. The Nordic work environment has been characterized by high job satisfaction, democracy, trust and job security, combined with relatively high job demands and high participation in work life. This seems an excellent starting point for a sustainable future of work. However, to ensure its positive contribution to public health and productivity, the Nordic work environment must be managed in a way that promotes existing strengths while mitigating and preventing emerging risks. To explore the challenges and opportunities the Nordic work environment will face in the future, we conducted a Delphi study, i.e. a survey of experts on the Nordic world of work. The aim was to collect, describe, and evaluate agreement on viewpoints that experts expressed about which work environment challenges and opportunities will be particularly

pertinent the coming decade. The focus was on the psychosocial work environment in particular, since it is relevant to all workers.

Chapter 2

METHODS

2.1   Study design

The current study utilized a Delphi method design wherein a group of experts on Nordic work life was surveyed on three occasions. The Delphi method can be described as "an iterative multistage process designed to combine opinions into group consensus" [47]. This method is frequently used to determine the degree of agreement or to derive consensus in a group of experts pertaining to new concepts in order to set the direction for future-oriented research and policies [42]. The Delphi technique encompasses a structured process of multiple rounds of statement- or data generation through a round of surveys, supplemented with a feedback process which allows respondents to elaborate and modify their previous statements after seeing other participants' contributions. It is this feedback process that distinguishes the Delphi method from other data gathering techniques [42]. In the data gathering rounds, participants complete a survey. After each round, survey answers are collected and then revised based on accumulated feedback. The next round then consists of the completion of a new, adapted survey based on the participant's own feedback as well as the feedback of the group as a whole. Importantly, participants remain anonymous during the whole process to ensure that their judgement of available information is not based on evaluations of the person that provided the information. In subsequent rounds, Delphi participants are asked to reevaluate and modify initial statements, leading to a final list of statements that should reflect the level of agreement between participants after careful consideration of the opinions of fellow experts [42, 48].

In the present study, three-wave Delphi data collection was designed a priori. Round 1 entailed the initial data collection consisting of responses to open-ended questions about future developments, challenges, opportunities, and actions that may be taken to face potential challenges. Round 2 entailed replying to statements formulated by the researchers on the basis of the data collected in round 1. These statements were constructed to accurately reflect the content of participants' original responses. This means that minimal alteration or juxtaposition was imposed beyond what was necessary to reformulate into singular statements reflecting the different opin-

ions expressed. Round 3 entailed the final data collection, where the experts rated the statements that the researchers had finalized based on feedback from Round 2. The processing of initial statements based on round 1 data to final statements to be rated in round 3 is described in more details later.

2.2 Recruitment

Experts on Nordic working conditions and work environment were recruited from three types of organizations: Social partner organizations (employee and employer organizations), national regulatory agencies (in Norway the Labor Inspection Authority and the Petroleum Safety Authority, in Denmark the Danish Working Environment Authority), and a third group comprising experts from academic institutions, private consulting firms, and occupational health care. Along with an invitation to participate in the study, the selected experts received an information letter explaining the process of the study.

Recruitment in Norway was conducted through professional connection networks that facilitated the sampling of participants with relevant expertise. It should be noted that the researchers themselves did not make the initial contact with potential participants, nor did they have any previous professional connection to or collaborations with the participants. In Denmark the recruitment of social partners was done by inviting all the major social partner organizations to appoint participants for the study. Experts from the Working Environment Authority were recruited by inviting four departments with specialist knowledge pertaining to different work environment topics. Experts from consulting companies and occupational health services were recruited via their associated organization and invitations were sent to three major consulting companies. Finally, researchers were recruited by inviting research institutions and research groups whose research focus pertained to the future labor market. None of the researchers carrying out the Delphi survey had any affiliation to or collaboration with the research institutions and groups that were invited to participate in the study.

2.3 Process and measures

The initial data collection round consisted of nine open-ended questions (see appendix F). The first six questions asked respondents to anticipate developments, challenges, and opportunities for employees and employers in the Nordic countries during the coming decade. Respondents were instructed to think of these developments in terms of occupational health, work ability and/or well-being at work. Additionally, they were asked to list – if any – the most important measures employers/workplaces, governments, and the social partners will have to take in order to meet the challenges represented by the coming changes in work life. Respondents were encouraged to submit at least five statements reflecting their thoughts and opinions on these nine questions.

The submitted statements were then collected and combined to make up a comprehensive list of initial statement items reflecting all the opinions expressed by the different experts. The

researchers were mindful not to force statements or reword phrases for the purpose of data reduction, but aimed to maintain the wording used by the participants to a large extent to minimize speculative interpretation.

In the second round of data collection, all participants received the comprehensive list of statements based on round one, organized under themes established by the researchers. All statements were shared with all respondents. Respondents received individualized surveys consisting of six separate lists of themes, or adjusted statements to round one, reflecting both their own as well as the other experts' responses to questions 1 and 2 combined, questions 3 and 4 combined, questions 5 and 6 combined, question 7, question 8, and question 9. Respondents were then invited to examine, comment, modify, and add to these statements, and were specifically instructed to evaluate whether their own opinions were correctly captured by these statements. A free text response was included to invite further explanation or additional thoughts to initial statements. The list of statements and themes was finalized by incorporating additional comments from round two and carefully reducing the statements even further.

Finally, in round three of the data collection, respondents were asked to rate the statements using Likert-scale type response categories of agreement. The statements were arranged into three blocks. The statements in block 1 were prefaced by the sentence "to what extent do you agree with the following statements?", with response categories "Strongly disagree", "Disagree", "Neither agree or disagree", "Agree", and "Strongly agree". In block 2, statements were prefaced by the sentence "to what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?". That is, statements in block 2 differed from statements in block 1 in that the respondents are asked to rate the consequences for the work environment. Response categories for the first part of the sentence were identical to the previous block, and response categories pertaining to positive and negative consequences were "No consequences", "Some consequences" and "Considerable consequences". Separate response scales were given for positive and negative consequences, as different developments may be thought to have both negative and positive consequences to different degrees. Finally, statements in block 3 were prefaced by the sentence "how likely do you think the trends in the following statements are?", with response categories "Very unlikely", "Unlikely", "Somewhat likely" and "Very likely". In the following we refer to the three blocks as "Block 1: Agreement only", "Block 2: Agreement and impact (consequences)", and "Block 3: Likelihood".

Surveys were conducted using the web-based survey administration tool SurveyExact in Denmark and proprietary software of the National Institute of Occupational Health in Norway. Information about the survey and how to log in to the web questionnaire were distributed via individual emails to each respondent, and information about procedures for confidential handling of responses was included on the login page to ensure informed consent prior to completion of the questionnaire.

2.4   Analyses

There appears to be no single, generally agreed-upon method for analyzing data and reporting findings from Delphi surveys [49, 24]. The initial rounds of the Delphi analysis can be considered qualitative, as the researchers thematically analyzed the statements provided by the respondents. Quantitative analyses were then employed to analyze trends and degree of consensus regarding the final statement list.

We conceptualized consensus among the experts by Eijk's measure of agreement [46]. In the following we refer to it as Eijk's measure of consensus C, to distinguish between agreement with each single statement and consensus among the experts in the extent to which they agree with each other on the content of the statements. The measure gives a continuous score from -1 to 1, where 1 implies complete consensus (all experts have assigned the same rating to the item), 0 implies that ratings are evenly distributed across the scale, and -1 implies a bimodal distribution (i.e. half of the experts rated at one extreme end of the scale and the other half rated at the opposite end of the scale).

The main analyses of the current study pertained to the first six questions of the survey, about expected developments, challenges and opportunities. However, a textual analysis of the statements generated in round one pertaining to suggestions for future action plans for employers (question 7), authorities (question 8), and the social partners (question 9) was also conducted. The "drivers of change" were utilized as a framework to organize the suggested action plans. The general themes (or drivers) are very much overlapping and as such, statements and following suggestions could be organized under several of the overarching drivers. Decisions were therefore made to facilitate narratives. Furthermore, the textual analysis revealed different sub-themes for some of the drivers. Where sub-themes were identified, statements were organized under these.

Chapter 3

RESULTS round 1 and 2 - Participation and statement generation

3.1   Participation

In Denmark invitations were sent to 31 organizations, of which 27 accepted the invitation to appoint an expert (in some cases, two experts) to participate in the Delphi study, resulting in 30 participants at the start of the study. However, one expert withdrew before completing the last survey round, bringing the number of participants to 29. The number of experts that accepted the invitation to participate and the number of respondents in the subsequent survey rounds are presented in Table 3.1.

In Norway invitations were sent to 19 organizations, of which 19 accepted the invitation to appoint at least one expert. Across the 19 organizations, 27 experts were appointed and invited to participate in the study.

3.2   Survey responses and statement generation

The questionnaire with 6 open-ended questions was distributed on the 12th of March 2019 (Norway) and on the 6th of March 2019 (Denmark). Responses were received from 26 (response rate 96%, Norway) and 26 participants (response rate 87%, Denmark), respectively.

For round 2 the researchers formulated 359 statements on the basis of the round 1 responses. Statements and respondent's own responses in round 1 were distributed on the 31st of May 2019 (Norway) and on the 29th of May 2019 (Denmark) (see Fig. 3.1). Among both the Norwegian and the Danish participants, eight respondents respectively suggested additions and feedback to the statement lists or had clarifying questions.

Based on the feedback from round 2, the statements were further edited and reduced in number to 210 statements. The questionnaire with 210 statements was distributed on the 6th of

Table 3.1. The number of experts that accepted the invitation to participate and number of respondents in survey round 1, 2, and 3

Participants	Invitation accepted	Respondents Round 1	Round 2	Round 3
Norway:				
Sub-panel 1 (Employee and employer organizations)	9	9	3	6
Sub-panel 2 (Working Environment Authority and Petroleum Safety Authority)	10	9	2	7
Sub-panel 3 (Consulting companies, occupational health services, researchers etc.)	8	8	3	8
Total (Norway)	27	26	8	21
Denmark:				
Sub-panel 1 (Employee and employer organizations)	18*	14	6	14
Sub-panel 2 (Working Environment Authority)	5	5	1	4
Sub-panel 3 (Consulting companies, occupational health services, researchers, etc.)	7	7	1	6
Total (Denmark)	30*	26	8	24

* One participant withdrew before completing of the survey. N/A: Not applicable.

September (Norway) and on the 17th of September 2019 (Denmark) as the third and final round of the survey. The number of responses was 21 (response rate 81%, Norway) and 24 (out of 29 participants, as one withdrew before completion of the round, response rate 83%, Denmark), respectively.
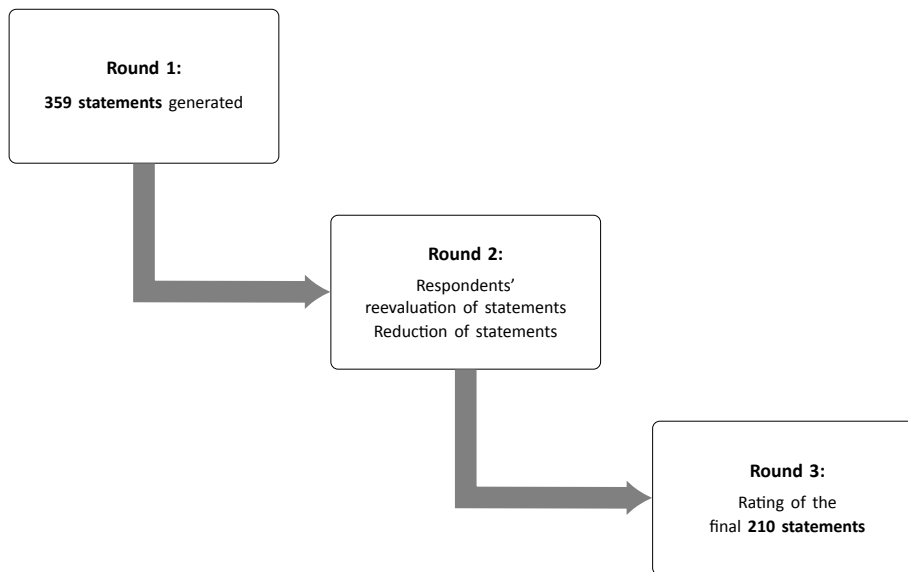
Figure 3.1. The process of generating and modifying statements to be rated in the final survey

Chapter 4

RESULTS round 3 - Agreement with and consensus for the final statements

4.1   Reading guide

First, we present general results derived from the statements pertaining to each block (i.e. question). Specifically, we present the five statements for which the highest levels of consensus were observed, along with the five for which the lowest levels of consensus were observed. This provides a general overview of consensus on the statement level.

As previously mentioned, "consensus" here reflects the extent to which responses were clustered in a single location on the response scale. In comparison, "agreement" refers to the specific response alternatives on the response scale from 1 to 5. In other words, "consensus" reflects the extent to which the experts agreed with each other, while "agreement" reflects the extent to which they agreed with the statement. For example, there can be high consensus among the experts to disagree with a statement, or high consensus about agreeing. There can also be no consensus if some experts agree while other experts disagree with a statement. For the following discussion statements were classified as "high", "medium", and "low" consensus, and for statements from block 2 the potential consequences were rated as "negative", "positive", "both negative and positive", "neutral", or "no agreement". See the "analyses" section above for details on these classifications.

Secondly, a description and summary of statements followed organized under topics defined by the aforementioned drivers of change – "technology", "demography", "globalization", and "climate change". These "mega-trends" or "drivers of change" have been identified by the ILO Global Commission on the future of work [17], and were also comprehensively discussed in a previous report from the current project [7]. Hence, after careful examination of all statements, the researchers assigned statements to the pre-specified drivers. In addition, two specific topics were invoked by the researchers based on the information that was gathered from the participants, namely "skills/competence" and "political, social and societal changes". Finally, an open topic

("other statements") was specified for statements that were not classified by the researchers as pertaining to any of the pre-specified drivers. It should be noted that some statements were assigned to several drivers, and hence these statements may be repeated in the discussion. In other words, the drivers do not represent mutually exclusive categories for the classification of statements, but rather a heuristic to organize the discussion.

A summary of the themes developed by the researchers after round 1 of the survey is presented first in each section pertaining to the different drivers, to give a general schematic overview of the topics addressed by the statements included. The number of statements pertaining to each theme is presented, although it should be noted that this is not a valid measure of importance, since each single statement may reflect notions that were conveyed by many respondents. Nevertheless, it may be considered an indicator of which themes the experts tended to have most varied notions about.

As the main focus of the current study was the relevance of contemporary and future developments of work for *work environment* and *occupational health*, the experts' judgments pertaining to these topics were given special attention in the following presentation. While all statements concerned developments that may have an impact on the world of work, some statements were more explicitly about the relationship of each driver with work environment and occupational health. Such statements were selected for review in a section especially devoted to these topics. Some statements were selected because they centered on concepts more or less directly related to work environment and/or health. Additionally, all statements from *block 2*, where the experts were asked to rate the potential consequences for the work environment if the statement were true – were included in this section.

Hence, the discussion of statements in the main text of the current report is somewhat selective in that statements that were judged by the researchers to pertain specifically to aspects of the work environment (including work content) and/or health are most elaborately discussed. It is important to keep in mind, then, that the delineation between work environment/occupational health and other statements is derived from the researchers' judgement, and should as such not be considered an objective classification. Also, and importantly, complete analyses with figures and tables for *all* statements rated in round 3 of the current study are presented in the appendices.

Following the sections on work environment and health, brief discussions are given for each driver on differences between the evaluations of participants in Norway and Denmark, and for the different sub-panels of the study (i.e. the social partners, labour inspectorates, researchers, consultants and occupational health professionals). Finally, a brief summary of suggested solutions from the experts to emerging challenges is given, and finally, a general summary of the results for the driver in question.

A number of criteria were decided upon by the researchers to aid interpretation of the results. The following describes these criteria in detail, and overviews are given in Tables 4.1 and 4.2.

A consensus score above 0.70 was in the current study considered indicative of **consensus**, a score between 0.50 and 0.70 was considered **medium** consensus, and a score below 0.50 was taken to express a **low degree of consensus** or a bimodal distribution indicating disagreement among the experts. These categories were chosen after visual inspection of the distributions of

Table 4.1. Classification of expert group consensus into three categories

Designation	Van der Eijk's measure of consensus
High	>0.70
Medium	0.50-0.70
Low	<0.50

Table 4.2. Classification of the expert group's views on negative and positive consequences for the work environment

Designation	Proportion that "agreed"/"strongly agreed" with the statement		Proportion that suggested "some"/"considerable" consequences
Positive	>= 50%	**and**	>= 70% positive
Negative	>= 50%	**and**	>= 70% negative
Positive/negative	>= 50%	**and**	>= 70% positive **and** >= 70% negative
Neutral	>= 50%	**and**	< 70% positive **and** < 70% negative
No agreement	< 50%		-

Note: "Agreement" refers to where respondents were asked to rate agreement with the statements, and "consequences" to where they were asked to rate potential consequences of the developments reflected by such statements

ratings coupled with the consensus scores. It should be kept in mind that this classification is ultimately arbitrary and constructed for the purpose of organizing the report of results, and should therefore be considered heuristic.

All statements where the experts were asked to rate both agreement and negative/positive consequences for the work environment (i.e. "Block 2: Agreement and impact (consequences)") were classified into one of the following categories: "Positive", "Negative", "Both positive and negative", "Neutral" or "No agreement", with regard to consequences for the work environment. For the statement to be classified as positive or negative, at least 50% of the experts had to have rated "agree" or "strongly agree" with the main statement, and at least 70% of the experts had to have rated the statement as having some or considerable positive or negative consequences. That is, for the content of a statement to be considered likely to have positive consequences at least 70% of the experts would have had to rate it as having "some positive consequences" or "considerable positive consequences". If less than 50% of the experts rated the statements with "agree" or "strongly agree", it was labeled with "No agreement". If the experts agreed with the statement, but less than 70% rated it likely to have some or considerable positive or negative consequences, it was considered "neutral". The cut-off points utilized to create this classification were based on

the subjective judgement of the researchers. Thus, as with the above classification of consensus, it should be emphasized that these cut-off points are ultimately arbitrary. Nevertheless, they are intended to reflect whether each statement, overall, was considered by the experts as a group to represent a likely negative and/or positive development.

At the end of each of the sub-sections devoted to the various drivers/topics, there will be a summary section to give a short overview of the results for each driver. These summaries were the results of discussions among the researchers to discern some common patterns from the statements collected under each heading, and pertains to all 210 statements, which are given in the appendices. However, while these discussions are comprehensive, they are not to be seen as exhaustive, as many different perspectives and emphases may be brought to bear on this multi-faceted material.

4.2 Agreement and consensus by drivers and topics

4.2.1 Technology

4.2.1.1 Themes and blocks

Altogether 38 statements were classified under the heading of "Technology" (see Table 4.3 and Figs. A5-A24 of Appendix A).

Table 4.3. Technology: Number of statements by theme and block

Themes	Block 1	Block 2	Block 3	Sum
Productivity, efficiency, and competitive advantages	6	1		7
Job creation, job destruction, job change, and predictability	5	1		6
Skills and competency	3	1	1	5
Physical, ergonomic, chemical working conditions and accidents	4			4
Interaction, cooperation, and culture	2		1	3
General work environment	2			2
Organization of work		2		2
Work content		2		2
Inclusiveness	1			1
Terms and conditions of work	1			1
Control and surveillance		1		1
Fragmentation and individualization		1		1
Psychosocial work environment		1		1
Time and place		1		1
Leadership			1	1
Sum	24	11	3	38

Thirty-four statements were rated by at least one person with "strongly agree", and 35 with "agree". In general, high levels of disagreement with statements were uncommon; the response "strongly disagree" was observed for just 10 statements, with a low proportion of respondents endorsing that response category for each of these items (see Appendix A, Figs. A5-A24).

4.2.1.2 Technology, work environment, and health

Twenty-four statements were classified as pertaining to work environment or health (Figs. 4.1 to 4.7). Of these, 22 statements pertained to the work environment, one statement to both work environment and health ("technological developments can provide better work-related health and greater inclusiveness in the workplace for most workers"), and one to health only ("rapid technological development will lead to polarization and greater social inequalities in work-related health").

Most statements about the work environment seemed to pertain to the psychosocial work environment rather than physical work factors. While three statements referred to "physical risk factors", "physical load" and "routine work" (the latter of which may be considered both a physical and psychosocial risk factor), aspects of non-physical working conditions were more frequently mentioned, such as job insecurity, cooperation, social relations and inclusion, monitoring, alienation, complexity, variation, flexibility and leadership. Overall, 10 statements pertained to aspects of the psychosocial work environment, while 13 statements pertained to other aspects of the work environment, such as the physical work environment, accidents, risks, and organizational factors. In the following presentation, the statements are grouped according to whether they pertain to the psychosocial work environment or other aspects of the work environment, including the work environment in general.

Technology: The psychosocial work environment (Figs. 4.1 - 4.3)   With regard to the psychosocial work environment there was a high degree of consensus on three statements, medium consensus on four statements and low consensus on three statements.

All three of the statements with high consensus were general statements about the influence on technological developments ('digitalization', 'new technologies') on different aspects of psychosocial work environment: "digitalization may promote collaboration in the workplace" (56% of the experts agreed on this statement), "digitalization makes work more flexible in time and place" (92% agreed) and "work tasks will become more varied and complex as new technologies take on more of the routine tasks" (73% agreed). The only specific technological development addressed in some statement was developments in robotics (or automation). This was addressed in four statements, most of them with low consensus score: "New technologies will give rise to job insecurity as work tasks are taken over by machines and robots" (medium consensus score 0.67, and 71% of the experts agreed on this statement), "there will be less routine work as a result of developments within robotics" (low consensus score 0.49, 62% agreed, 16% disagreed), "workers will experience alienation from work as a consequence of automation and robotization" (low consensus score 0.43, 31% agreed, 34% disagreed), and "workers will to a larger extent be managed

Figure 4.1. Technology: Psychosocial work environment
Block 1: To what extent do you agree with the following statements?

		N	C
Digitalization may promote collaboration in the workplace	2 / 42 / 51 / 5	43	0.71
New technologies will give rise to job insecurity as work tasks are taken over by machines and robots	2 2 / 24 / 58 / 13	45	0.67
Digital solutions and climate considerations will lead to solitary work/working from home, which may hamper social relations in the workplace	21 / 33 / 47	43	0.63
Technological developments can provide better work-related health and greater inclusiveness in the workplace for most workers	2 9 / 33 / 49 / 7	43	0.59
There will be less routine work a result of developments within robotics	2 14 / 21 / 48 / 14	42	0.49

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

and lead by robots" (low consensus score 0.45, 23% rated this as somewhat or very likely, while 77% rated this as unlikely or very unlikely).

With regard to evaluation of the positive and negative consequences (Block 2), four statements were addressing the psychosocial work environment (Fig. 4.2). Ninety-two percent of the experts agreed with the statement "digitalization makes work more flexible in time and place" (consensus score 0.81), and they evaluated that this development will be associated with both negative (82% of the assessments) and positive (88%) consequences for the work environment. Seventy-three percent agreed with the statement "work tasks will become more varied and complex as new technologies take on more of the routine tasks" (consensus score 0.73), and there were slightly more assessments of this development as being associated with positive consequences (82%) for the work environment than assessments pointing at negative consequences (69%). Finally, 72% of the experts agreed with the statement "new technologies will make increased control and surveillance of workers possible" (consensus score 0.68). This development was clearly judged by the experts to be associated with negative consequences (85% of the assessments), while only 39% assessed that this could be associated with positive consequences. There was low consensus on the statement about alienation as mentioned above, hence it is not meaningful to assess the experts' evaluation of the impact of this development.

Figure 4.2. Technology: Psychosocial work environment

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'
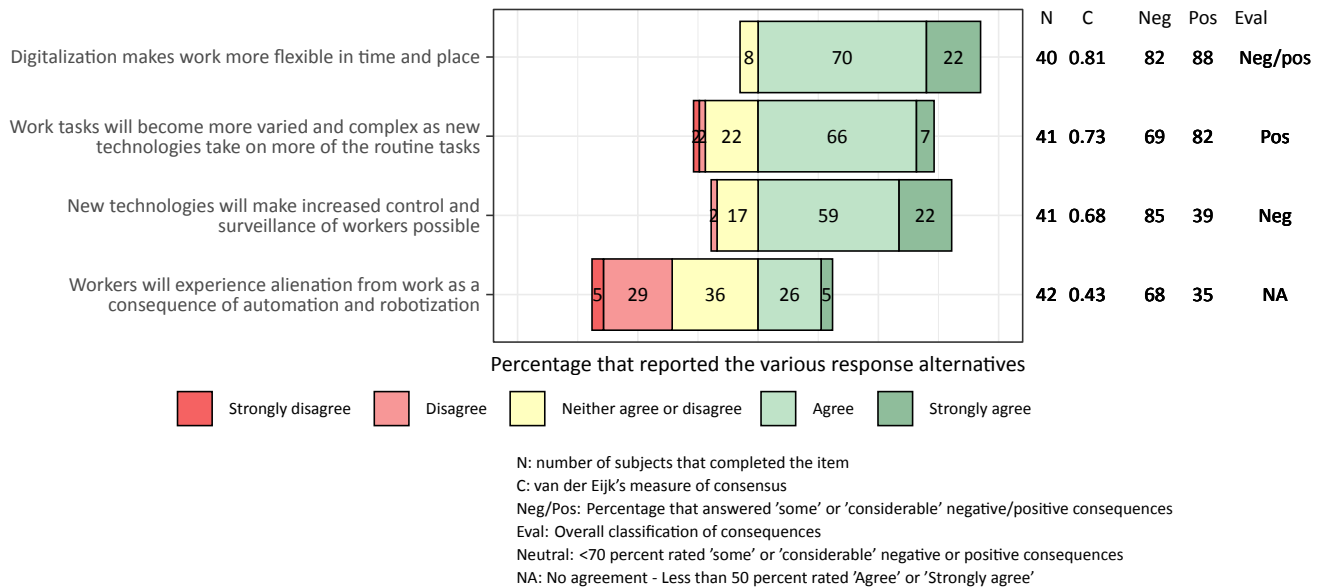
Technology: Physical environment, accidents, risks, and other aspects of the work environment (Figs. 4.4 - 4.6)   With regard to the physical work environment, accidents, risks and other aspects of the work environment, there was high consensus among the experts for 8 out of the 13 statements related to the topic (consensus score 0.74-0.80), while 5 statements reached medium consensus (0.50-0.67). Five of the 8 statements with high consensus were general statements about the influence on technological developments on different aspects of work: "New technologies will bring new risks" (81% of the experts agreed with this statement), "new technologies will allow new ways of organizing work" (92% agreed), "new technologies (e.g., artificial intelligence, robots, ICT) will be a part of more work tasks and change the content of tasks" (94% agreed), "workers will have to continuously develop their skills and make sure they are relevant, e.g., in regards to new technologies" (95% agreed), and "new technologies provide opportunities to utilize residual work capacity and offer services in a global market" (61% agreed) (Figs. 4.4 - 4.6). Generally, the agreement between the experts were high (>80% for almost all statements, with

Figure 4.3. Technology: Psychosocial work environment

Block 3: How likely do you think the trends in the following statements are?
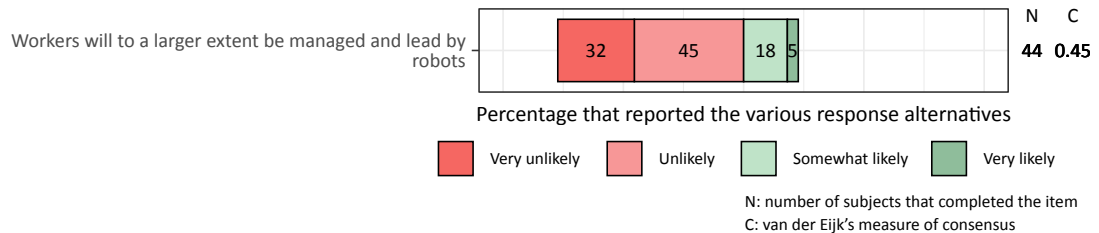
the last statement as the exception). Three of the 8 statements with high consensus pertained to robots/developments within robotics: "Work will be less physically demanding as a result of developments within robotics" (88% agreed), "Tasks will shift from workers to machines and robots" (90% agreed), and "workers will to a larger extent have to cooperate with robots" (100% judged this development to be somewhat or very likely) (Figs. 4.4 - 4.6).

with regard to evaluation of the positive and negative consequences (Block 2), 7 statements addressed other aspects of the work environment than the psychosocial work environment (Fig. 4.5). Among them are 5 of the statements with high consensus (score >0.70) mentioned above. In general, the developments expressed in these statements were judged by the experts to be associated with both negative and positive consequence for the work environment (see Fig. 4.5) such as: "New technologies will allow new ways of organizing work" (72% of the experts assessed that this will be associated with negative consequences, 90% with positive consequences), "new technologies (e.g., artificial intelligence, robots, ICT) will be a part of more work tasks and change the content of tasks" (80% negative, 92% positive), "Tasks will shift from workers to machines and robots" (91% negative, 100% positive), and "workers will have to continuously develop their skills and make sure they are relevant, e.g., in regards to new technologies" (73% negative, 92% positive). Only with regard to the statement "new technologies provide opportunities to utilize residual work capacity and offer services in a global market" there was less than 70% that assessed this development being associated with either negative or positive consequence (hence, the 'Neutral' evaluation in Fig. 4.5 for this statement).

Figure 4.4. Technology: Physical environment, risks, accidents, and other statements regarding the work environment

Block 1: To what extent do you agree with the following statements?
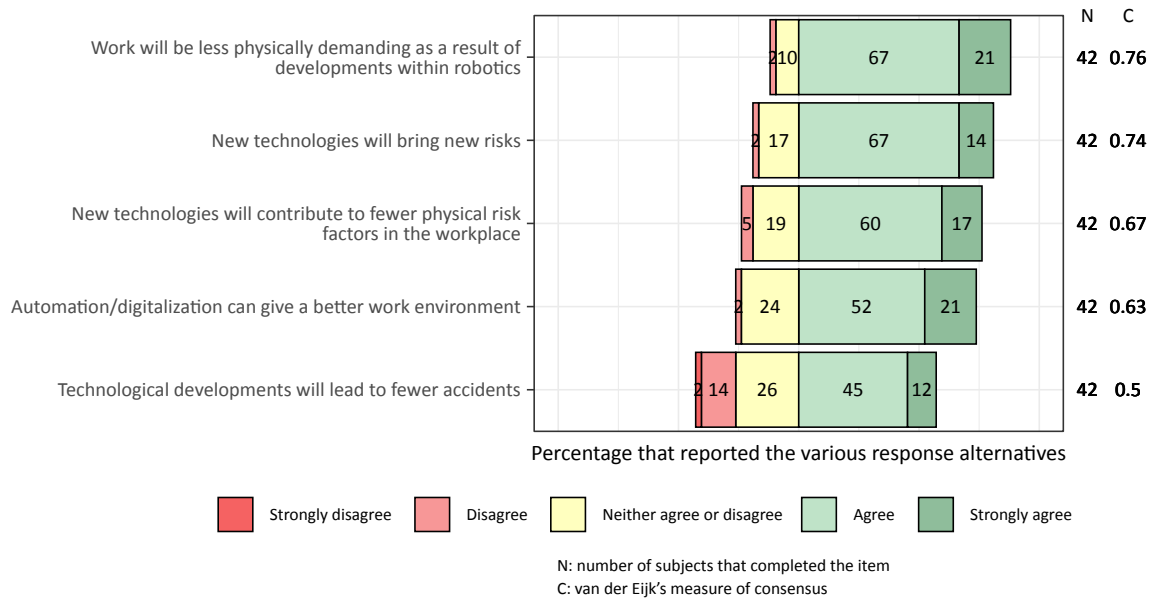
Technology: Health (Fig. 4.7) Finally, one statement from block 1 did not address the work environment, but rather the association between technological development and health (Fig. 4.7). However, there was quite low consensus on this statement ("Rapid technological development will lead to polarization and greater social inequalities in work-related health") (consensus score 0.35).

4.2.1.3 Norway and Denmark

In general, ratings from experts in Norway and Denmark were similar with regard to developments and implications for work. In fact, only two statements exhibited statistically significant differences in distributions of responses between the countries. For "new technologies make it easier to connect service users with service providers" experts in Norway tended to agree more (Appendix B, Table B1). For the rating of positive consequences related to "new technologies provide opportunities to utilize residual work capacity and offer services in a global market" (Appendix B, Table B2) experts in Norway tended to center on "some positive consequences", while responses from Denmark appeared more bimodal, with many respondents reporting either "no consequences" or "considerable consequences".

Figure 4.5. Technology: Physical environment, risks, accidents, and other statements regarding the work environment

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?


	N	C	Neg	Pos	Eval
New technologies will allow new ways of organizing work	41	0.8	72	90	Neg/pos
New technologies (e.g. artificial intelligence, robots, ICT) will be a part of more work tasks and change the content of tasks	40	0.79	80	92	Neg/pos
Tasks will shift from workers to machines and robots	44	0.77	91	100	Neg/pos
Workers will have to continuously develop their skills and make sure they are relevant, e.g. in regards to new technologies	41	0.76	73	92	Neg/pos
New technologies provide opportunities to utilize residual work capacity and offer services in a global market	41	0.74	41	67	Neutral
Technology will to a greater extent determine how work is organized	40	0.61	74	51	Neg
Technological developments will lead to increasing individualization and less unionisation	41	0.57	74	26	Neg

Percentage that reported the various response alternatives

Strongly disagree   Disagree   Neither agree or disagree   Agree   Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure 4.6. Technology: Physical environment, risks, accidents, and other statements regarding the work environment

Block 3: How likely do you think the trends in the following statements are?

Percentage that reported the various response alternatives

Very unlikely   Unlikely   Somewhat likely   Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
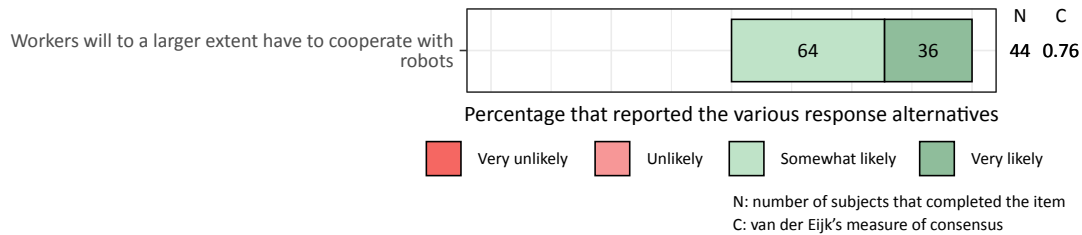
Figure 4.7. Technology: Health

Block 1: To what extent do you agree with the following statements?

Percentage that reported the various response alternatives

Strongly disagree   Disagree   Neither agree or disagree   Agree   Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
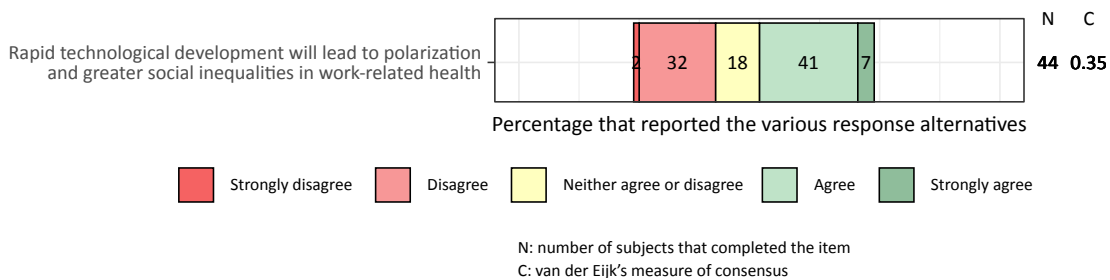
4.2.1.4   The different sub-panels of the study

For the statements related to the developmental driver "technology", statistically significant disagreement between sub-panels was observed for the statement "Technological change will give rise to new educational opportunities", where trade union representatives seemed to be less in agreement with the statement (Appendix C, Table C1, p = 0.049).

For the rating of negative consequences of the statement «tasks will shift from workers to machines and robots» (Appendix C, Table C2), 26.7% of researchers/consultants/occupational health professionals reported "no consequences", 60% reported "some consequences", and 13.3% reported "considerable consequences". On the other hand, all representatives of labour inspectorates and employer organizations reported "some negative consequences" and 66.7% and 33.3% of trade union representatives reported "some" and "considerable" negative consequences, respectively.

4.2.1.5 Suggested solutions from the experts

The textual analysis of statements generated from question 7-9 in round one, revealed several suggestions from the experts pertaining to "technology". It was suggested that the work places could invest in developing a good digital work environment. Furthermore, it was suggested that the work places should invest in new technology to increase effectivity and productivity, but when doing so they should also address the challenges coming from the interactions between humans and new technology. The challenges could be addressed, as suggested by the experts, by closer collaboration between employers and employees. Another suggestion was that the government should develop legislation that also addresses the digital work environment. The Working Environment Authorities should increase surveillance of dangerous work processes and technologies, and should do more to offer guidance to workplaces where these processes and technologies are used, and should support a phasing out of these. Furthermore, it was also suggested that the social partners should take new technologies and digital work (across borders) into consideration in their work.

4.2.1.6 Technology: Overall summary and conclusion

Technology is a salient topic in discussions of the future of work. Not surprisingly then, many of the expert opinions reflected by the statements compiled in the current study pertained to this topic/driver. Issues concerning implications for job creation, -destruction, and -change were prevalent, with the highest agreement and consensus seemingly about *positive* aspects of contemporary technological developments, namely the emergence of new types of jobs and educational opportunities (see e.g. Figs. A8 of Appendix A). Implications for company productivity, efficiency, and competitive advantages were also frequently cited, here also often with emphasis on potential benefits and opportunities of technological development.

In general, responses tended towards agreement, indicating few controversial statements regarding developments and challenges associated with technological advancement. Consensus scores were also high for many statements, indicating general agreement among the experts in the degree to which the statements represented true or likely developments. The lowest consensus rating was observed for "Rapid technological development will lead to polarization and greater social inequalities in work-related health" (C = 0.35, Fig. 4.7), for which the experts used the full rating scale ranging from "strongly disagree" to "strongly agree".

One statement seemed to stand out as particularly controversial, with only 19% agreeing or strongly agreeing, and 40% disagreeing or strongly disagreeing. This statement referred to challenges associated with the monitoring of automated processes ("It will be difficult to control the correct execution of automated processes", see Figs. A2 and A10 of Appendix A). This apparent disagreement about implications of automation and robotization was also reflected in statements such as "Rapid technological development will lead to polarization and greater social inequalities in work-related health" (Fig. 4.7), "Workers will experience alienation from work as a consequence of automation and robotization" (Fig. 4.2), and "Workers will to a larger extent be managed and lead by robots" (Fig. 4.3). The latter was by a clear majority of the experts rated as unlikely or very

unlikely. This statement was also among the few that actually referred to a specific technological development, namely robotization. Most statements were rather broad and general, referring to "technology" as an overarching concept. With regard to robotization in specific, there was high consensus among the experts that developments will be consequential, but less consensus regarding the specific consequences. They agreed that such developments will lead to physically less demanding work and there was moderate consensus that it will lead to increased job insecurity. However, there was little consensus that the development within robotics will lead to less routine work, and that robots will manage and lead human employees to a larger extent. Hence, one may speculate that the high level of agreement is driven by the high level of abstraction, i.e. that disagreement would be more apparent if more specific statements were presented.

For the psychosocial work environment in specific, some important notions appeared to be those of increasing workplace collaboration, increased flexibility in time and place of work execution, and more varied and complex work tasks. For other aspects of the work environment the appearance of new risks at work, the possibility of organizing work in novel ways, the demands for workers to continuously develop their skills, and an increased potential to utilize residual work capacity and thereby to strengthen labor market inclusivity. With regard to the specific technology of robotics, consensus seemed stronger for statements pertaining to the general- or physical- than the psychosocial work environment. Interestingly, consensus was only moderate with regard to the consequences of robotics/automation for job security.

With regard to consequences of the statements listed in block 2 for work environment and health, the experts seemed to be more in agreement with each other regarding developments that could have both positive and negative outcomes. Only one statement, "Work tasks will become more varied and complex as new technologies take on more of the routine tasks", was categorized as only positive (Fig. 4.2). That statement exhibited high consensus, whereas the four statements that were categorized as only negative only obtained medium consensus. The remaining statements exhibiting high consensus were associated with both positive and negative consequences.

4.2.2 Demography

4.2.2.1 Themes and blocks

Ten statements related to the driver demography was generated by the experts (see Table 4.4 and Figs. A25-A29 of Appendix A).

The experts tended to agree (or strongly agree) with most statements. The proportion of experts that disagreed was generally <10% for all statements, except three where respectively 16%, 20% and 33% disagreed or strongly disagreed. Only one statement was rated with 'strongly disagree', and one statement was rated with 'very unlikely', in both cases this rating was given by only one of the experts.

Table 4.4. Demography: Number of statements by theme and block

Themes	Block 1	Block 2	Block 3	Sum
Demography	2	2	2	6
Productivity, efficiency, and competitive advantages	3			3
Skills and competency	1			1
Sum	6	2	2	10

Figure 4.8. Demography: Psychosocial work environment

Block 1: To what extent do you agree with the following statements?

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
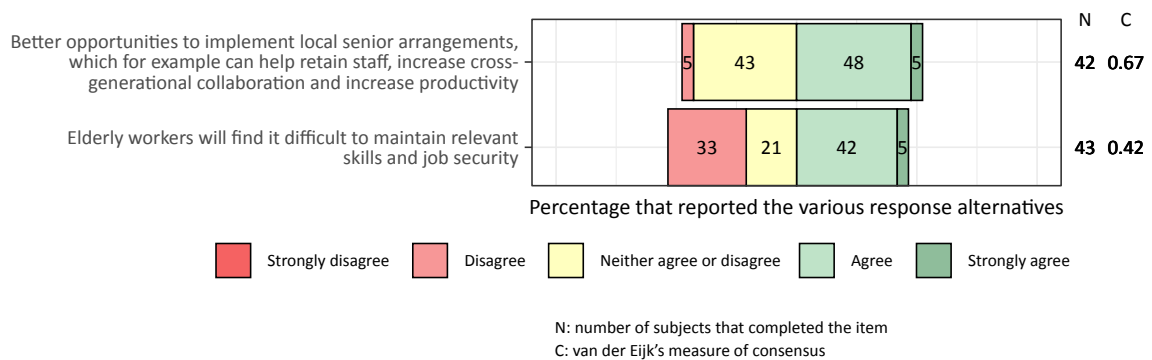
4.2.2.2   Demography, work environment, and health

Demography: The psychosocial work environment (Figs. 4.8)   Fig. 4.8 shows the two statements that where categorized as related to demography and psychosocial work environment. Both statements were about aging workers. One statement was about local senior arrangement, and how this would benefit the organization, this statement had 53% of the experts agree, and a medium consensus. The other statement "Elderly workers will find it difficult to maintain relevant skills and experiencing job security" had 47% of the experts agree, while 33% of the experts disagreed with this statement. The consensus score was low for this statement (consensus score 0.42).

None of the demography statements rated in block 2 or 3 were about demography and psychosocial work environment.

Demography: Physical environment, accidents, risks, and other aspects of the work environment (Figs. 4.9)   One statement from block 1 (Fig. 4.9), and two statements from block 2 (Fig. 4.10) were categorized as being about demography and other aspects of work environment than the psychosocial work environment. One was about diversification of the work force. "The workforce

Figure 4.9. Demography: Physical environment, risks, accidents, and other statements regarding the work environment
Block 1: To what extent do you agree with the following statements?

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
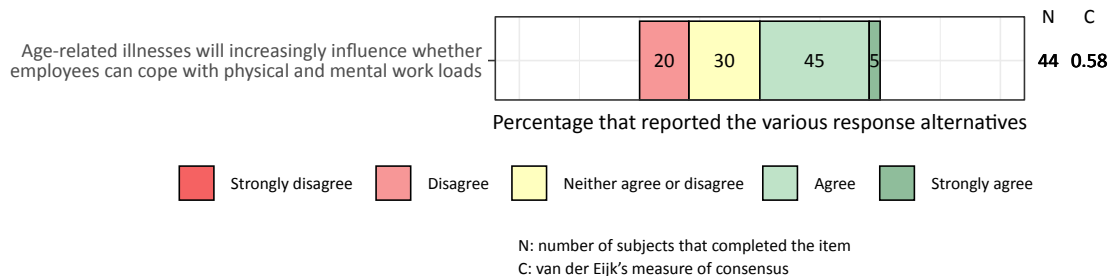
will become more diverse, with a more equal distribution of gender, ethnicity, and nationalities" had a high consensus score, and was categorised as bringing positive consequences for the work environment (Fig. 4.10).

Two of the statements were about aging workers. From block 1 "Age-related illnesses will increasingly influence whether employees can cope with physical and mental work loads" was rated with a medium consensus score, 50% of experts agreed or strongly agreed with the statement, whereas 20% disagreed (Fig. 4.9). The statement "There will be a higher proportion of elderly workers in important positions" had 43% of the experts saying they "agree" or "strongly agree", but a substantial number of experts also disagreed or strongly disagreed (16%). The consensus score was in the low end of the medium range for this statement (consensus score 0.55). (Fig. 4.10).

Demography: Health   No statements were classified under "health" for the Demography driver.

4.2.2.3   Norway and Denmark

There were no statistically significant differences between the experts from Denmark and Norway in the rating of the statements in round 3.

4.2.2.4   The different panels of the study

In general, there were no substantial levels of disagreement between the sub-panels on the statements related to the "demography" driver. Only one statement "New generations entering the labour market bring new perspectives on new challenges, such as digitalization" reached statistical significance (p = 0.039) between the sub-panels (see Appendix C, Table C3). Here, 11% of the experts from trade unions disagreed with the statement, whereas none of the experts from

Figure 4.10. Demography: Physical environment, risks, accidents, and other statements regarding the work environment
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
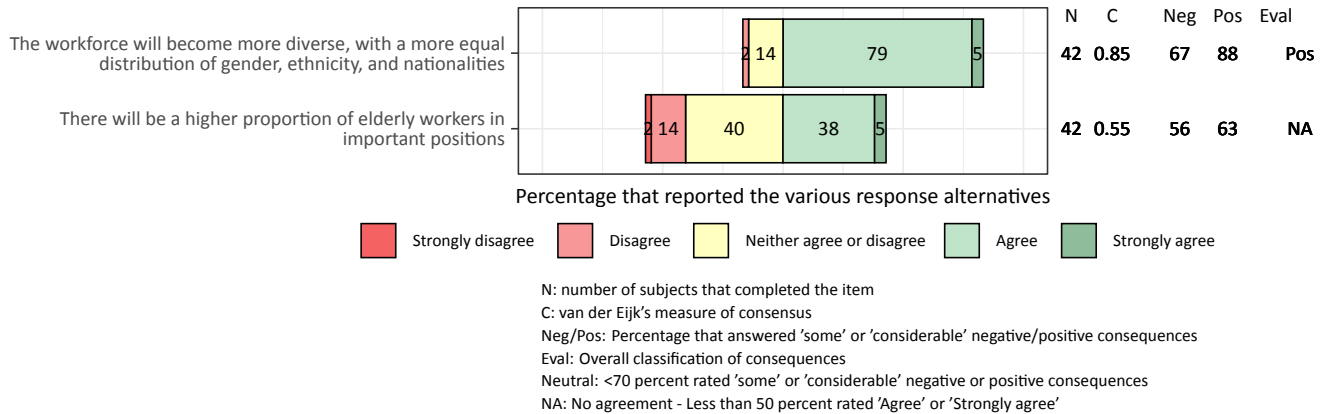
the other sub-panels disagreed. Also, a much larger percentage of the researchers, consultants and occupational health professionals strongly agreed with this statement than in the rest of the groups.

An apparent divide was observed for the rating of positive consequences pertaining to the statement "There will be a higher proportion of elderly employees in important positions" (Appendix C, Table C4). Researchers, consultants, and occupational health professionals seemed slightly less optimistic about the potential consequences of such a development, in spite of no obvious differences between the different expert groups in the confidence that such a development will actually take place.

4.2.2.5   Suggested solutions from the experts

Statements regarding suggested solutions for future action plans reflecting "demography" were organized according to the three following sub-themes; workers with health issues, older workers, and gender balance. Regarding workers with health issues examples on suggested actions include that authorities should take measures that support the workplaces' efforts to retain employees with health problems, where it is further mentioned that job centers and employment agencies have a role to play too. In relation to older workers, a suggestion is that social partners should

agree on arrangements that ensure that it is profitable both for employees to stay in the working life for as long as possible and for employers to have the older employees employed. For gender balance, it is stated that the social partners should contribute to measures to support a better gender balance in the labor market.

4.2.2.6 Demography: Overall summary and conclusion

These statements pertaining to demography revolved around the ageing population and demographic changes or diversification in the population that are likely to influence the world of work. Not surprisingly, perhaps, there was high agreement with general notions such as that of the work population getting older and migration increasing. However, while there was fairly high agreement with statements, consensus was generally only medium, and only three statements achieved high consensus (C > 0.70). These were rather broad factual statements about the increasing proportion of seniors in the labour force and increasing diversity (see Figs. A25, A28 and A29 of Appendix A). Interestingly, no statements were generated about urbanisation, a central component of the demography "mega-trend" according to Dølvik and Steen [7] (see the Introduction section).

The most controversial statement, when judging by consensus rating, was "Elderly workers will find it difficult to maintain relevant skills and job security" (C = 0.42, Fig. A27 of Appendix A). It was the only statement to exhibit low consensus. The only statement with which any experts strongly disagreed was "There will be a higher proportion of elderly workers in important positions" (Fig. A28 of Appendix A). The main source of controversy under the demography heading seemed to be notions of negative implications and challenges of a changing world of work to ageing workers, such as age-related illnesses, maintenance of skills and job security.

4.2.3 Globalization

4.2.3.1 Themes and blocks

A total of 11 statements were classified as statements concerning globalization (see Table 4.5 and Figs. A30-A35 of Appendix A).

Table 4.5. Globalization: Number of statements by theme and block

Themes	Block 1	Block 2	Block 3	Sum
Globalization		3		3
Interaction, cooperation, and culture	3			3
Productivity, efficiency, and competitive advantages	2	1		3
Time and place	1			1
Demography		1		1
Sum	6	5	0	11

Figure 4.11. Globalization: Psychosocial work environment

Block 1: To what extent do you agree with the following statements?

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
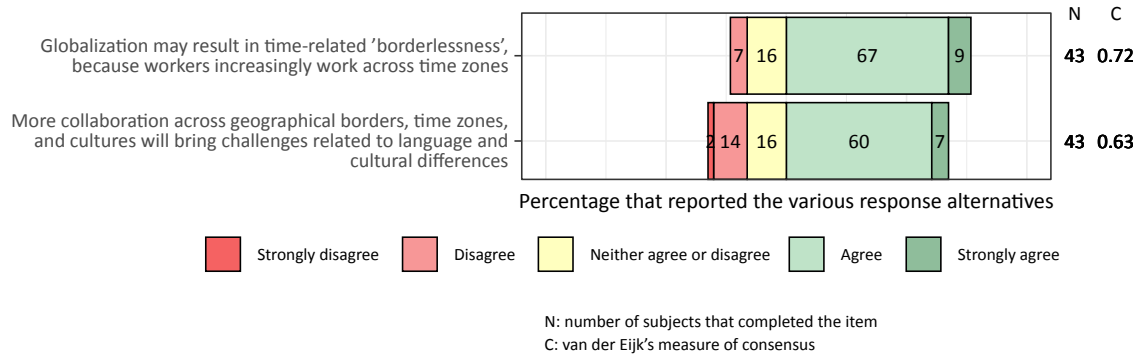
All 11 statements were rated by at least one respondent as "strongly agree". In contrast, only one statement was rated "strongly disagree" by a respondent. In general, "agree ratings" ("agree" or "strongly agree") were much more prevalent than "disagree ratings" (see Fig. D7 and Fig. D8).

4.2.3.2   Globalization, work environment, and health

Seven of the 11 statements on globalization were classified as pertaining to work environment or health. Two statements from "Block 1: Agreement only" pertained to the psychosocial work environment (Fig. 4.11), while all 5 statements in "Block 2: Agreement and impact (consequences)" pertained to the physical work environment and other aspects of the work environment (Fig. 4.12).

Globalization: The psychosocial work environment (Figs. 4.11)   With regard to the psychosocial work environment, two statements were of relevance, both from block 1. Both of them concerned the developments related to the 'borderlessness' of work and the labor market. There was consensus on the statement that "globalization may result in time-related 'borderlessness', because workers increasingly work across time zones" (consensus score 0.72). Seventy-six percent of the respondents agreed with this statement, while 7% disagreed. There was moderate consensus on the statement "more collaboration across geographical borders, time zones, and cultures will bring challenges related to language and cultural differences" (consensus score 0.63). Sixty-seven percent of the respondents agreed and 16% disagreed with this statement.

Globalization: Physical environment, accidents, risks, and other aspects of the work environment (Fig. 4.12)   Four statements of the five statements of relevance for the physical work environment and other aspects of the work environment concerned the 'borderlessness' of work and the labor market, and the latter concerned competition and productivity. There was very

high consensus and almost unanimous agreement on the statements for "workers will experience more competition due to globalization" and "globalization will increase (e.g., cross-border business, offshoring)" (93%, respectively 97%, of the respondents agreed with the two statements). There was high consensus on the statements "globalization will make it easier to recruit the appropriate labor resources across country borders", "new technologies provide opportunities to utilize residual work capacity and offer services in a global market" and "the labor market will open up and be larger for many due to migration". A clear majority of the respondents agreed with these three statements (78%, 60% and 65%, respectively), while only 2-7% disagreed and 20-34% neither agreed nor disagreed.

With regard to the evaluation of positive and negative consequences, a clear majority of respondents rated the statement "workers will experience more competition due to globalization" as being associated with negative consequences (95% of the respondents), while 60% rated that this could be associated with positive consequences. With regard to the statement "globalization will increase (e.g., cross-border business, offshoring)", equally large proportions of the respondents rated this as associated with negative (80% of the respondents) and positive consequences (83%). The same pattern is observed for the statements "globalization will make it easier to recruit the appropriate labor resources across country borders" (66% negative, 69% positive) and "the labor market will open up and be larger for many due to migration" (69% negative, 73% positive). The proportion of respondents that rated the statement "new technologies provide opportunities to utilize residual work capacity and offer services in a global market" to be associated with positive consequences (67%) was somewhat higher than the proportion of respondents that associated this with negative consequences (41%).

Globalization: Health   No statements were classified under "health" for the Globalization driver.

4.2.3.3   Norway and Denmark

For the majority of the statements there were no major differences in the pattern of agreement between the Norwegian and Danish panels. The panels differed with regard to evaluation of the consequences for two statements. With regard to the positive consequences associated with the statement "globalization will increase (e.g., cross-border business, offshoring)", 63.6% of the Danish panel rated this as associated with 'some consequences' and 9.1% with 'considerable consequences' (Appendix B, Table B3). In the Norwegian panel, these numbers were 52.6% and 42.1%, respectively. In other words, there seems to be a stronger emphasis on the positive consequences with regard to this development in the Norwegian panel compared to the Danish panel. A similar pattern was seen for the statement "new technologies provide opportunities to utilize residual work capacity and offer services in a global market" (Appendix B, Table CB4).

**Figure 4.12. Globalization: Physical environment, risks, accidents, and other state-
ments regarding the work environment**

*Block 2: To what extent do you agree with the following statements,
and to what extent do you think there will be positive and/or negative
consequences for the work environment?*

Percentage that reported the various response alternatives

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'
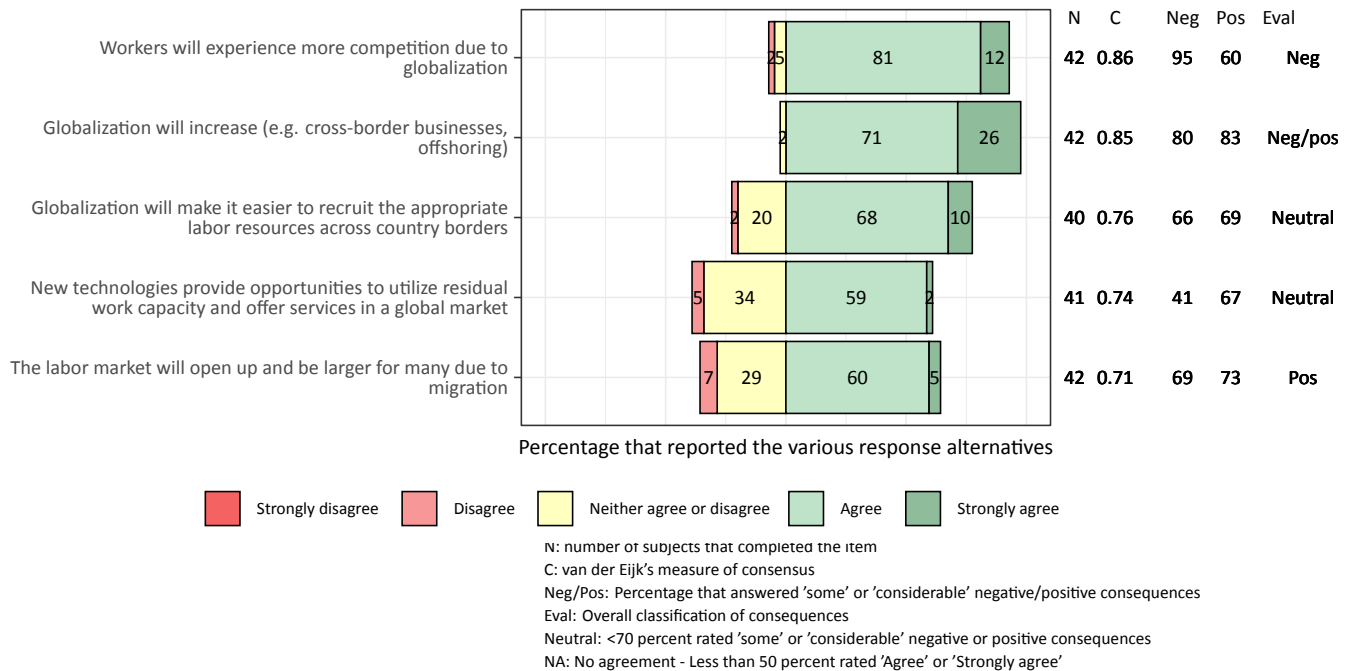
4.2.3.4   The different panels of the study

With regard to the statement "The labour market will open up and be larger for many due to mi-
gration" some disagreement was observed, mainly between the social partners on one side and
labor inspectorates and researchers/consultants/occupational health professionals on the other
side, with the latter group being more inclined to agree (Appendix C, Table C5). Moreover, the
same group was also more optimistic regarding the potential positive impact of such a develop-
ment (Appendix C, Table C5).

The sub-panels exhibited some disagreement about positive consequences for the statement
"globalization will make it easier to recruit the appropriate labor resources across country borders"
(Appendix C, Table C6), where the perhaps most distinct difference was between trade unions
and researchers/consultants/occupational health professionals in their rating of positive conse-
quences associated with this development. While 66.7% of the former reported "no positive con-
sequences", 53.8% of the latter reported "considerable positive consequences".

4.2.3.5 Suggested solutions from the experts

The expert panel came with seven concrete solutions for the future with focus on "globalization". Suggestions reflecting globalization included actions regarding the influx of foreign workers and international regulation. A suggested action plan regarding the former topic includes that government authorities should adapt work environment legislation to make it easier to recruit labor from abroad, and that the social partners should ensure representation of migrant workers and technological companies in the tripartite cooperation. Propositions reflecting international regulation include for example that government authorities should establish international work environment standards to enforce the same regulations regardless of location.

4.2.3.6 Globalization: Overall summary and conclusion

The eleven statements concerning globalisation can be roughly divided into three topics, namely culture/language, competition/productivity, and the borderless nature of work and the labour market. More than half of the statements pertained to the last topic. Agreement was high for all statements, with the lowest proportion of "agree"/"strongly agree" being 61% ("New technologies provide opportunities to utilise residual work capacity and offer services in a global market", Fig. A35 of Appendix A). Consensus was also high, with nine statements exhibiting high consensus (C > 0.70) and the remaining two exhibiting medium consensus (C between 0.50 and 0.70). Hence, the overall impression was that there was little controversy regarding the globalisation of work.

With regard to consequences for the work environment, there were five statements under block 2 (see Figs. A33-A35 of Appendix A), and one statement was mainly associated with negative consequences ("Workers will experience more competition due to globalisation") and one with positive consequences ("The labour market will open up and be larger for many due to migration"). The remaining statements were either both positive and negative or neutral, i.e. less than 70% rated them as positive or negative.

4.2.4 Environment

4.2.4.1 Themes and blocks

A total of seven statements pertained to the driver "Environment" (see Table 4.6 and Figs. A36-A41 of Appendix A).

Six of the seven statements were rated by at least one person with "strongly agree", and all seven with "agree". Few statements exhibited high levels of disagreement as the response "strongly disagree" was only observed for two statements.

4.2.4.2 Environment, work environment, and health

Two statements pertaining to the Environment driver regarded the work environment. One of these statements was about the psychosocial work environment (Fig. 4.13). This statement ("Digital solutions and climate considerations will lead to solitary work/working from home, which may

Table 4.6. Environment: Number of statements by theme and block

Themes	Block 1	Block 2	Block 3	Sum
Sustainability	2	1	1	4
Interaction, cooperation, and culture	1			1
Job creation, job destruction, job change, and predictability	1			1
Productivity, efficiency, and competitive advantages	1			1
Sum	5	1	1	7

Figure 4.13. Environment: Psychosocial work environment
Block 1: To what extent do you agree with the following statements?

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
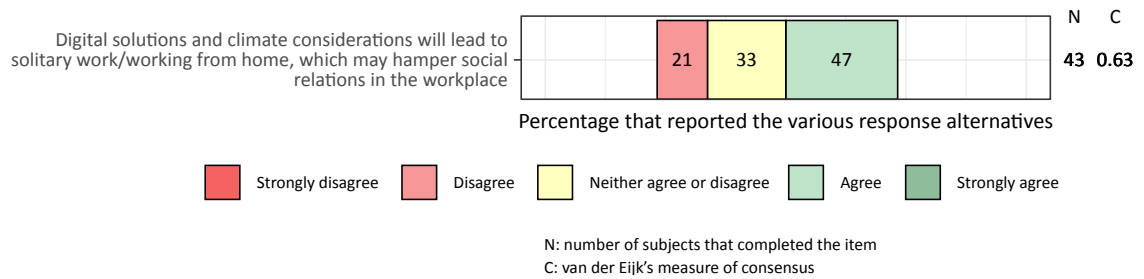
hamper social relations at the workplace") exhibited a consensus score of 0.63. The other state-
ment pertained to "physical environment, risks, accidents, and other aspects of the work envi-
ronment", for "Block 2: Agreement and impact (consequences)". Consensus and agreement with
this statement ("A sustainable work environment will become more important as a strategic com-
petitive factor", Fig. 4.14) is discussed in the previous section. In addition to that, many of the
experts (87%) believed the consequences of this possible development to be positive for the work
environment.

Environment: Health   No statements were classified under "health" for the Environment driver.

4.2.4.3   Norway and Denmark

There were no statistically significant differences between the experts from Denmark and Norway
in the rating of the statements in round 3.

Figure 4.14. Environment: Physical environment, risks, accidents, and other statements regarding the work environment

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Percentage that reported the various response alternatives

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'
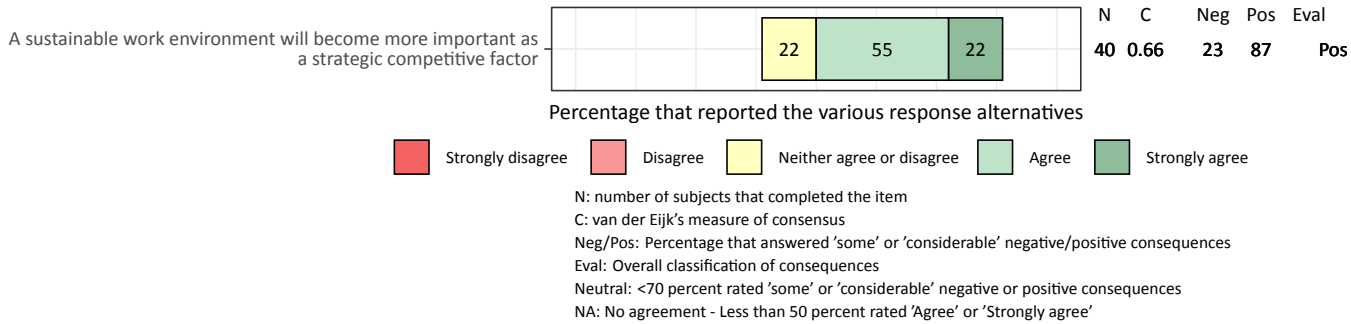
4.2.4.4 The different panels of the study

For the statements reflecting the driver "Environment", there was some apparent disagreement between the sub-panels with regard to one statement: "A sustainable work environment will become more important as a strategic competitive factor" (Appendix C, Table C7). The main difference seemed to be that trade union representatives were slightly less inclined to agree with the statement, however, only to the extent that 44.4% reported "neither agree of disagree". None of the experts reported less agreement than that.

4.2.4.5 Suggested solutions from the experts

Regarding the driver "Environment", the panel of experts had three concrete suggestions to future solutions regarding "climate change". A few propositions for legislative future actions are made in the light of climate change and sustainability. According to the expert panel, authorities should, to a greater extent, focus on ethics and sustainability, both within government and in the workplace. This means ensuring that a sustainable work environment is included in working life agreements. Finally, the social partners must then support ethical and sustainable developments of the work environment.

4.2.4.6 Environment: Overall summary and conclusion

The seven statements devoted to the topic of the environment, including climate change and sustainability, revolved around challenges associated with attempting to reduce climate gas emissions; for instance by cutting back on work travel and increasing remote work with less direct social contact, sustainability as a competitive advantage, and some more general declarative statements

about the prospective development of a work life with increased environmental awareness. Overall, statements pertained to effects of adjustments workplaces will have to make due to climate change.

In general, there was a high level of agreement with statements, and consensus was medium to high, with consensus scores ranging from 0.52 to 0.86. Notably, the most agreed upon statement in the study, namely "New types of industries and jobs will be created with the green transition", pertained to this driver (see Figs. A1 and A37 of Appendix A). More than half (52%) strongly agreed with this statement, while the remaining 48% agreed.

Interestingly, the statements pertaining to the environment seemed to be mainly positive or optimistic in nature, referring to new opportunities or constructive ways of meeting new requirements. For example, the three statements receiving the highest consensus scores, and with most experts agreeing, reflected the increased prominence of environmentally friendly solutions, new types of industries emerging due to the green transition, and competitive advantages for corporations with ethical and sustainable corporate profiles.

4.2.5   Skills/competence

4.2.5.1   Themes and blocks

A relatively high number of statements - 53 out of 210 - pertained to varying aspects of *skills/competence* (see Table 4.7 and Figs. A42 - A64 of appendix A).

Altogether 16 of the 53 statements (30.2%) pertaining to skills/competence exhibited high consensus (a consensus score above 0.70). Figs. D13, D14, and D15 show the five highest consensus-ranked statements from each block.

4.2.5.2   Skills/competence, work environment, and health

Twenty-six statements about skills/competence regarded work environment and health, with six pertaining to the psychosocial work environment (Figs. 4.15 to 4.17), 20 to physical environment, risks, accidents, and other aspects of the work environment (Figs. 4.18 to 4.20), and none pertaining to health.

Skills/competence: The psychosocial work environment (Figs. 4.15 - 4.17)   Statements about the psychosocial work environment exhibited varying degrees of consensus. Two showed high consensus ("Employers will have access to more employees who can solve complex and novel tasks", C = 0.72, Fig. 4.15 and "Self leadership will be required to a larger extent", C = 0.84, 4.16), two showed medium consensus ("Collaboration between professionals and volunteers in the labor market will become more widespread", C = 0.65, Fig. 4.16 and "The focus on people and intrinsic motivation will gain traction", C = 0.61, 4.17), and two showed low consensus ("Elderly workers will find it difficult to maintain relevant skills and job security", C = 0.42, Fig. 4.15 and "It will be more difficult to satisfy the need for meaningful tasks, sufficient organizational resources, adequate feedback culture, opportunities for influence, skill development and collaboration", C

Table 4.7. Skills: Number of statements by theme and block

Themes	Block 1	Block 2	Block 3	Sum
Skills and competency	13	5	5	23
General work environment	2	1	2	5
Productivity, efficiency, and competitive advantages	4	1		5
Job creation, job destruction, job change, and predictability	4			4
Organization of work	1	1		2
Fragmentation and individualization		2		2
Roles and responsibilities		2		2
Psychosocial work environment	1			1
Flexibility		1		1
Globalization		1		1
Interaction, cooperation, and culture		1		1
Leadership		1		1
Sustainability		1		1
Terms and conditions of work		1		1
Affiliation and connection			1	1
Regulations and control over work life			1	1
Types of organizations			1	1
Sum	25	18	10	53

= 0.41, 4.15). For the low consensus statements there was also a relatively high proportion of experts that disagreed, with 33% responding "Disagree" to the first and 41% responding either "Disagree" or "Strongly disagree" to the latter.

With respect to consequences for the work environment (i.e. block 2, Fig. 4.16), one statement was judged as potentially both positive and negative ("Self leadership will be required to larger extent") - 95% rated it as possibly negative and 92% as possibly positive. For the other statement ("Collaboration between professionals and volunteers in the labor market will become more widespread") less than 50% of the experts responded "Agree" or "Strongly agree", hence it was classified as "No agreement".

Skills/competence: Physical environment, accidents, risks, and other aspects of the work environment (Figs. 4.18 - 4.20) For the statements that pertained to physical work environment, risks, and other general work environment issues, three statements were observed for "Block 1: Agreement only". These statements regarded the skills necessary to maintain and develop an ap-

Figure 4.15. Skills: Psychosocial work environment

Block 1: To what extent do you agree with the following statements?

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure 4.16. Skills: Psychosocial work environment

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure 4.17. Skills: Psychosocial work environment
Block 3: How likely do you think the trends in the following statements are?
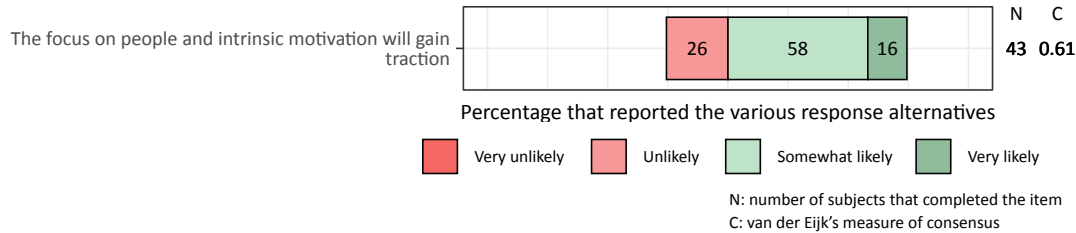
Figure 4.18. Skills: Physical environment, risks, accidents, and other statements regarding the work environment
Block 1: To what extent do you agree with the following statements?
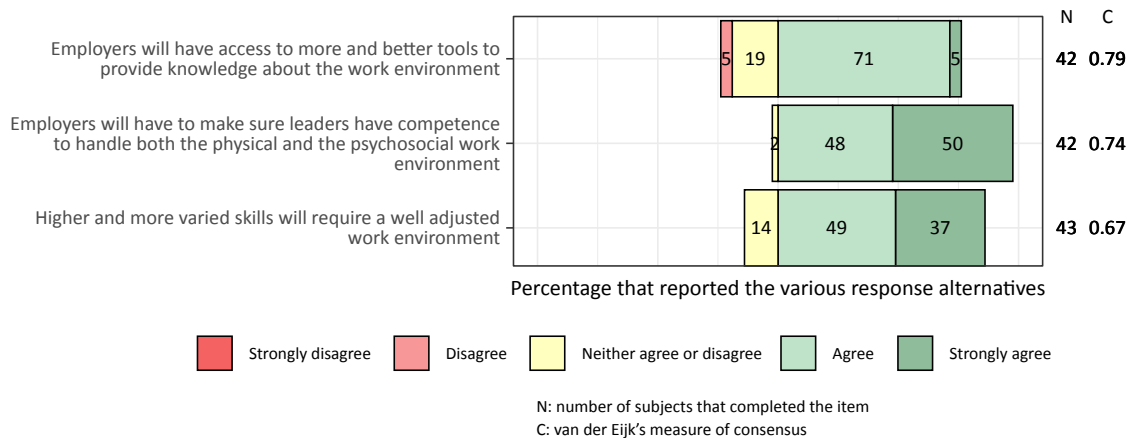
propriate psychosocial work environment ("Employers will have access to more and better tools to provide knowledge about the work environment", "Employers will have to make sure leaders have competence to handle both the physical and the psychosocial work environment", and "Higher and more varied skills will require a well adjusted work environment"). Consensus was high to medium, with C = 0.79, C = 0.74, and C = 0.67 for the three statements, respectively. Interestingly, the statement with the highest consensus score also exhibited the lowest proportion of experts reporting "Strongly agree", with only 5% compared to 50% and 37% for the two other statements.

For "Block 2: Agreement and impact (consequences)", agreement was generally also strong, and all but one statements ("Social skill demands will increase", C = 0.48) exhibited medium or

strong consensus (see Fig. 4.19). That statement was also the only one for which the response "Strongly disagree" was observed. with regard to consequences, five statements were considered as potentially having negative ramifications, seven were considered positive, two both positive and negative, and two were neutral (i.e. not strongly believed to be associated with neither positive nor negative effects) (see Fig. 4.19).

Many of the statements labeled potentially positive seemed to regard adaptations that companies will need to make in order to remain viable, that may be considered positive for society and workers (e.g. "Employers will have a vested interest in investing in employee skill development", "Companies will to a greater extent have to include ethics, sustainability, and corporate social responsibility in their value chains", "Innovation culture will become more important"). "Negative" statements seemed to revolve more around demands, responsibilities, and lack of support that will affect the individual worker (e.g. "Work contracts will become more individualized and the role of unions will be lessened", "The individual employee will to a larger extent have to take responsibility for their own work situation", "Requirements to remain in work longer will increase"). The two developments that were seen as both positive and negative pertained to skill development demands and flexibility demands ("Workers will have to continuously develop their skills and make sure they are relevant, e.g. in regards to new technologies", "Employees will become more flexible")

For "Block 3: Likelihood", one statement was classified as pertaining to physical work environment, risks, and other general work environment issues ("Work environment, engagement, and commitment to the organisation will become strategic competitive factors"). Consensus was medium (C = 0.63), but with 92% of respondents judging this development as somewhat or very likely.

Skills/competence: Health   No statements were classified under "health" for the Skills/competence driver.

4.2.5.3   Norway and Denmark

Experts in Denmark were less inclined to agree with the statement "New industries will increase the demand for previously less sought after skills" (Appendix B, Table B5), with 54.2% reporting "Neither agree or disagree", versus 5.3% for the Norwegian experts. Moreover, while the Danish experts mostly reported "Neither agree or disagree" or "Agree", Norwegian experts seemed more divided, with 15.8% reporting "Disagree", 68.4% "Agree" and 10.5% "Strongly agree".

With regard to positive consequences of the statement "The individual employee will to a larger extent have to take responsibility for their own work situation", experts in Norway seemed more prone to the notion that there may be positive consequences (Appendix B, Table B6). As for negative consequences of having to remain in employment for longer ("Requirements to remain in

Figure 4.19. Skills: Physical environment, risks, accidents, and other statements regarding the work environment
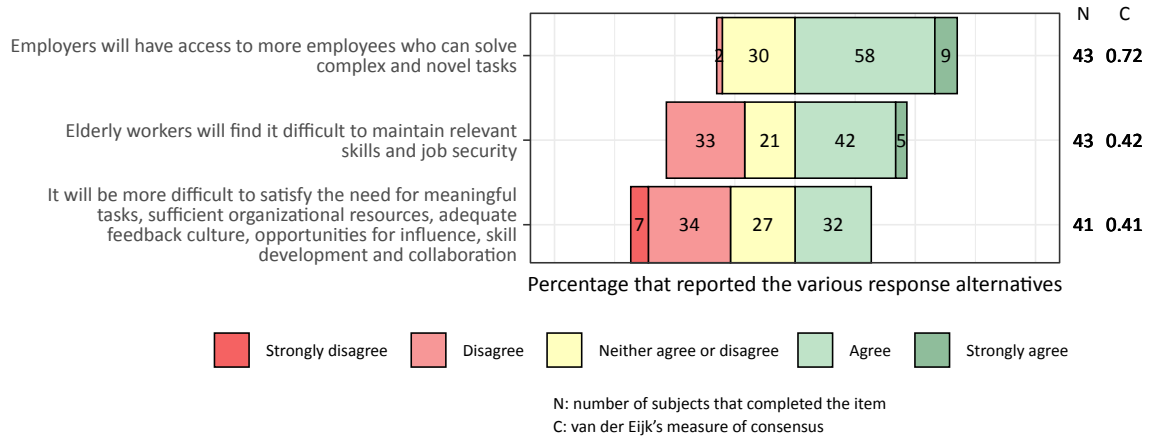*Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?*
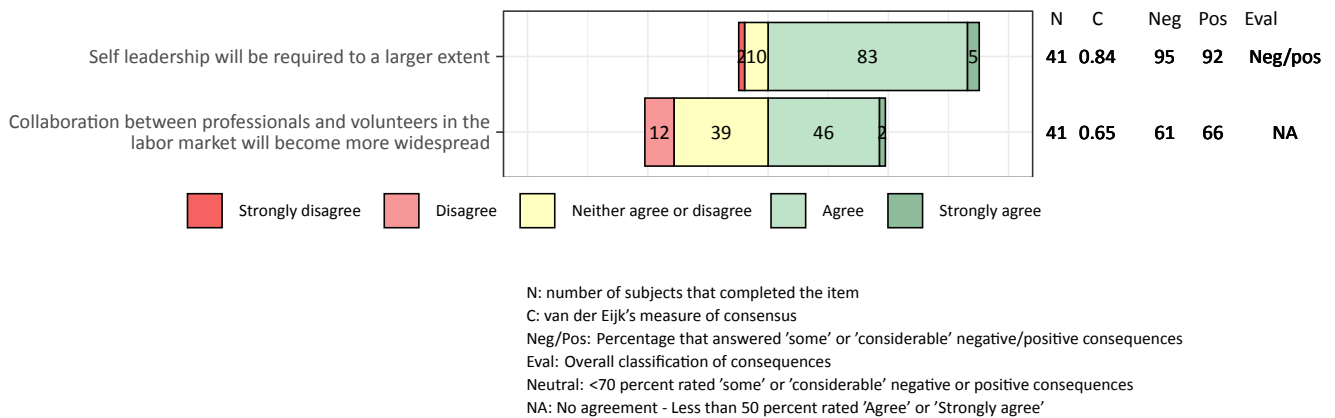

Statement	N	C	Neg	Pos	Eval
Streamlining demands will increase	40	0.79	84	56	Neg
Requirements to remain in work longer will increase	42	0.77	86	69	Neg
Workers will have to continuously develop their skills and make sure they are relevant, e.g. in regards to new technologies	41	0.76	73	92	Neg/pos
Employers will have a vested interest in investing in employee skill development	42	0.76	46	90	Pos
Globalization will make it easier to recruit the appropriate labor resources across country borders	40	0.76	66	69	Neutral
Companies will have to invest more in skill development	42	0.75	34	95	Pos
Employees will become more flexible	41	0.74	77	90	Neg/pos
The ability to work with innovative solutions will become more important	41	0.72	50	80	Pos
Companies will to a greater extent have to include ethics, sustainability, and corporate social responsibility in their value chains	40	0.7	24	89	Pos
Work life will become more task-driven	41	0.68	61	69	Neutral
A sustainable work environment will become more important as a strategic competitive factor	40	0.66	23	87	Pos
The labor market will be more individualized	40	0.66	84	37	Neg
Innovation culture will become more important	42	0.62	42	80	Pos
Work contracts will become more individualized and the role of unions will be lessened	40	0.56	81	32	Neg
The individual employee will to a larger extent have to take responsibility for their own work situation	42	0.55	72	56	Neg
Social skill demands will increase	42	0.48	49	76	Pos

Percentage that reported the various response alternatives

Strongly disagree   Disagree   Neither agree or disagree   Agree   Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure 4.20. Skills: Physical environment, risks, accidents, and other statements regarding the work environment

Block 3: How likely do you think the trends in the following statements are?
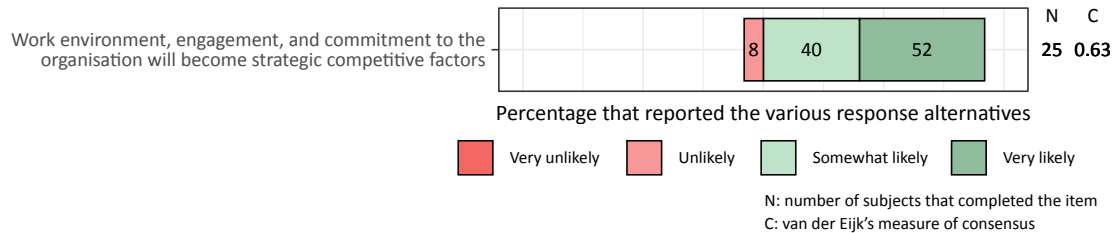
work longer will increase") the experts in Norway also seemed more optimistic (Appendix B, Table B7).

For the statements "The focus on people and intrinsic motivation will gain traction" and "Work environment, engagement, and commitment to the organisation will become strategic competitive factors" (Appendix B, Table B8) the Norwegian experts once again seemed more optimistic, with higher proportions of responses indicating the likelihood of such developments than among the Danish experts.

4.2.5.4 The different panels of the study

Comparing responses from the different panels, a relatively high number of statements revealed statistically significant differences in evaluations (see Appendix C, Tables C8 to C16).

One statement about access to work environment-relevant knowledge ("Employers will have access to more and better tools to provide knowledge about the work environment", Table C8, $p = 0.024$) seemed to differ between the social partners on one side and inspection authorities, researchers, consultants and occupational health professionals on the other side. The latter group appeared to vary more in their level of agreement, ranging from "Disagree" to "Strongly agree", whereas the experts from the social partners all responded with "Agree" or "Strongly agree".

For "Technological change will give rise to new educational opportunities" (Table C9), the trade unions appeared to be less convinced than the other groups ($p = 0.049$), although no one reported less agreement than "Neither agree or disagree".

Regarding the statement "New generations entering the labor market bring new perspectives on new challenges, such as digitalization" (Table C10, $p = 0.039$), trade union experts seemed less convinced than the rest, with 11.1% responding "Disagree". None of the other experts recorded that response. Researcher, consultants, and occupational health professionals, on the other hand, exhibited the highest proportion of "Strongly agree"-responses, with 64.3%.

For "Shortages of skilled labor is an advantage for the highly qualified" (Table C11, $p = 0.028$) researchers, consultants and occupational health professionals appeared to agree more. As op-

posed to many other statements, here the whole range of responses from "Strongly disagree" to "Strongly agree" was used, indicating some degree of controversy.

Statistically significant differences were also observed for "Employees will become more flexible" (Table C12, p = 0.012), although the patterns of difference were not very distinct. However, inspection authorities, researchers, consultants and occupational health professionals exhibited a relatively high frequency of "Agree" and "Strongly agree". Researchers, consultants and occupational health professionals exhibited a somewhat bipolar distribution, with relatively large proportions of responses also for "Disagree" (15.4%).

Trade union experts were less convinced than the other experts that there may be positive consequences of globalization making it easier to recruit across borders ("Globalization will make it easier to recruit the appropriate labor resources across country borders: Positive consequences", Table C13, p = 0.013). Researchers, consultants, and occupational health professionals, on the other hand, seemed more convinced that there might be positive consequences of such a development.

Some apparent differences were observed for "The individual employee will to a larger extent have to take responsibility for their own work situation: Positive consequences" (Table C14, p = 0.044), where trade unions and inspection authorities reported less agreement, whereas employer's organizations in particular believed this could have positive consequences, with 20% reporting "Considerable consequences".

Regarding expected increased demands for social skills ("Social skill demands will increase", Table C15, p = 0.050) there seemed to be a slight tendency for trade union representatives to be less convinced of such a development (p = 0.050). Experts from inspection authorities were less inclined than the other experts to assume considerable positive consequences thereof, while researchers, consultants and occupational health professionals were more confident in the positive repercussions of such developments (Table C15, p = 0.020)

A relatively high proportion of expert representatives from trade unions (12.5%) reported "Considerable" negative consequences of the expected increased expectation of innovative abilities, while a relatively high proportion (76.9%) of researchers, consultants and occupational health professionals expected no negative consequences of this ("The ability to work with innovative solutions will become more important: Negative consequences", Table C15, p = 0.034).

Finally, the experts exhibited some differences for the statement "A sustainable work environment will become more important as a strategic competitive factor" (Table C16, p = 0.033). Trade unions agreed less with this statement, with none reporting "Strongly agree", as opposed to researchers, consultants and occupational health professionals, of which 38.5% reported "Strongly agree".

4.2.5.5 Suggested solutions from the experts

The expert panel had 38 specific and concrete suggestions regarding "competence" and future action plans on this topic. Action plans suggested under the driver "competence" were subdivided into actions relating to research, HRM and safety, and skill building. For example, when it comes

to research statements are made that work environment research must be ensured at the highest international level, and that there is a clear need for exchange of knowledge and experience between research institutes and workplaces, i.e. knowledge transfer. Therefore, authorities have the responsibility to promote research and disseminate knowledge on how to implement work environment measures. Furthermore, several suggestions from the panel of experts highlight the need for changes to HRM and safety regulations, as to strengthen risk-based supervision efforts against high-risk segments, industries, or groups. The importance of skill development is mentioned several times, and it is suggested there will be a need for measures that allow all workers the opportunities for continuous competence development and learning at the workplace, in general and in terms of health and safety at work. The competence development should not only take place at the work place, but also before working life during education. Workplaces should focus on maintaining and strengthening professional and senior competence and authorities should facilitate conditions for innovation and entrepreneurship.

4.2.5.6   Skills/competence: Overall summary and conclusion

A relatively high number of statements compiled in the current study pertained to skills. There was a wide variety of subtopics addressed under this main topic, presumably reflecting the broadness of the definition of "skills" applied by the researchers in this context. The most commonly applied theme used by the researchers to label statements under this topic was "skills and competency" referring to changes in supply of and demand for new types of skills, as well as both opportunities and challenges that these developments will represent for employers and workers. Interestingly, as suggested by Figs. 4.16 and 4.19, the experts tended to attribute both negative and positive consequences to the developments under this theme, albeit with a slight bias towards the positive (5 negative versus 7 positive).

No statement explicitly expressed that the need for investment in skills development would increase in the future, although this seems to be an implicit assumption reflected in many statements. For example, several of the statements in block 1 with the highest consensus (Figs. 4.15 and 4.18) expressed positive views on the opportunities to develop and maintain skills in the future. Examples are "New generations entering the labour market will bring new types of skills" and "Employers will have access to more and better tools to provide knowledge about the work environment". Thus, although the high consensus statements may implicitly assume a major need for workers to acquire and develop skills to meet the demands of the future, they also contain positive indications that these challenges can and will be adequately addressed. There was also high consensus for several statements expressing apparently positive consequences of this development, such as "Technology and expertise may increase innovation and productivity" and "Competence and work ability will be more important than age". In contrast, statements seemingly expressing negative consequences of the future demand for novel skills, for example, "Elderly workers will find it difficult to maintain relevant skills and job security", were more controversial and resulted in larger variability in the experts' ratings than statements expressing positive aspects.

Another general observation in the statements about skills was not only the assumption that

the demand for skills will be higher, but that the types of skills that are needed in the future will also change considerably. This was expressed in several high consensus statements such as "Employers will have a vested interest in investing in employee skill development" (Fig. A57 of Appendix A), "There will be a growing need for more 'customer-centric' and 'person-focused' organisations" (Fig. A64 of Appendix A) (i.e. requiring that more employees receive training in these areas) and the more general assertion that "Which skills are in high demands will change" throughout the next ten years (Fig. A63 of Appendix A).

With regard to possible consequences for the psychosocial work environment, no obvious overall tendency emerged from the statements. A reasonable expectation might be that the increased significance of continuously acquiring and maintaining skills in the future (see above) could instigate increased work pressure for some groups. However, statements expressing such developments, like "Elderly workers will find it difficult to maintain relevant skills and job security" (Fig. A47 of Appendix A), exhibited low consensus. When a statement addressing this subject exhibited high consensus, it was rated as associated with both positive and negative consequences; this was the case with the statement "Workers will have to continuously develop their skills and make sure that they are relevant, e.g. in regard to new technologies" (Fig. A57 of Appendix A). Overall, a small majority of the high consensus statements were rated as being predominantly associated with positive consequences (7 statements), while slightly fewer were predominantly associated with negative consequences (5 statements) (see Figs. 4.16 and 4.19).

4.2.6 Political, cultural and social developments

4.2.6.1 Themes and blocks

A total of nine statements discussed the current driver "Political, cultural and social developments" (see Table 4.8 and Figs. A65 - A71 of appendix A).

Table 4.8. Political, cultural and social developments: Number of statements by theme and block

Themes	Block 1	Block 2	Block 3	Sum
Demography	1	2		3
Terms and conditions of work	1	1		2
Regulations and control over work life		2		2
Productivity, efficiency, and competitive advantages	1			1
Inclusiveness	1			1
Sum	4	5	0	9

Eight out of nine statements were rated by at least one person with "strongly agree", and all nine with "agree". Like observed in previous drivers, only few statements resulted in high levels of disagreement as the response "strongly disagree" was only observed for three statements.

Figure 4.21. Political, social, and cultural: Psychosocial work environment

Block 1: To what extent do you agree with the following statements?

Percentage that reported the various response alternatives

Strongly disagree · Disagree · Neither agree or disagree · Agree · Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
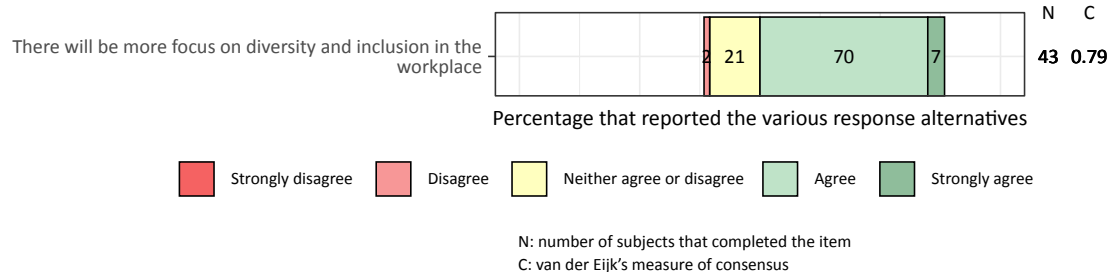
4.2.6.2 Political, cultural and social developments, work environment, and health

Six statement within the present driver were identified to discuss work environment and health.

Political, cultural and social developments: The psychosocial work environment (Fig. 4.21) As shown in Fig. 4.21, one statement ("There will be more focus on diversity and inclusion in the workplace") was found to relate to the psychosocial work environment. This statement belonged to "Block 1" and has a consensus rating of 0.79. No statements were identified to discuss the psychosocial work environment in the context of the present driver for "Block 2" or "Block 3".

Political, cultural and social developments: Physical environment, accidents, risks, and other aspects of the work environment (Fig. 4.22) Five statements were found to reflect the physical environment, accidents, risks, and other aspects of the work environment for "Block 2: Agreement and impact (consequences)" (Fig. 4.22). Consensus ratings ranged from 0.79 for the statement "It will be possible to attain a stronger gender balance in the labor market (more female leaders, more men in disciplines traditionally dominated by women)", and a rating of 0.5 for the statement "There will be an increased awareness of gender differences in the significance of the work environment". Twenty-one percent of respondents disagreed, while 7% strongly agreed with the latter statement.

Political, cultural and social developments: Health No statements were classified under "health" for the political, cultural and social developments topic.

4.2.6.3 Norway and Denmark

Like for previous drivers, the Norwegian and Danish sub-panels mostly responded in similar ways to the statements pertaining to the present driver. There was only statistically significant difference with regard to the potential negative consequences of increased requirements to remain in work

Figure 4.22. Political, social, and cultural: Physical environment, risks, accidents, and other statements regarding the work environment
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Percentage that reported the various response alternatives

Strongly disagree • Disagree • Neither agree or disagree • Agree • Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

(see Appendix B, Table B9), where the experts in Norway seemed less inclined to expect such negative consequences.

4.2.6.4 The different panels of the study

No statistically significant differences were observed between the panels pertaining to this driver.

4.2.6.5 Suggested solutions from the experts

A total of 40 concrete future actions suggestions from the expert panel reflected the theme of political/social and societal change. Suggestions pertaining to this theme reflect the topics of legislation for new forms of employment, the role of the social partners, and crime. Example suggestions regarding legislation include simplification and clarification of legislation pertaining to the work environment, implying there is a belief that current legislation is overly complex. The social partners should facilitate and strengthen regulations on party cooperation and encourage party

collaboration, and they must work to increase the degree of organization in unions. On combating workplace crime and illegal working conditions, the authorities are encouraged to work more systematically to strengthen international cooperation and collaboration to detect and combat workplace crime and violations of work environment regulations, and to actively fight temporary and frivolous actors.

4.2.6.6 Political, cultural and social developments: Overall summary and conclusion

The nine statements addressed issues of equality, legislation, and work-related crime. While agreement was generally high, relatively high levels of disagreement were observed for statements regarding legislation and control ("Working conditions will to a lesser extent be regulated and controlled", "Legislation and regulations will be more complex"), gender issues ("There will be an increased awareness of gender differences in the significance of the work environment") and social security ("More workers will experience a lack of social security at work (e.g. entitlement to parental leave, vacation, sick pay, etc.")', with 21%–34% of the experts either disagreeing or strongly disagreeing. Consensus was mostly medium to high, with one statement receiving low consensus and the remaining consensus scores ranging 0.42 to 0.79. The highest levels of consensus were achieved for statements about diversity. Most experts agreed that both gender and cultural diversity, and therefore the focus on such topics, will increase in the coming years.

Interestingly, while only few (nine) statements on the topic emerged from the first two Delphi rounds, the experts seemed to have many thoughts and concrete suggestions on how to deal with issues pertaining to the topic. These suggestions seemed to focus mainly on legislation – some experts seemed to imply current legislation may be overly complex. However, the statement "Legislation and regulations will be more complex" received a consensus score of 0.55; 28% of the experts either disagreed or strongly disagreed with the statement, yet 26% either strongly agreed or agreed. Hence, while some experts believe regulations will become more complex and perhaps hard to follow for workers and employers, many experts also reject this notion. It is possible this difference is a result of the different experts' views on the complexity of already existing regulations.

4.2.7 Other statements

4.2.7.1 Themes and blocks

Altogether 97 statements were not classified by the researchers as pertaining to any specific of the aforementioned drivers (see Table 4.9 and Figs. A72-A108 of Appendix A).

4.2.7.2 "Other statements", work environment, and health

"Other statements": The psychosocial work environment (Figs. 4.23 - 4.25)   For block 1, Fig. 4.23 shows agreement and consensus ratings for 27 "other statements" that pertained to the psychosocial work environment. While it may not be surprising that so many statements were

Table 4.9. Other themes: Number of statements by theme and block

Themes	Block 1	Block 2	Block 3	Sum
Psychosocial work environment	12	4	1	17
General work environment	3	3	3	9
Roles and responsibilities	3	6		9
Time and place	5		3	8
Job creation, job destruction, job change, and predictability	5	1		6
Terms and conditions of work	5		1	6
Affiliation and connection	2	3		5
Interaction, cooperation, and culture	2	2	1	5
Productivity, efficiency, and competitive advantages	5			5
Health	2		2	4
Relation between employee and employer	3	1		4
Physical, ergonomic, chemical working conditions and accidents	3			3
Regulations and control over work life	2	1		3
Mobility	2			2
Work content	1	1		2
Leadership		2		2
Types of organizations		2		2
Control and surveillance	1			1
Flexibility	1			1
Inclusiveness	1			1
Sustainability	1			1
Demography		1		1
Sum	59	27	11	97

assigned to this unspecified category, it seems more surprising that there seemed to be a less obvious association between consensus rating and degree of agreement with the statements. That is, while the previous sections have suggested that high agreement statements also tend to be high consensus statements, for this category there were some statements that exhibited upper medium consensus but relatively low agreement (i.e. statements that experts tended to more uniformly reject). A salient example was "Work will be more monotonous", for which 68% of the experts either disagreed or strongly disagreed, with a consensus rating of 0.58. This was the only statement out of these 27 that no experts strongly agreed with. Overall, seven of the 27 statements exhibited low consensus (i.e. <0.5) while four exhibited high consensus (>0.7), and degree of agreement varied considerably across the range of consensus ratings. Presumably, this reflects the fact that the content of these statements was more widely distributed over a range of topics and specific issues, including statements that were suggested by individuals that had differing

views from the majority.

For block 2, 13 statements were identified (Fig. 4.24). Of these statements, seven exhibited high consensus and six medium consensus, while none exhibited low consensus. For five of the statements, no experts disagreed or strongly disagreed. Hence, agreement was quite high. Six statements were considered potentially positive developments by the group as a whole, five as potentially negative, one as both positive and negative, and one for which less than 50% agreed or strongly agreed, resulting in no rating of the potential consequence. Hence, this suggests that as a whole, there was no strong tendency towards negative or positive views on the potential consequences for the work environment. The statement with the highest proportion of attributed negative consequences was "Demands from patients/customers/clients will increase", for which 90% rated some or considerable negative consequences. For positive consequences, two statements were rated to have some or considerable consequences by 90% of the experts ("Larger work places will increase demands for leadership" and "Psychosocial and organizational working conditions will be more in focus than physical, chemical, and biological factors").

For block 3 (see Fig. 4.25), six statements were identified. None of the statements achieved high consensus, and one exhibited low consensus ("Overtime and night work will be more common", C = 0.38). The statement which the highest proportion of experts agreed with was "There will be a growing focus on preventing health problems through a good work environment and positive factors such as satisfaction, motivation and engagement", which 88% judged to be likely or very likely.

"Other statements": Physical environment, accidents, risks, and other aspects of the work environment (Figs. 4.26 - 4.28) Twelve statements from block 1 (Fig. 4.26), 14 statements from block 2 (Fig. 4.27), and two statements from block 3 (Fig. 4.28) were classified as pertaining to other aspects of the work environment than psychosocial work characteristics. Consensus ratings varied considerably, from 0.2 for "The rise of new forms of employment (freelance, digital platform work etc.) will entail less requirements for employers to provide acceptable work environments" to 0.81 for "Employees will to larger extent demand individual adaptations of the work". Similarly, agreement with the statements varied, although strong disagreement was uncommon. The most disagreed upon statement was "There will be less focus on HSE and looking after employees", which 10% of the experts strongly disagreed with, while an additional 48% disagreed, and only 17% agreed with, which was the lowest proportion of "agree" responses for all of these statements.

With regard to potential consequences for the work environment, only three statements were assigned a "positive" score on the group level. These were "Workers will have a larger influence on their own work environment and work content", "Employees will increasingly have to take responsibility for and contribute to a good work environment", and "Employees will to larger extent

Figure 4.23. Other statements: Psychosocial work environment
Block 1: To what extent do you agree with the following statements?

	N	C
Employers will to a greater extent have to care for their employees to retain them in the workplace	43	0.84
There will be more focus on the psychosocial work environment	40	0.82
There will be more openness about the psychological work environment	41	0.71
Employees will experience increased flexibility- and adaptability demands, for example when it comes to working hours	43	0.71
Management will occur in collaboration with the employees	43	0.67
Creating predictability will be challenging for employers	44	0.66
New requirements will arise with regards to physical fitness, large work pressure, etc.	41	0.66
It will be easier for the individual worker to organize work to fit their own requirements and life situation (e.g family circumstances and age)	43	0.65
Telework makes it more difficult to create a sense of workplace commitment	43	0.64
Availability demands will increase and it will be more challenging to balance work and private life	43	0.64
Empowerment and autonomy will be more important to create intrinsic motivations to adapt to new demands from the environment	41	0.63
Employees will be more involved in work organization, which can provide new opportunities	43	0.62
New forms of work schedules will promotes higher work intensity and less recovery time	42	0.6
Work will be more monotonous	43	0.58
It becomes more difficult for workers to know what is required and expected of them	41	0.56
Engagement and organizational commitment will be crucial indicators for distinguishing between good and bad companies	43	0.55
Weekly working hours will increase	43	0.55
Predictability and job security will be reduced	44	0.54
More tasks will have to be carried out with fewer resources	43	0.52
Increased flexibility and insecure job attachments will result in lower predictability (for example fluctuating income)	44	0.51
Workers will increasingly experience a variety of psychosocial work demands (emotional demands, role uncertainty, job insecurity, more unstable relationships) as a result of new forms of employment (digital platform work, casual employment, freelance, etc.)	41	0.49
Many employees will experience reduced influence and participation in decision making processes	44	0.49
It will be challenging to limit the control of workers and diminish workers' loss of autonomy	44	0.43
Employees will experience more meaningless work due to increased job insecurity and flexible contracts	41	0.39
Responsibilities and roles will be less clear, for instance the roles as employer and employee	43	0.38
It will become less clear who is responsible for health, work environment and safety	43	0.35
Ensuring fair rewards will become challenging as capital/ownership becomes more important in a digital world	41	0.35

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
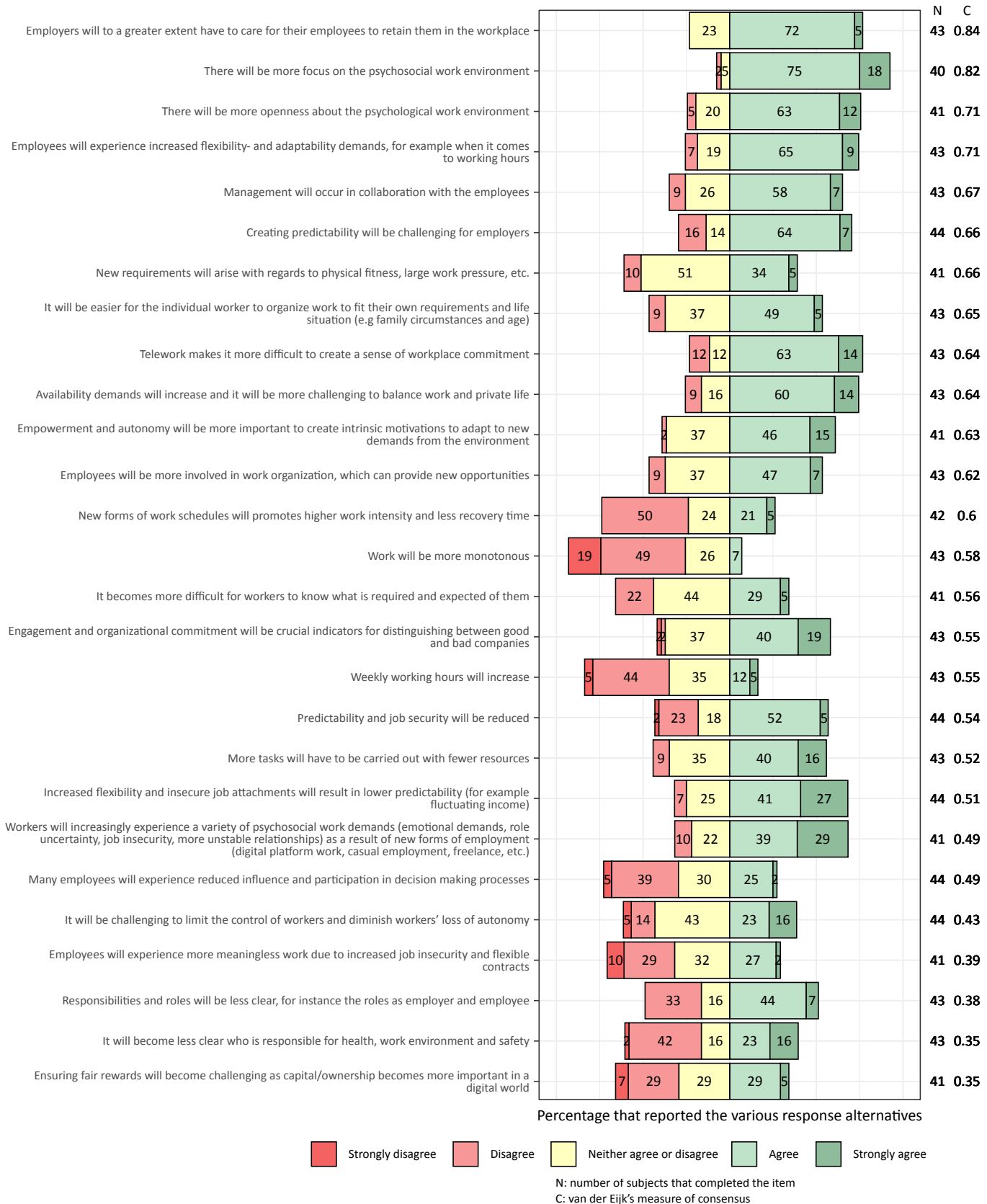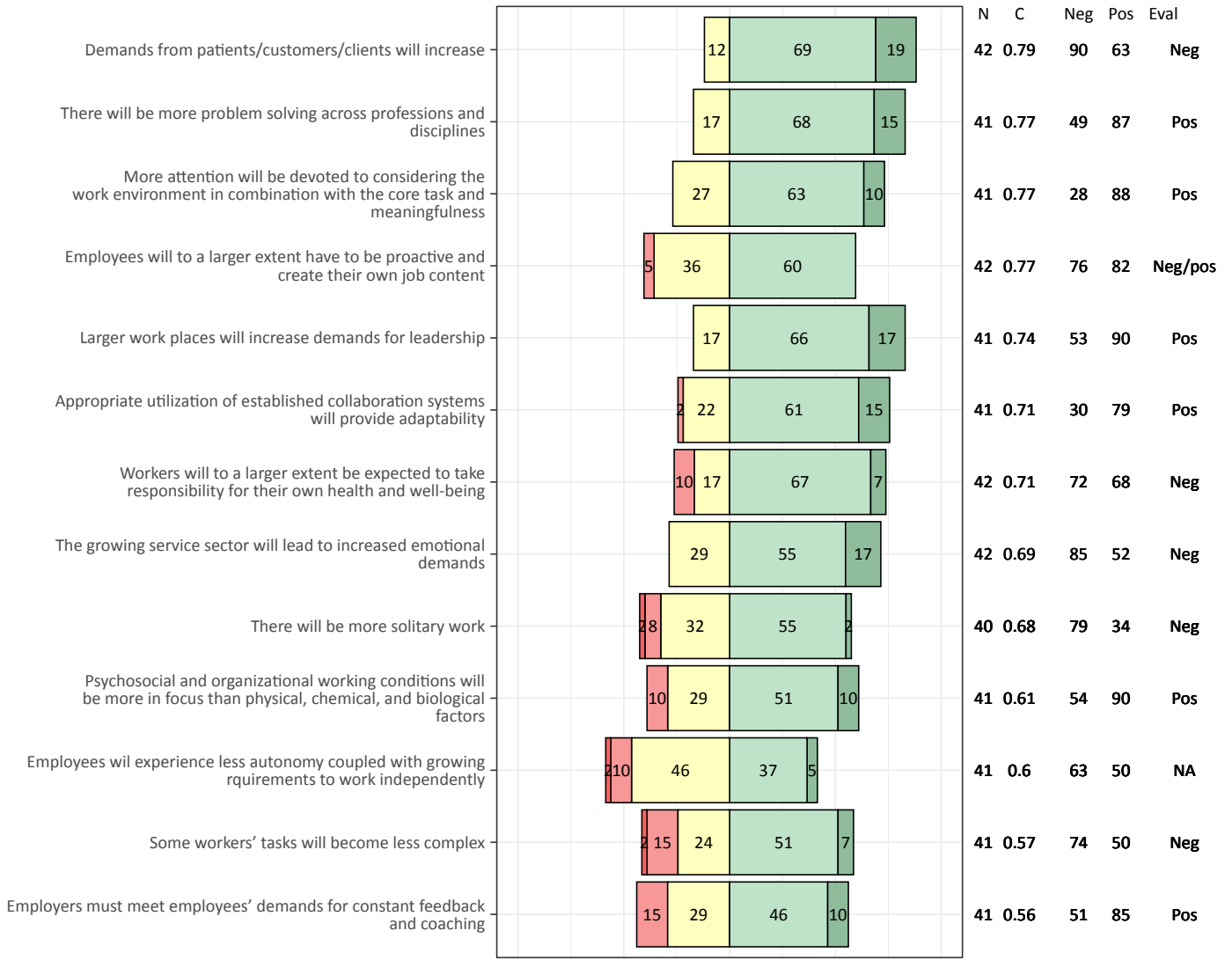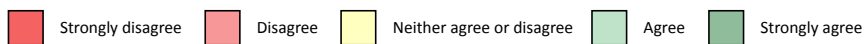C: van der Eijk's measure of consensus

Figure 4.24. Other statements: Psychosocial work environment

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Percentage that reported the various response alternatives

Legend: Strongly disagree | Disagree | Neither agree or disagree | Agree | Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure 4.25. Other statements: Psychosocial work environment

Block 3: How likely do you think the trends in the following statements are?

Percentage that reported the various response alternatives

■ Very unlikely ■ Unlikely ■ Somewhat likely ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
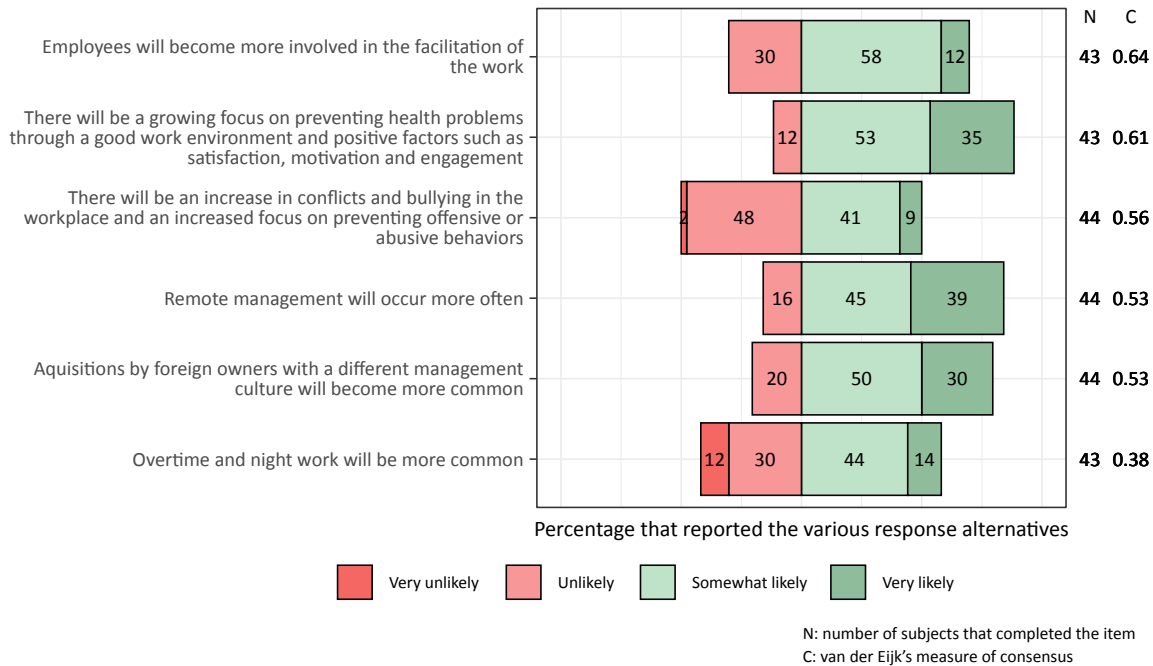
demand individual adaptations of the work" (see Fig. 4.27). The latter was also the statement exhibiting the highest degree of consensus as well as the highest proportion of potential for some or considerable positive consequences (92%).

"Other statements": Health (Figs. 4.29 and 4.30)   Six of the statements from the open category pertained to health, four of which were from block 1 (Fig. 4.29) and two of which were from block 3 (Fig. 4.30). Consensus was high for one statement ("Stress management and resilience will be required to a larger extent") and medium for the remaining. In general, the experts appeared more divided with regard to agreement, with the proportions of agreement (i.e. "agree" or "strongly agree") ranging from 40% ("More employees will face health challenges") to 66% ("Stress management and resilience will be required to a larger extent"), and relatively large proportions reporting "Neither agree or disagree", ranging from 32% for the latter statement to 38% for the former. For the statements from block 3, 30% rated it unlikely that "The individual worker's health and well being will receive more attention" and 39% rated it unlikely that "Employers may to a larger extent be required to cover greater costs pertaining to illness and reduced work ability". Altogether,

Figure 4.26. Other statements: Physical environment, risks, accidents, and other statements regarding the work environment

Block 1: To what extent do you agree with the following statements?

Percentage that reported the various response alternatives

Strongly disagree   Disagree   Neither agree or disagree   Agree   Strongly agree

N: number of subjects that completed the item
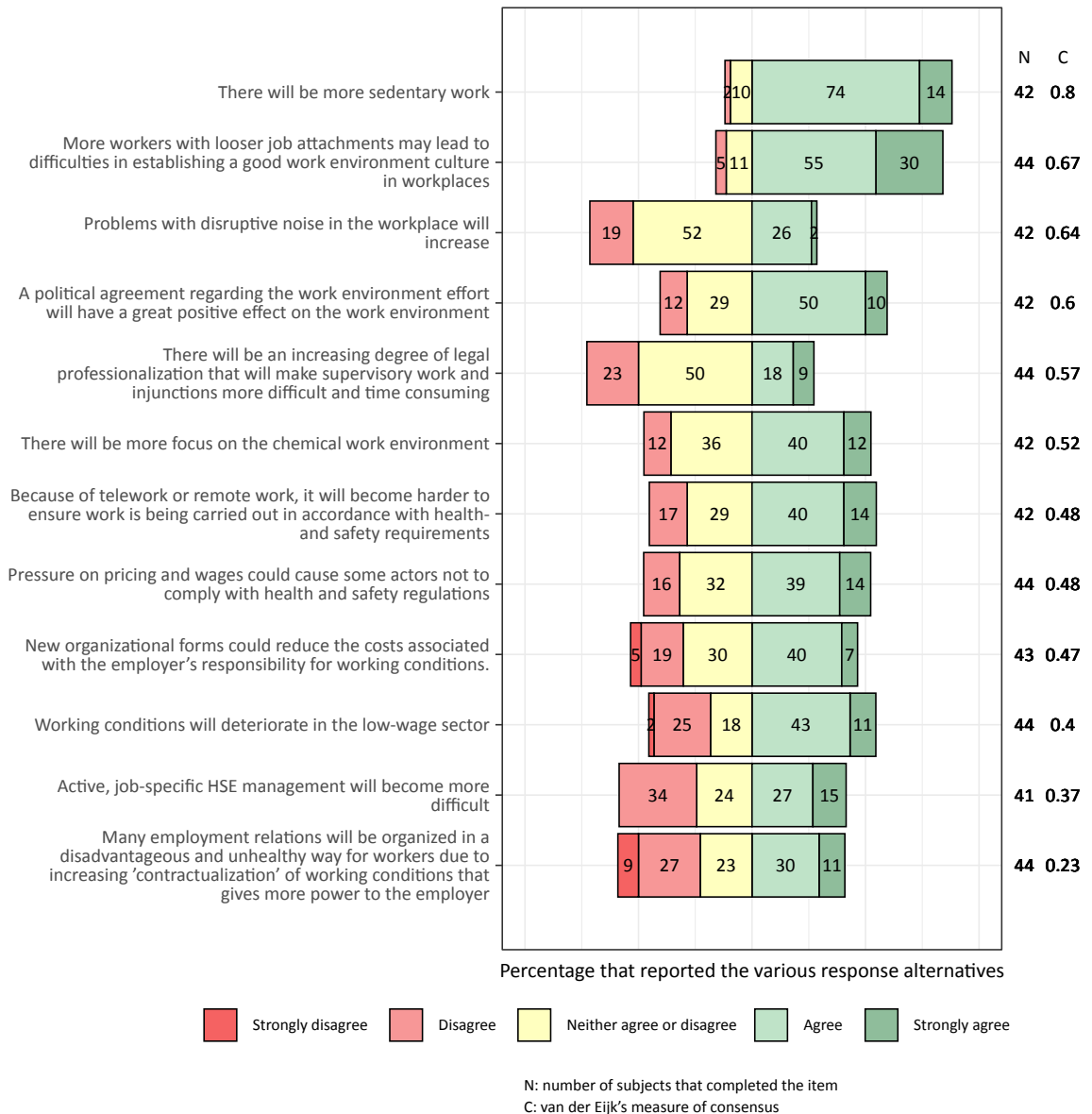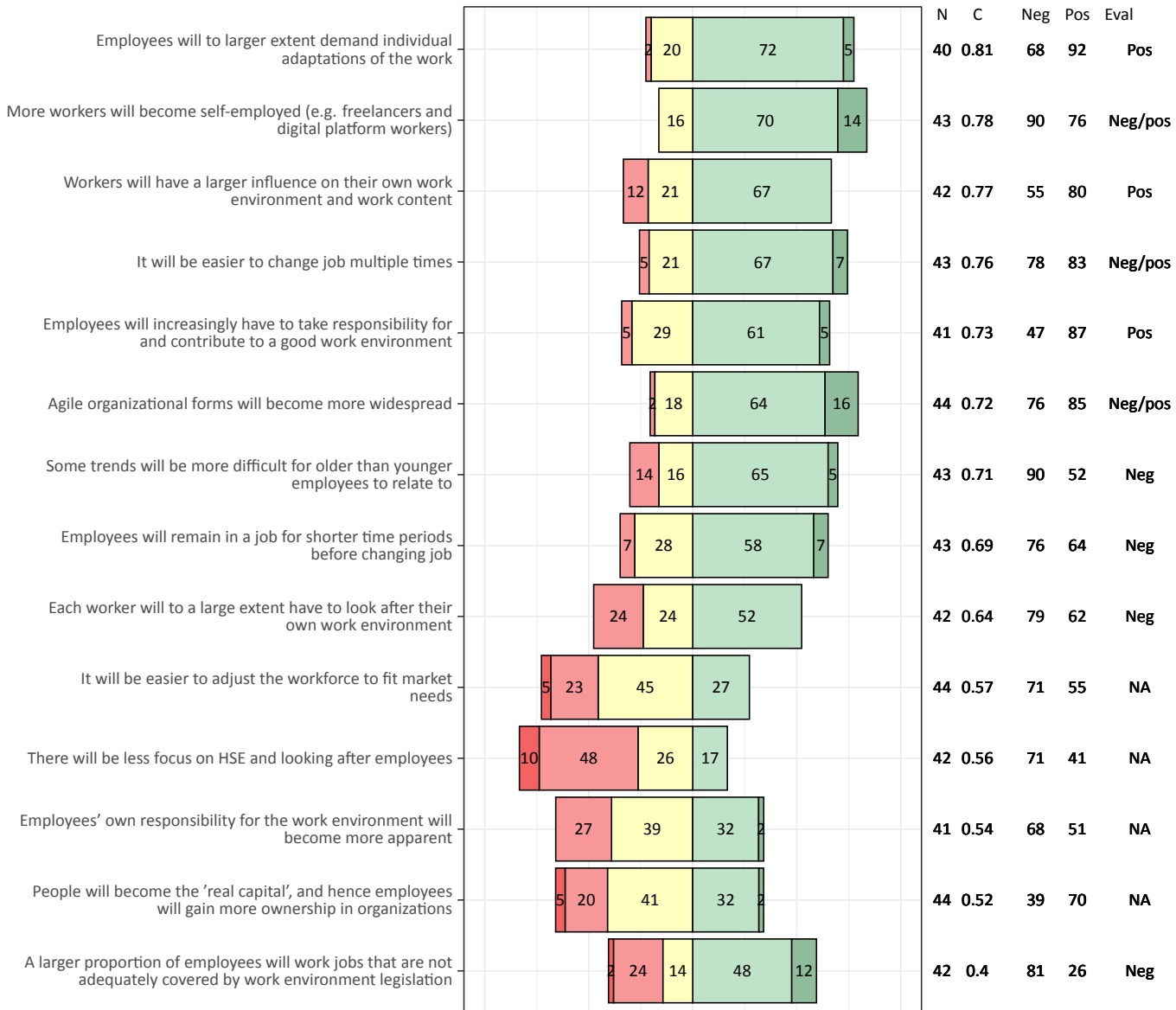C: van der Eijk's measure of consensus

Figure 4.27. Other statements: Physical environment, risks, accidents, and other statements regarding the work environment

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?


Percentage that reported the various response alternatives

Legend: Strongly disagree | Disagree | Neither agree or disagree | Agree | Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Statement	N	C	Neg	Pos	Eval
Employees will to larger extent demand individual adaptations of the work	40	0.81	68	92	Pos
More workers will become self-employed (e.g. freelancers and digital platform workers)	43	0.78	90	76	Neg/pos
Workers will have a larger influence on their own work environment and work content	42	0.77	55	80	Pos
It will be easier to change job multiple times	43	0.76	78	83	Neg/pos
Employees will increasingly have to take responsibility for and contribute to a good work environment	41	0.73	47	87	Pos
Agile organizational forms will become more widespread	44	0.72	76	85	Neg/pos
Some trends will be more difficult for older than younger employees to relate to	43	0.71	90	52	Neg
Employees will remain in a job for shorter time periods before changing job	43	0.69	76	64	Neg
Each worker will to a large extent have to look after their own work environment	42	0.64	79	62	Neg
It will be easier to adjust the workforce to fit market needs	44	0.57	71	55	NA
There will be less focus on HSE and looking after employees	42	0.56	71	41	NA
Employees' own responsibility for the work environment will become more apparent	41	0.54	68	51	NA
People will become the 'real capital', and hence employees will gain more ownership in organizations	44	0.52	39	70	NA
A larger proportion of employees will work jobs that are not adequately covered by work environment legislation	42	0.4	81	26	Neg

Figure 4.28. Other statements: Physical environment, risks, accidents, and other statements regarding the work environment

Block 3: How likely do you think the trends in the following statements are?

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
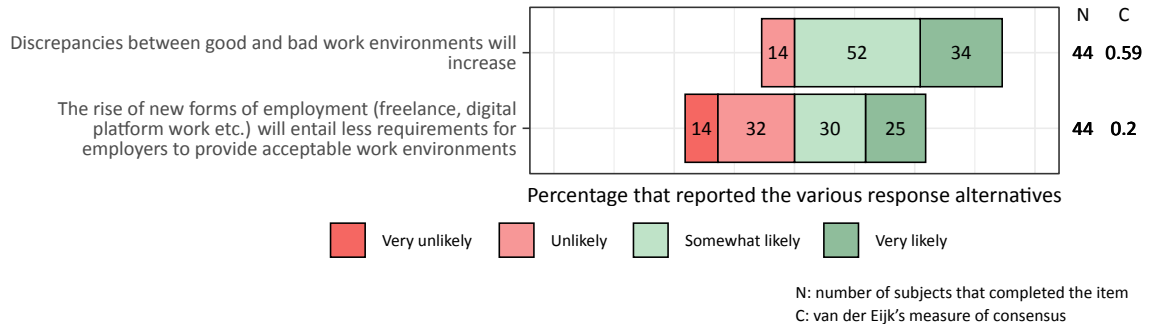
however, no experts rated any statement as "very unlikely" or "strongly disagree", perhaps reflecting a relatively low degree of certainty from the experts about these potential developments in occupational health.

4.2.7.3   Norway and Denmark

The experts in Norway and Denmark seemed to disagree about the statement "There will be more focus on the chemical work environment" (Appendix B, Table B10, p = 0.00). Whereas none of the Danish experts disagreed with this statement, and as many as 20.8% strongly agreed with it, none of the Norwegian experts strongly agreed, and 27.8% disagreed. This apparent difference between the countries with regard to the relative focus on psychosocial versus physical working conditions in the future was also reflected in the statement "Psychosocial and organizational working conditions will be more in focus than physical, chemical, and biological factors" (Appendix B, Table B14, p = 0.007). In Denmark, 16.7% stated that they "disagreed", as opposed to none of the Norwegian experts. Moreover, 23.5% of the Norwegian experts reported "strongly agree", while none of Danish experts reported this. Correspondingly, the Norwegian experts also to a higher extent believed that this possible development would have positive consequences, with 72.2% reporting "considerable consequences", versus 34.8% of the Danish experts.

An apparent difference between the countries was also observed for "Empowerment and autonomy will be more important to create intrinsic motivations to adapt to new demands from the environment" (Appendix B, Table B11, p = 0.003). Experts in Denmark tended to be more uncertain

Figure 4.29. Other statements: Health

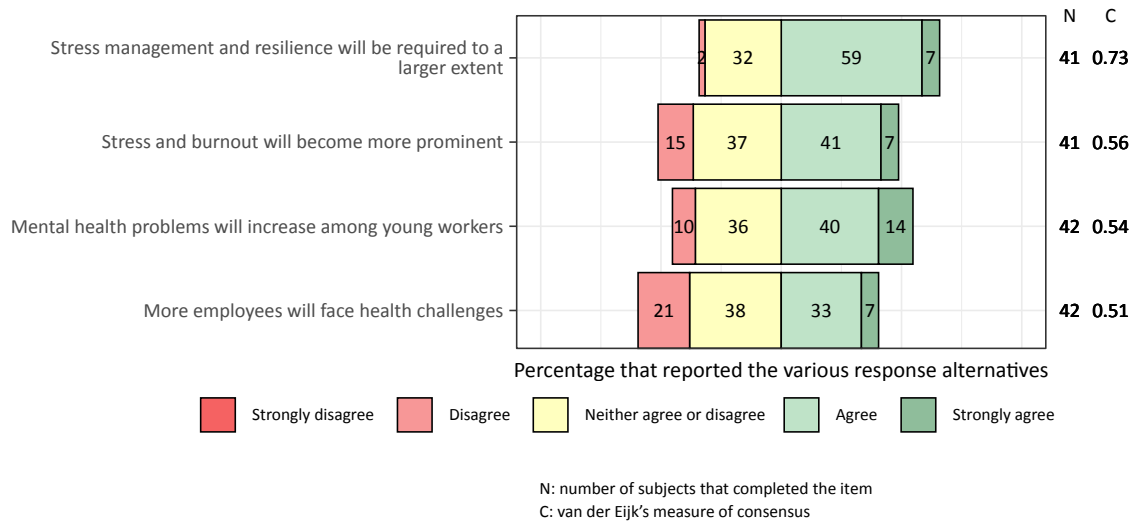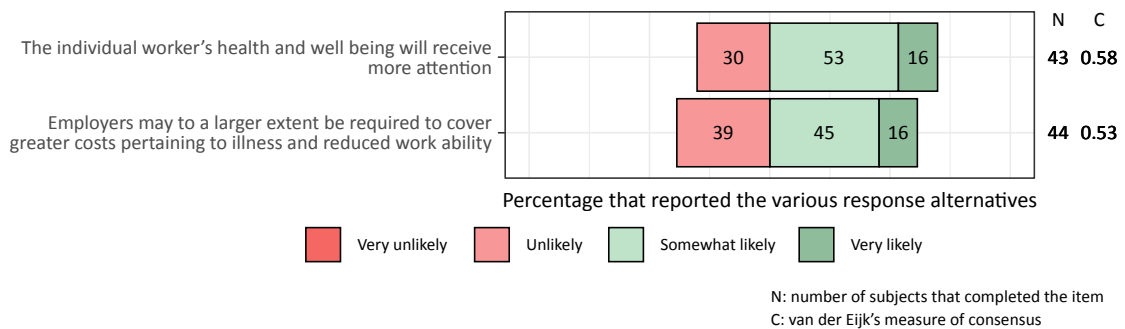*Block 1: To what extent do you agree with the following statements?*

	N	C
Stress management and resilience will be required to a larger extent	41	0.73
Stress and burnout will become more prominent	41	0.56
Mental health problems will increase among young workers	42	0.54
More employees will face health challenges	42	0.51

Percentage that reported the various response alternatives

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure 4.30. Other statements: Health

Block 3: How likely do you think the trends in the following statements are?

	N	C
The individual worker's health and well being will receive more attention	43	0.58
Employers may to a larger extent be required to cover greater costs pertaining to illness and reduced work ability	44	0.53

Percentage that reported the various response alternatives

Very unlikely Unlikely Somewhat likely Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

about this development, with 58.33% reporting "neither agree or disagree", whereas the majority of Norwegian experts stated "agree" (76.5%).

A difference was observed with respect to the statement "It becomes more difficult for workers to know what is required and expected of them" (Appendix B, Table B11), where experts in Denmark more often disagreed than in Norway (p = 0.049).

There was also an apparent difference between the countries with regard to the clarity of roles ("Responsibilities and roles will be less clear, for instance the roles as employer and employee") (Appendix B, Table B12, p = 0.039), where Danish experts tended to disagree (41.7%), and Norwegian experts tended to agree (68.4%).

A relatively striking pattern of differences between Norwegian and Danish experts was observed for the statement "Availability demands will increase and it will be more challenging to balance work and private life" (Appendix B, Table B13, p = 0.002). Whereas the Norwegian group seemed somewhat divided, with 10.5% reporting "disagree" and the rest reporting "agree" (89.5%), the Danish group was more evenly distributed across the scale from "disagree" to "strongly agree", with 62.5% either agreeing or strongly agreeing.

The Danish expert group agreed to a larger extent with the statement "Employers must meet employees' demands for constant feedback and coaching" (Appendix B, Table B15, p = 0.044). Whereas responses from the Norwegian group were fairly similarly distributed over "disagree" (29.4%), "neither agree or disagree" (35.3%), and "agree" (35.3%), more than half of the Danish group reported "agree" (54.2%) and "strongly agree" (16.7%).

A slight difference was observed also for the statement "Larger work places will increase demands for leadership" (Appendix B, Table B15, p = 0.024), although this mainly consisted in the Danish group being more certain (29.2% reported "strongly agree", versus none in the Norwegian group).

with regard to the possible positive consequences of the statement "Demands from patients/customers/clients will increase", none from the Danish expert group reported "considerable consequences", whereas 38.9% from the Norwegian group reported this (Appendix B, Table B16, p = 0.004).

The Norwegian group appeared to agree to a larger extent than the Danish group about the increase of emotional demands and that there may be considerable positive consequences of such a development ("The growing service sector will lead to increased emotional demands", Appendix B, Table B16, p = 0.012).

With regard to potential positive consequences of a possible increased responsibility of employees for the work environment ("Employees' own responsibility for the work environment will become more apparent", Appendix B, Table B17, p = 0.005), the Norwegian expert group were more optimistic, with 29.41% reporting potentially "considerable consequences", whereas none of the Danish experts reported this.

Although there seemed to be a fair degree of agreement between the countries with regard to the extent that tasks will become less complex for some workers ("Some workers' tasks will become less complex", Appendix B, Table B18), the Danish experts were more inclined to see potentially negative consequences of such a development (p = 0.008).

A statistically significant difference was also observed for the statement "There will be an increase in conflicts and bullying in the workplace and an increased focus on preventing offensive or abusive behaviors" (Appendix B, Table B19, p = 0.041). The difference seemed to mainly consist in the Norwegian experts being more likely to report both "unlikely" and "very likely", whereas the majority of Danish experts reported "somewhat likely" (58.3%).

Finally, with regard to the statement "Employees will become more involved in the facilitation of the work" (Appendix B, Table B20, p = 0.035), the Norwegian experts were more certain, as 25% reported "very likely" as opposed to none from the Danish group.

4.2.7.4   The different panels of the study

With regard to "other statements", differences between the panels were far less pronounced than between the countries, with only five of 151 statements (that is, the 97 main statements and 54 statements about positive and negative consequences accompanying the 27 statements from block 2) exhibiting statistically significant differences.

For "Increased flexibility and insecure job attachments will result in lower predictability (for example fluctuating income)" (Table C17, p = 0.022), trade unions seemed more strongly in agreement, but 10% also disagreed. Employer organizations were more centered on "neither agree or disagree", with 20% disagreeing, 30% agreeing, and no one strongly agreeing. For the other panels the tendency was to more uniformly agree, albeit not as strongly.

When evaluating the degree of potentially negative consequences of solitary work ("There will be more solitary work: Negative consequences", Appendix C, Table C18, p = 0.015) trade unions were more concerned with 77.8% foreseeing considerable negative consequences. For the three other groups 11.1% and 35.7% reported "no consequences", while in the employer organization group none reported "considerable consequences" of a negative character. It should be mentioned that the trade unions also to a larger extent than the other groups expected such a development, with 100% responding "agree" to the statement, although no statistically significant difference between the panels was detected for this statement ("There will be more solitary work", p = 61, not shown).

For the statement "Employees will to a larger extent have to be proactive and create their own job content" (Appendix C, Table C19, p = 0.027), although none of the panels strongly agreed or disagreed, a difference was observed in that trade unions tended to center on "neither agree or disagree", with 55.6%, and 22.2% reporting "disagree" and the proportion reporting "agree". In comparison, none of the remaining panels reported "disagree", and the majorities reported "agree".

There were some differences for the claim that "Agile organizational forms will become more widespread" (Appendix C, Table C20, p = 0.034), with trade unions being the only group to disagree, and researchers, consultants and occupational health professionals being more inclined than the other panels to strongly agree (40% versus 10% for employers' organizations and none from the remaining panels).

Finally, for "There will be an increase in conflicts and bullying in the workplace and an increased focus on preventing offensive or abusive behaviors" (Appendix C, Table C21, p = 0.049) a difference was exhibited in that employer organizations seemed less inclined to find such a development likely.

4.2.7.5   Suggested solutions from the experts

All the suggested solutions that were derived from the experts' responses applied in some way to one of the main drivers/topics defined in previous sections, hence none will be discussed in this section.

4.2.7.6   Other statements: Summary and conclusion

The open theme designated "other statements" included a wide variety of topics that were not classified by the researchers as belonging to the aforementioned drivers or topics. Some of these statements were rather general and unspecific, such as "there will be more focus on the psychosocial work environment" or "stress and burnout will become more prominent". Some statements also seemed to encompass a broad range of issues, making them hard to classify, such as e.g. "workers will increasingly experience a variety of psychosocial work demands (emotional demands, role uncertainty, job insecurity, more unstable relationships) as a result of new forms of employment (digital platform work, casual employment, freelance, etc.)".

With regard to statements relating more specifically to work environment and health, forty-six of 97 statements pertained to the theme "psychosocial work environment" (Figs. 4.23 - 4.25), twenty-eight statements to the theme "physical work environment, risks, accidents, and other aspects of the work environment" (Figs. 4.26 - 4.28), and six statements to the theme "health" (Figs. 4.29 - 4.30). Some of the statements were rather general and unspecific, such as "there will be more focus on the psychosocial work environment" (Fig. 4.23) or "stress and burnout will become more prominent" (Fig. 4.29). As mentioned above, some statements also seemed to encompass a broad range of issues, making them hard to classify, such as e.g. "workers will increasingly experience a variety of psychosocial work demands (emotional demands, role uncertainty, job insecurity, more unstable relationships) as a result of new forms of employment (digital platform work, casual employment, freelance, etc.)" (Fig. 4.23).

Some statements suggested an improved work environment in the future, with workers expecting more of employers ("Employers will to a greater extent have to care for their employees to retain them in the workplace", "There will be more focus on the psychosocial work environment", "There will be more openness about the psychological work environment") (Fig. 4.23). These statements received high degrees of agreement, and also high consensus (C > 0.70). On the other hand, some statements suggested more worrying developments ("More workers with looser job attachments may lead to difficulties in establishing a good work environment culture in workplaces", "Workers will increasingly experience a variety of psychosocial work demands (emotional demands, role uncertainty, job insecurity, more unstable relationships) as a result of new

forms of employment (digital platform work, casual employment, freelance, etc.)", "Because of telework or remote work, it will become harder to ensure work is being carried out in accordance with health and safety requirements", "It will become less clear who is responsible for health, work environment and safety", "Wages and employment conditions will worsen", "Many employment relations will be organised in a disadvantageous and unhealthy way for workers due to increasing 'contractualization' of working conditions that gives more power to the employer") (see Figs. 4.23 and 4.26). However, the latter statements seemed considerably more controversial, with only low to medium consensus and lower agreement than the aforementioned. Hence, this could point to a certain degree of optimism in the group, while also highlighting some possible challenges.

The statements pertaining to the psychosocial work environment addressed a large range of topics, and showed a large variability in consensus and agreement. The tendency was for the experts to agree with the statements. There was medium consensus among the experts to disagree with a few statements, for example, "work will be more monotonous", "new forms of work schedules will promote higher work intensity and less recovery time", and "weekly working hours will increase" (Fig. 4.23). With regard to evaluation of consequences for the work environment, the experts rated 6 statements to be associated primarily with positive consequences, five statements were rated as being primarily associated with negative consequences, and one statement was associated with both positive and negative consequences. However, this apparent balance between positive and negative consequences may cloak a slight tendency towards higher consensus for statements associated with predominantly positive consequences (Fig. 4.24). Moreover, the percentage of positive evaluations were generally larger compared to negative evaluations. In five of the six statements that were judged as being primarily associated with positive consequences, the proportion of experts that gave a 'positive consequences' evaluation was >80%. In comparison, the proportion of experts that gave a 'negative consequences' evaluation exceeded 80% only for two of the five statements that were judged to be associated with primarily negative consequences. An example of a high consensus statement that a large majority of the experts' considered associated with primarily positive consequences was "larger workplaces will increase demands for leadership". A high consensus statement considered associated with primarily negative consequences is "demands from patients/customers/clients will increase" (Fig. 4.24).

With regard to statements relating to the physical work environment, risks, accidents, and other aspects of the work environment consensus and agreement varied considerably. A large percentage (>80%) of the experts agreed on statements like "there will be more sedentary work", "more workers with looser job attachments may lead to difficulties in establishing a good work environment culture in workplaces" (Fig. 4.26) and "more workers will become self-employed (e.g., freelancers and digital platform workers)" (Fig. 4.27). A majority of experts only disagreed in one of the statements, namely "there will be less focus on HSE and looking after the employees" (Fig. 4.27).

Finally, with regard to statements pertaining to health, the experts seemed to be more divided compared to statements on the two previous themes. With one exception, consensus was medium, and the percentage of experts that agreed with a particular statement exceeded 50% for just two of four statements.

Interestingly, a number of statements addressed the prospect of increasing demands on one hand, while a number of statements suggested higher autonomy/control. Again, while the composition of demands and control in the future cannot be determined from such statements, they point to some challenges that must be met as well as specifying some means to meet them. It should however be noted that some statements also referred to decreased demands and decreased autonomy.

Chapter 5

OVERALL SUMMARY AND REFLECTIONS

Nordic working life is characterised by democracy, collective bargaining and strong social partners that collaborate and influence legislation and policies. In keeping with this, the overall approach of the Nordic countries to dealing with work environment issues has been strongly influenced by a "human relations" perspective, reflecting the conviction that work should be meaningful and contribute to promoting a high quality of life. The present report gives no reason to expect this tradition to lose relevance in the near future. Meaningful work, job security and autonomy are crucial to maintaining a high quality work environment, which is an important precondition for a sustainable work life. Nevertheless, it also seems clear that established frameworks by which the psychosocial work environment is governed will have to be extended to address a number of specific, emerging concerns. While psychological "job demands" and other well-known characteristics of work design will continue to be relevant, the particular circumstances that *generate* demands and the most prominent combinations of different job characteristics will take on new forms. The present study implies that researchers, practitioners and policy makers will have to address the rise of certain relatively specific challenges, such as reskilling demands, different aspects of the increasing "borderlessness" of work (e.g. work-private life imbalance, cross-cultural interaction), new and perhaps ambiguous ways of organizing work, increased technological control of work processes resulting in "technostress", and many other more or less specific challenges. However, there is also a more general uncertainty associated with "newness" per se as it may seem difficult to be able to handle the complexity and multitude of new developments. Reflective of this, the Delphi study generated a magnitude of statements that conveyed a wide range of notions. Moreover, while the statements were many, and the originally submitted material from the respondents was condensed to reflect all discrete notions, many statements were fairly general, at a high level of abstraction. Presumably, this reflects the complexity of the topic ("the future") and an inherent potential for many possible futures. Hence, in the following a discussion of various topics and themes is given based on the statements that were compiled, but we also encourage readers to study the statements themselves, as the following discussion is necessarily somewhat selective - that is, while comprehensive, it is not meant to be seen as exhaustive. Although an

in-depth discussion of each single statement is outside the current scope, we believe that there is a potential for many additional discussions based on these statements, and that the figures exhibiting the statements and the related statistics can serve an encyclopedic purpose, as the reader may browse these figures and the appendices searching for topics of interest.

5.1   Technology-assisted job demands and -resources

While technological developments can have adverse impacts on worker health and well-being, the overall net impact on occupational health is by no means pre-determined [1]. New technology is generally not inherently harmful, but usually intended to improve work processes and production output. In many cases, however, the extent to which this is the actual result depends on the way technological innovations and changes influence workers' perceptions of work. Worker well-being, health and productivity is often at risk, hence awareness of potential side-effects must be prioritized during implementation of new technologies and systems. As an example, social media use at work may facilitate and enrich work processes, but at the same time it can also cause workers to become overly preoccupied with work communication and may disrupt private life, resulting in psychological exhaustion and burnout (cf. the "enslavement/empowerment" paradox [12, 44]).

Several of the expert statements cited issues related to the multi-faceted and perhaps fragmented nature of contemporary work life. Technology and globalisation enable and often require communication across time zones, and for an increasing number of workers ongoing work tasks can be accessed remotely. Notions of the "borderlessness" of work and the "24-hour employee" have been prominent in public debate for decades already. However, with the acceleration of technological advances, these notions seem to have increased relevance. Contemporary ICTs seem more pervasive than ever, and during recent years, the increased use of social media for work purposes, combined with increasingly sophisticated smartphones, have furthered the potential for blurring of boundaries between work and private life [31]. Social media do not usually have opening hours, and asynchronous message technologies enable us to send and receive work-related information at all times, regardless of whether the recipient responds. This can certainly amplify the potential of work interfering with private life and recreation time [35], and potentially it can prolong psychological challenges stemming from the work context and impair recovery.

Overall, the view of technology as a "double-edged sword" that *can* - but not necessarily *will* - be disruptive both to work environment and health was reinforced by the views of the participants of the present study. There are both serious concerns that need to be taken into account during implementation of work technologies, and a potential for positive effects that may possibly counteract negative effects. Hence, a focus on preventing risks while simultaneously promoting job enrichment may be an important part of future policies to ensure a sustainable Nordic work life.

5.2   Regulating technology-assisted job demands

Recognising the extinction of natural boundaries between work and private life, France imple-
mented a law on the "right to disconnect" in 2017, mandating organisations of more than 50 em-
ployees to explicitly define times during which employees are not required to respond [12]. In
Germany, the work councils at Volkswagen and BMW enforced decisions in 2012 and 2014 to ban
the after work hours use of work-related communicative devices [9], implying that all emails reach-
ing company servers after office hours are put on hold or deleted, and that company phones go
off-service outside of work hours. Notably, this entails that even if implicit norms were to dictate
that employees respond, they would not be able to.

The above mentioned company- and government-initiated restrictions illustrate innovative
possible approaches to protect the boundaries between work and private life. However, an im-
portant question is whether such measures, i.e. specific rules and legislation aimed at specific
work tools, are effective in the long run, as the rapid rate of change also applies to such tools and
they may merge with tools used within the private life domain. Employees may (seemingly) vol-
untarily remain continuously "connected" if, for instance, private social media accounts are used
for work purposes or work social media accounts are used for private purposes. This could be the
case if a private Twitter- or LinkedIn account is used to follow work-related news, or if a Skype for
business-account is used for personal messaging. Work e-mail accounts may depend on servers at
the workplace, but social media accounts may be more ambiguously located, possibly providing
employees with opportunities to further blur the boundaries between work and private life. Zoo-
nen, Verhoeven, and Vliegenthart [22] specifically investigated the impact of work-related social
media use on work-private life boundaries, finding that it was indeed associated with work-private
life conflicts and emotional exhaustion (a component of burnout).

Another important question with regard to restricting access to work tools is whether it de-
creases demands or rather diminishes the resources available to meet those demands. This notion
encourages us not to conflate the demands of the job with the mediation of those demands by
technological devices. It is often unclear whether frequent *reminders* of demands (e.g. email noti-
fications) add substantial strain to the already existing burden of the demands they communicate.
If the workload itself is excessive, denying the worker the opportunity to read and respond to
emails may not be helpful.

The experts of the present study expressed concerns about the blurring of the boundaries be-
tween work and private life (e.g. "Availability demands will increase and it will be more challenging
to balance work and private life") and highlighted the need to view flexibility as both a demand
and a resource for workers (reflected by statements such as "It will be easier for the individual
worker to organize work to fit their own requirements and life situation (e.g family circumstances
and age)", "Digitalization makes work more flexible in time and place", and "Employees will be-
come more flexible"). Availability demands are a function of both informal and formal job role
expectations and the extent to which technologies make it "easy" to be available. Hence, efforts
to regulate or influence technology-assisted job demands must take this into account, presumably
by disseminating knowledge about the consequences for occupational health in the long term.

Formal regulations may help to establish norms and guide expectations as well as directly regulating actions, but at the present stage it seems equally important to spread awareness among labour market agents. Based on the observation that the experts participating in the present study submitted a wide range of different, but often similar, notions covering a range of different levels of abstraction, there seems to be a major need for more specific knowledge to guide emerging policies.

The experts had a number of suggestions about how to manage new work technologies in practice. They suggested that work places should invest in the "digital work environment", and actively address challenges related to the interaction between humans and technology when implementing new systems to attain production goals. Importantly, several experts emphasised the collaboration between employers and employees as instrumental in this process. And while they highlighted the need for new legislation pertaining to the "digital work environment" and surveillance of how new work technologies are being used, they also pointed to the role of work environment authorities in guiding and supporting work places in order to motivate and facilitate improvement. Hence, while regulation is necessary, it should be supplemented by dissemination of knowledge to those who manage the relevant processes in practice.

5.3   New job demands added to existing ones

Many expert statements of the Delphi study seemed to reflect an anticipation of intensified job demands in the future, with expectations of workers to be more efficient and productive with less time and available resources. However, new ways of performing work tasks also imply *new skill requirements*, meaning workers must renew and expand their skills. Moreover, rapid, disruptive turnover of technological systems may further intensify learning demands as the knowledge and skills required just to perform tasks keep changing [11]. This may involve both increased *qualitative demands* (i.e. work becomes more difficult) and *quantitative demands* (i.e. the task load increased and work becomes more intense). While some tasks, such as calculation and data processing, have become more manageable, task complexity, information processing requirements, and information overload may have intensified demands on memory, precision, concentration and multi-tasking abilities.

One example of a new way of working that has recently become more common, and that is relatively novel to many, is communication by video conference. While the phenomenon is not new, the range of purposes that can be fulfilled by this type of communication seems to have been considerably extended recently, as face-to-face meetings have become less demanded. Further catalyzing this development, the Covid-19 pandemic has created a strong need for social (physical) distancing. This way of communicating may be more emotionally and cognitively demanding as well as less effective than face-to-face interactions for many purposes [14]. Recent reports of "video call fatigue" suggest this to be a stressor that may influence well-being considerably. Importantly, the adaptations that workers have to actively make are often not seen as work tasks in themselves, although they may require considerable efforts. And while an increased degree of

flexibility may help workers adjust, it should also be noted that flexibility - as was clearly reflected by a number of statements from the expert panels - can be both a demand and a resource. This dual potential may serve as a simultaneous warning and encouragement, as it informs of both potential risks and resources to address them with.

5.4 Flexibility, autonomy and isolation

Autonomy is a basic psychological need [18], and a certain degree of perceived job autonomy has often been highlighted as an essential component to a healthy and meaningful work situation [52, 50]. A decisive, but open, question for the future of work, then, seems to be how worker *autonomy* will be affected. Time- and location-independent ways of working could, for instance, imply more freedom and discretion to make decisions about how to work, empowering employees to flexibly manage work-private life balance. However, the opposite may also be true. Difficulties managing boundaries between work and private life can result with work overload combined with the opportunity to work anywhere any time [21]. In the present study a number of expert statements pointed to increasing flexibility as a possible source of both positive and negative consequences (e.g. a statement such as "Employees will become more flexible" was deemed potentially negative by 77% and positive by 90%, and "Digitalization makes work more flexible in time and place" was deemed negative by 82% and positive by 88%). This is firmly in line with research demonstrating that technological implementations that reduce worker autonomy can hamper well-being while those that enhance autonomy can promote well-being (see e.g. [15]).

The allowance of autonomy, based on trust, may be an important tool to counteract adverse effects of future work s tressors. However, autonomy and empowerment must not be confused with laissez-faire-, unsupportive- or absent leadership. While autonomy may be a basic psychological need, so is *competence* [18], implying that workers need a sense of mastery and efficacy. This may depend on feedback and evaluation so the individual can know whether mastery has been achieved. A present-day example of a technology-assisted work arrangement that holds a great potential, in principle, for increased freedom and flexibility is *remote working* (often referred to as "home office"). However, this increasingly relevant work arrangement may require extra, conscious efforts from leaders and managers to ensure adequate support and assistance so workers can experience mastery. Moreover, community and connectedness with others is also a basic psychological need [18], and while technology may give us the opportunity to work alone it may also affect our social o pportunities. Interestingly, the expert statement "Digital solutions and climate considerations will lead to solitary work/working from home, which may hamper social relations in the workplace" was not among the most agreed upon of the present study, with 21% disagreeing. While this could be partially due to the contextualization of the statement ("climate considerations"), one might wonder what the result had been if the present study had been conducted after the Covid-19 pandemic.

The potential social isolation that new ways of working may entail for some can exacerbate existing job strain. The theoretical concept of "job strain" was during the 1980's extended to include

social support, highlighting the particularly adverse effects of job strain (i.e. high job demands with low job control/autonomy) when support from social networks is absent [51]. This situation was denoted "iso-strain" (i.e. job strain in social isolation). Possibly, the de-localization of work necessitates raised awareness of the virtues of social support and the need to prevent *physical* distance from implying *social* distance. Hence, emotional and instrumental support from colleagues and/or superiors may become even more imperative to ensure in the future for many types of work. While little research has focused on this specific combination of adverse exposures so far [30], some studies have indicated effects on e.g. heart disease [39]. More generally, loneliness and social isolation has been found to be as predictive of mortality as standard risk factors [25]. While the psychological strain of isolation may partly account for this, health behaviors such as unhealthy diet and excessive alcohol consumption, which may be influenced by psychological states as well as increased opportunities to indulge in them, are also likely to play a significant role.

As remote work, self-employment and other forms of solitary work becomes more common, the ability of individuals to practice *self-leadership* becomes increasingly important, and this was also brought up by the experts ("Self leadership will be required to a larger extent", with high agreement and consensus, and potentially negative and positive consequences reported by 95% and 92%, respectively). For many, self-leadership entails freedom and flexibility, but it can also be considerable demand which requires training and preparation. Related to the demands of managing one's own work situation, a frequently cited concern is whether current and future legislation will be adapted to provide security and safety for workers that work alone (e.g. isolated self-employed, see NFoW report 4, [2]). This is of course important when situations occur in which workers need help, but may also be crucial for their ongoing well-being and sense of security. The security of future workers was mentioned in the present study by statements such as "Employees will experience more meaningless work due to increased job insecurity and flexible contracts" and "More workers will experience a lack of social security at work (e.g. entitlement to parental leave, vacation, sick pay, etc.)". However, agreement was relatively low for these statements, with 39% and 34% not agreeing, respectively.

For workers that are employed by businesses and work from home or other remote locations, managers must decide whether they want to practice *empowering* and trust-based forms of leadership, allowing employees greater autonomy than before, or whether they wish to maintain or even increase their level of control over worker task execution. One way of doing this could be to provide more detailed schematic instructions for work tasks and develop more elaborate report systems for remote-working employees. Such work monitoring may perceived as intrusive and may result in tasks that are over-categorised and routinised, detracting from the sense of meaning and purpose of the job [36]. For businesses the balance between empowering employees to work independently and providing support to avoid isolation, without monitoring them, may not be easy to strike.

The experts of the Delphi study cited numerous challenges and opportunities pertaining to remote leadership, solitary work and self-leadership. While some studies have suggested that people who telework tend to experience less work strain, less exhaustion, and enhanced performance for complex tasks, they may also experience more social and professional isolation and blurred

boundaries between work and personal life [23, 5]. Golden and Gajendran [5] demonstrated that remote working boosted performance mostly for employees that experienced low levels of social support in the workplace in the first place, suggesting the loss of a social work context may offset the potential benefit of being able to work alone.

5.5 Clarity of roles in a fragmented world of work

As work becomes more de-localized, communication of goals, standards, and requirement specifications may be fragmented, possibly making it harder for workers to maintain a clear understanding of their job. Studies have indicated that remote workers experience more social and professional isolation, and poorer information sharing [23, 5]. That is, in addition to novel and increased demands, many employees may have to face higher levels of inclarity regarding expectations pertaining to job tasks (i.e. *role ambiguity*) and possibly less meaningful jobs. Role ambiguity is a well established psychosocial hazard that has been linked to mental health complaints in particular [28].

While role ambiguity is not a novel concept, the specific ambiguities that workers experience are likely to take on new forms. This notion highlights a common challenge when dealing with psychosocial work factors in practice, namely the operationalization of relatively broad concepts at a high level of abstraction. That is, while e.g. role ambiguity and job demands as such may continue to exist unaltered as psychological experiences, the specific conditions under which they emerge may change drastically in the future. Hence, there is a need for more extensive exploration and mapping of the *specific* occurrences of such problems in order to provide a more concrete starting point for practical applications of this knowledge. In the present study, the experts cited issues regarding the roles as employee and employer and responsibilities within work places (e.g. "New organizational forms could reduce the costs associated with the employer's responsibility for working conditions", "Responsibilities and roles will be less clear, for instance the roles as employer and employee" "It will become less clear who is responsible for health, work environment and safety"). Interestingly, though, consensus was low for those three statements, indicating a fair degree of uncertainty in the expert group on how such issues will play out in the future.

5.6 Future avenues for studying and managing the work environment in the future

In 2020, the finishing year of the current project, the Covid-19 pandemic changed the world of work in profound ways, temporarily and most likely also permanently. The pandemic swiftly caused a surge in developments and adaptations of ICT-applications that allow remote work, and possibly new ways of organizing and performing work tasks. In Norway, the majority of those commencing telework from home during the pandemic reported that they expect to continue partially working from home in the future [3]. While the specific juncture at which the current pandemic arose may not have been possible to foresee, it has catalysed and amplified trends already evident in

the world of work - trends that were reflected by the expert panels of the current study prior to the pandemic. Most, if not all, of the drivers of change were in some way or another involved in what happened to the world of work in 2020 - *globalisation* caused the rapid spread of the virus, *technology* enabled remote work as an adaptation to uphold social distance, the *environmental* impact was evident shortly after the outbreak, and so on. This serves as a useful reminder of the challenges that need to be addressed, even if the situation were to shift back to a new normal in the near future.

Although the changes associated with the pandemic may have clarified some aspects of the future of the work environment in the short term, little is still known about the specific dynamics involved. Hence, the need for more knowledge about specific processes and factors that are relevant to the work environment persists. Moreover, although many of the topics elucidated in the present report are quite universal, the context is the Nordic societies. The scope of the Delphi study limited the sample to representatives from Norway and Denmark. Therefore, although the experts were asked to consider the Nordic work environment, there is obviously a risk of omission of issues that hold particular relevance to the countries not represented. Hence, further investigations that include all of the Nordic countries are called for.

In conclusion, it seems clear that changes to the ways in which we work can have considerable repercussions for occupational health. However, the extent to which the net consequence turns out to be diminished or enhanced health and productivity depends on how prospective challenges are met. Therefore, knowledge of specific factors that may induce or mitigate risk is essential for legislators, policy-makers, inspection authorities, employers and others seeking to protect and enhance working conditions to ensure a sustainable future of work. Policies and practices that protect worker autonomy, prevent the obliteration of boundaries between work and private life, maintain and strengthen social support for solitary workers, prevent "technostress" and facilitate life long, positive learning will most likely enhance occupational health and productivity. In addition to addressing those issues, and others provided in the current report, there is of course also a strong need to acquire more specific, empirical knowledge about what forthcoming changes will consist of and what impact they may have on businesses and workers.

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APPENDICES

APPENDIX A - Agreement distributions for all statements

All statements ranked by agreement

In the following, distributions of agreement are given for all statements generated in the study, for each of the three blocks separately. The statements are sorted by the proportion of experts that rated the statements with high agreement, i.e. "agree" or "strongly agree" (block 1 and 2), or "somewhat likely" or "very likely" (block 3).

To what extent do you agree with the following statements?

Statement	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
New types of industries and jobs will be created with the green transition				48	52
Some jobs will disappear		2		35	63
New generations entering the labor market will bring new types of skills		2		70	28
More cross-border mobility will involve having to deal with workers with different needs (culture, language)		2		88	9
Employers will have to make sure leaders have competence to handle both the physical and the psychosocial work environment		2		48	50
Technological changes will give rise to new types of jobs		4		24	72
New industries can provide new markets for the employers		5		65	30
International competition will increase		5		74	21
Employers will have to address the implications of new technologies and invest in new systems		5		70	25
Technological change will give rise to new educational opportunities		7		30	63
Technology and expertise may increase innovation and productivity		7		53	40
New technologies will provide new opportunities for some		7		56	37
Environmentally friendly solutions with less travel and fewer physical meetings will be more prominent		7		79	14
There will be more focus on the psychosocial work environment	2	5		75	18
An ethical and sustainable corporate profile can make the workplace more attractive		9		56	35
A more international labor market makes intercultural exchanges possible	2	7		81	9
New technologies can contribute to better problem solving	2	7		50	40
New generations entering the labor market bring new perspectives on new challenges, such as digitalization	2	9		51	37
Work will be less physically demanding as a result of developments within robotics	2	10		67	21
There will be more sedentary work	2	10		74	14
Higher and more varied skills will require a well adjusted work environment		14		49	37
The increasing proportion of seniors in the labour market will have to be taken into account		14		63	23
More workers with looser job attachments may lead to difficulties in establishing a good work environment culture in workplaces	5	11		55	30
The introduction of new technologies will streamline work processes and provide enterprises with a competitive advantage		16		53	30
Increased diversity will bring more innovation and enrichment, because there will be more vantage points	2	14		56	28
Higher levels of education and higher skill levels among employees at all levels will facilitate the ability to develop		19		58	23
New technologies will bring new risks	2	17		67	14
New technologies make it easier to connect service users with service providers		23		53	23
Telework makes it more difficult to create a sense of workplace commitment	12	12		63	14
Globalization may result in time-related 'borderlessness', because workers increasingly work across time zones	7	16		67	9
There will be more focus on diversity and inclusion in the workplace	2	21		70	7
Employers will to a greater extent have to care for their employees to retain them in the workplace		23		72	5
New technologies will contribute to fewer physical risk factors in the workplace	5	19		60	17
Employers will have access to more and better tools to provide knowledge about the work environment	5	19		71	5
There will be more openness about the psychological work environment	5	20		63	12
Employers will have to deal with more diversity in the workplace, e.g. gender issues (male, female, other genders)	2	23		52	23
An international market will allow for higher production volumes	5	21		53	21
Availability demands will increase and it will be more challenging to balance work and private life	9	16		60	14
It will be possible to aim attention at creating sustainable solutions in a sustainable labor market	5	21		63	12
Employees will experience increased flexibility- and adaptability demands, for example when it comes to working hours	7	19		65	9
Automation/digitalization can give a better work environment	2	24		52	21
New technologies will give rise to job insecurity as work tasks are taken over by machines and robots	2 2	24		58	13
Creating predictability will be challenging for employers		16	14	64	7
In the event of job loss, many employees will lack qualifications to get a new job at the same level	7	24		60	9
Workers will increasingly experience a variety of psychosocial work demands (emotional demands, role uncertainty, job insecurity, more unstable relationships) as a result of new forms of employment (digital platform work, casual employment, freelance, etc.)	10	22		39	29
Efficiency gains could be realized as leisure time for employees - or financial gains for businesses		32		61	7
Increased flexibility and insecure job attachments will result in lower predictability (for example fluctuating income)	7	25		41	27
Employers will have access to more employees who can solve complex and novel tasks	2	30		58	9
More collaboration across geographical borders, time zones, and cultures will bring challenges related to language and cultural differences	2 14	16		60	7
Stress management and resilience will be required to a larger extent		32		59	7
Skill development will be more readily available	2 7	26		56	9
Management will occur in collaboration with the employees	9	26		58	7
Work load and time pressures will increase	2	34		49	15
Companies will need to map employee skills to a larger extent	2 2	33		40	23
Employers will have to recruit employees who can secure the use of artificial intelligence	2	35		42	21
There will be less routine work a result of developments within robotics	2 14	21		48	14
Empowerment and autonomy will be more important to create intrinsic motivations to adapt to new demands from the environment	2	37		46	15
A political agreement regarding the work environment effort will have a great positive effect on the work environment	12	29		50	10
The need for new skills will imply more interesting jobs	4	37		50	9
Engagement and organizational commitment will be crucial indicators for distinguishing between good and bad companies	2 2	37		40	19
Technological developments will lead to fewer accidents	2 14	26		45	12
Predictability and job security will be reduced	2 23	18		52	5
More tasks will have to be carried out with fewer resources	9	35		40	16

Percentages that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

Figure A1. 'Descriptives for all statements from block 1 - Part 1'

To what extent do you agree with the following statements?

Statement	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
Shortages of skilled labor is an advantage for the highly qualified	7	9	28	44	12
Technological developments can provide better work-related health and greater inclusiveness in the workplace for most workers	2	9	33	49	7
Too low mobility in the workforce may become a challenge for employers		14	30	49	7
Digitalization may promote collaboration in the workplace	2		42	51	5
More mobility between employers will be required			44	51	5
New industries will increase the demand for previously less sought after skills	2	9	33	51	5
Technological developments will give rise to increased competition for certain types of jobs		7	38	42	13
Because of telework or remote work, it will become harder to ensure work is being carried out in accordance with health- and safety requirements		17	29	40	14
Mental health problems will increase among young workers		10	36	40	14
Working conditions will deteriorate in the low-wage sector	2	25	18	43	11
Productivity-, efficiency-, and quality demands will increase while resources become more limited		7	39	46	7
Employees will be more involved in work organization, which can provide new opportunities		9	37	47	7
It will be easier for the individual worker to organize work to fit their own requirements and life situation (e.g family circumstances and age)		9	37	49	5
New technologies will give a larger labor market and a better match between supply and demand for skills and manpower		16	30	49	5
There will be more focus on the chemical work environment		12	36	40	12
Better opportunities to implement local senior arrangements, which for example can help retain staff, increase cross-generational collaboration and increase productivity		5	43	48	5
Employers will face the challenge of retaining younger employees who have higher demands		12	36	48	5
Pressure on pricing and wages could cause some actors not to comply with health and safety regulations		16	32	39	14
Responsibilities and roles will be less clear, for instance the roles as employer and employee		33	16	44	7
Age-related illnesses will increasingly influence whether employees can cope with physical and mental work loads		20	30	45	5
Automation of low-skilled jobs can cause many to be left outside the labor market	11	13	27	44	4
Stress and burnout will become more prominent		15	37	41	7
Rapid technological development will lead to polarization and greater social inequalities in work-related health	2	32	18	41	7
The degree of unionization will decrease, and increased competition for jobs may give rise to less protection against being laid off	2	14	36	41	7
Employers will have more engaged, innovative, and creative employees	2	7	44	40	7
New organizational forms could reduce the costs associated with the employer's responsibility for working conditions.	5	19	30	40	7
Elderly workers will find it difficult to maintain relevant skills and job security		33	21	42	5
Digital solutions and climate considerations will lead to solitary work/working from home, which may hamper social relations in the workplace		21	33	47	
More workers will experience a lack of social security at work (e.g. entitlement to parental leave, vacation, sick pay, etc.)	2	32	20	43	2
Active, job-specific HSE management will become more difficult		34	24	27	15
Many employment relations will be organized in a disadvantageous and unhealthy way for workers due to increasing 'contractualization' of working conditions that gives more power to the employer	9	27	23	30	11
More employees will face health challenges		21	38	33	7
New ownership structures will make collaboration with social partners more difficult	2	12	45	36	5
It will become less clear who is responsible for health, work environment and safety	2	42	16	23	16
New requirements will arise with regards to physical fitness, large work pressure, etc.		10	51	34	5
It will be challenging to limit the control of workers and diminish workers' loss of autonomy	5	14	43	23	16
Ensuring fair rewards will become challenging as capital/ownership becomes more important in a digital world	7	29	29	29	5
It becomes more difficult for workers to know what is required and expected of them		22	44	29	5
Less overall workload can lead to a good supply of skilled labor and low wage costs	5	16	47	28	5
As a result of rising education levels, employers will be able to get highly qualified workers at a lower cost than before	2	37	28	33	
Wages and employment conditions will worsen	11	36	20	30	2
It will be more difficult to satisfy the need for meaningful tasks, sufficient organizational resources, adequate feedback culture, opportunities for influence, skill development and collaboration	7	34	27	32	
There will be a shortage of systems that can effectively map, assess, and document skills and skill requirements	5	23	42	30	
Employees will experience more meaningless work due to increased job insecurity and flexible contracts	10	29	32	27	2
Problems with disruptive noise in the workplace will increase		19	52	26	
Transportation to and from the workplace will become more difficult due to required reductions of greenhouse gases	2	42	28	26	2
There will be an increasing degree of legal professionalization that will make supervisory work and injunctions more difficult and time consuming		23	50	18	9
Many employees will experience reduced influence and participation in decision making processes	5	39	30	25	2
New forms of work schedules will promotes higher work intensity and less recovery time		50	24	21	5
We will see a development towards full employment	4	27	44	24	
Bureaucracy will increase	5	31	40	24	
Greater collective demands will be made from an overall larger group of employees at the individual workplaces	2	28	49	21	
Many employment seekers will not be able to find work	14	43	23	20	
It will be difficult to control the correct execution of automated processes	5	35	42	14	5
Weekly working hours will increase	5	44	35	12	5
There will be less opportunity to adapt work for workers with functional impairments	2	56	28	14	
Work will be more monotonous	19	49	26	7	

Percentages that reported the various response alternatives

■ Strongly disagree   ■ Disagree   ■ Neither agree or disagree   ■ Agree   ■ Strongly agree

Figure A2. 'Continued: Descriptives for all statements from block 1 - Part 2'

Figure A3. 'Descriptives for all statements from block 2'

How likely do you think the trends in the following statements are?

Statement	Very unlikely	Unlikely	Somewhat likely	Very likely
Workers will to a larger extent have to cooperate with robots			64	36
Demands for ethical awareness, sustainability, and environmental awareness will increase across all workplaces		2	43	55
There will be a growing need for more 'customer-sentric' and 'person-focused' organizations		2	53	44
Migration will increase		5	50	45
Which skills are in high demand will change	2	2	41	54
Competence and work ability will be more important than age		7	41	52
Work environment, engagement, and commitment to the organisation will become strategic competitive factors		8	40	52
The proportion of older workers will increase	2	7	23	68
Competition for skilled labor will increase	2	7	42	49
Workers with high levels of skill will be in higher demand, while access to skilled labor will decline	2	7	57	33
There will be a growing focus on preventing health problems through a good work environment and positive factors such as satisfaction, motivation and engagement		12	53	35
Discrepancies between good and bad work environments will increase		14	52	34
Remote management will occur more often		16	45	39
Remote work will be more widespread		16	39	45
The digital economy will lead to increased socioeconomic differences between groups with different educations and skills (e.g. technology skills)		16	43	41
Time-limited employment and assignments will become more widespread		18	39	43
Aquisitions by foreign owners with a different management culture will become more common		20	50	30
The focus on people and intrinsic motivation will gain traction		26	58	16
Employees will become more involved in the facilitation of the work		30	58	12
The individual worker's health and well being will receive more attention		30	53	16
There will be more rogue players in work life and more work-related crime	2	34	50	14
Employers may to a larger extent be required to cover greater costs pertaining to illness and reduced work ability		39	45	16
Overtime and night work will be more common	12	30	44	14
The rise of new forms of employment (freelance, digital platform work etc.) will entail less requirements for employers to provide acceptable work environments	14	32	30	25
There will be an increase in conflicts and bullying in the workplace and an increased focus on preventing offensive or abusive behaviors	2	48	41	9
Workers will to a larger extent be managed and lead by robots	32	45	18	5

Percentages that reported the various response alternatives

□ Very unlikely □ Unlikely □ Somewhat likely □ Very likely

Figure A4. 'Descriptives for all statements from block 3'

Descriptives for all statements by driver, block, and theme

In the following, distributions of agreement are also given for all statements of the study, but now sorted by "driver", "block", and the more specific "theme" that the statements were classified under. In addition, the consensus rating (C) is given along with the number of experts that rated the various statements.

Figure A5. Driver: Technology
Block 1: To what extent do you agree with the following statements?
Theme: General work environment
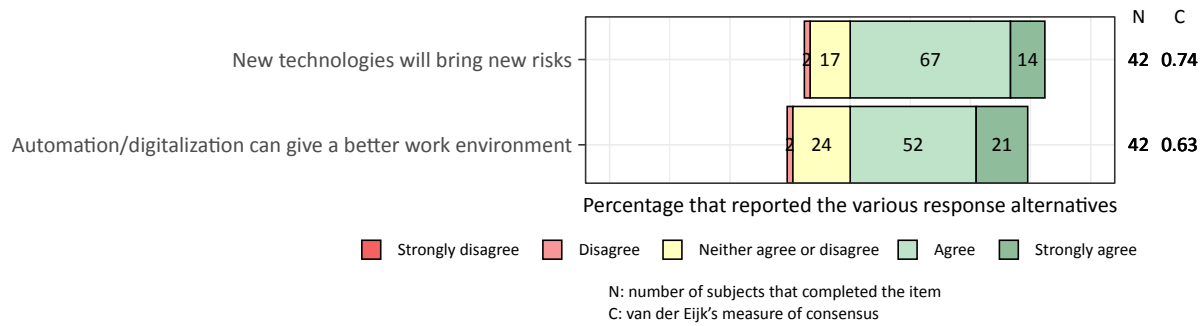
Figure A6. Driver: Technology
Block 1: To what extent do you agree with the following statements?
Theme: Inclusiveness
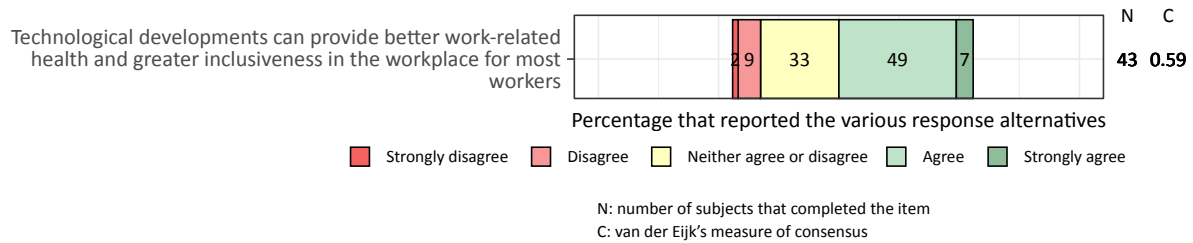
Figure A7. Driver: Technology
Block 1: To what extent do you agree with the following statements?
Theme: Interaction, cooperation, and culture

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
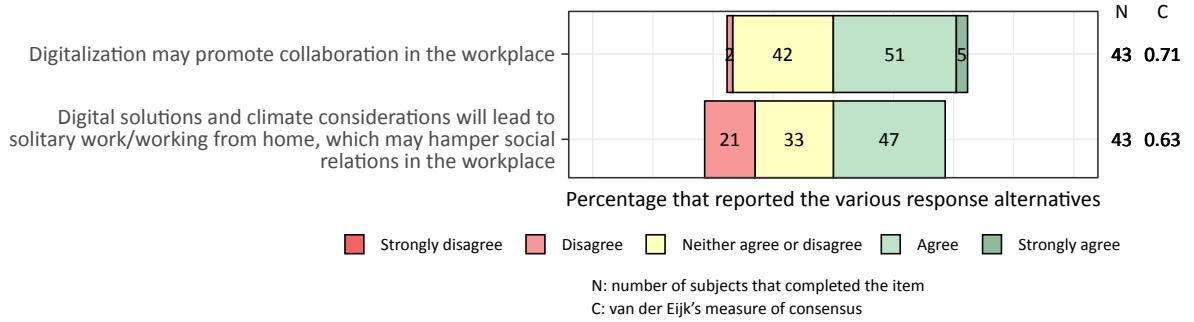
Figure A8. Driver: Technology
Block 1: To what extent do you agree with the following statements?
Theme: Job creation, job destruction, job change, and predictability

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
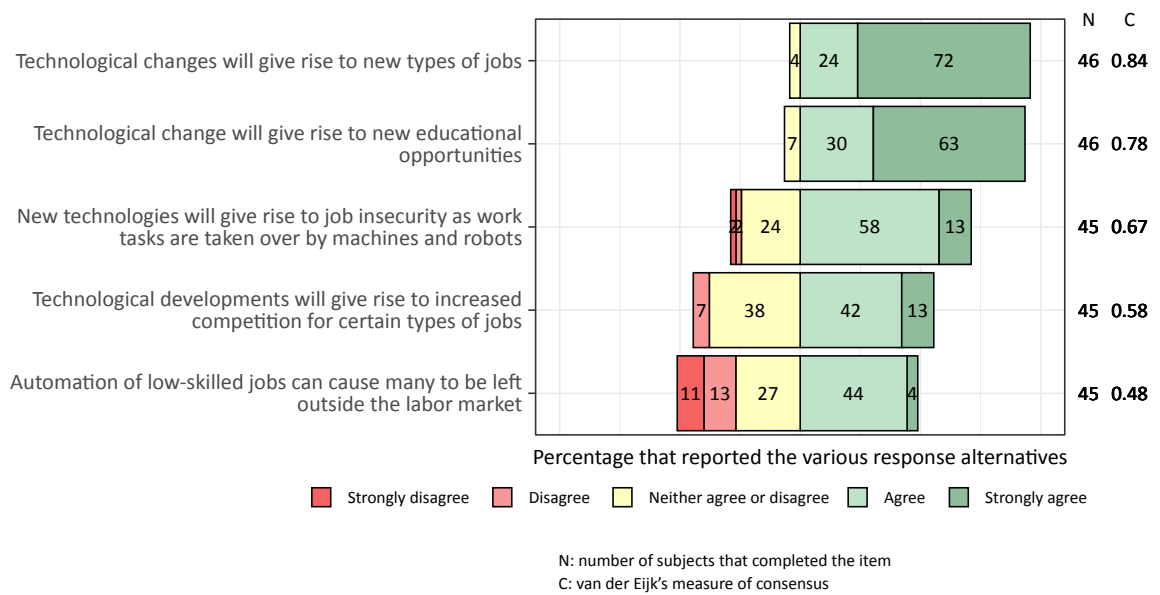
Figure A9. Driver: Technology
Block 1: To what extent do you agree with the following statements?
Theme: Physical, ergonomical, chemical working conditions and accidents
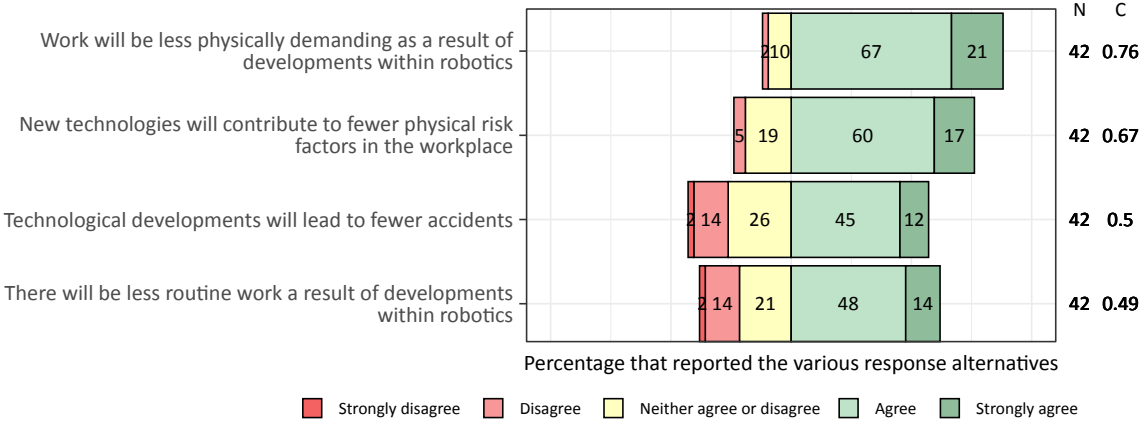
N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A10. Driver: Technology
Block 1: To what extent do you agree with the following statements?
Theme: Productivity, efficiency, and competitive advantages

				N	C
Employers will have to address the implications of new technologies and invest in new systems	5	70	25	**40**	**0.83**
New technologies will provide new opportunities for some	7	56	37	**43**	**0.74**
New technologies can contribute to better problem solving	2 7	50	40	**42**	**0.69**
The introduction of new technologies will streamline work processes and provide enterprises with a competitive advantage	16	53	30	**43**	**0.69**
New technologies make it easier to connect service users with service providers	23	53	23	**43**	**0.65**
It will be difficult to control the correct execution of automated processes	5 35 42 14 5			**43**	**0.52**

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A11. Driver: Technology
Block 1: To what extent do you agree with the following statements?
Theme: Skills and competency

				N	C
Technology and expertise may increase innovation and productivity	7	53	40	**43**	**0.73**
New technologies will give a larger labor market and a better match between supply and demand for skills and manpower	16	30	49 5	**43**	**0.62**
Employers will have to recruit employees who can secure the use of artificial intelligence	2 35	42	21	**43**	**0.58**

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A12. Driver: Technology
Block 1: To what extent do you agree with the following statements?
Theme: Terms and conditions of work

	N	C
Rapid technological development will lead to polarization and greater social inequalities in work-related health	44	0.35

Percentage that reported the various response alternatives

■ Strongly disagree　■ Disagree　□ Neither agree or disagree　■ Agree　■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A13. Driver: Technology
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Control and surveillance

	N	C	Neg	Pos	Eval
New technologies will make increased control and surveillance of workers possible	41	0.68	85	39	Neg

Percentage that reported the various response alternatives

■ Strongly disagree　■ Disagree　□ Neither agree or disagree　■ Agree　■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A14. Driver: Technology
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Fragmentation and individualization

	N	C	Neg	Pos	Eval
Technological developments will lead to increasing individualization and less unionisation	41	0.57	74	26	Neg

Bar chart values: 15, 34, 44, 7

Percentage that reported the various response alternatives

Legend: ■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A15. Driver: Technology
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Job creation, job destruction, job change, and predictability

	N	C	Neg	Pos	Eval
Tasks will shift from workers to machines and robots	44	0.77	91	100	Neg/pos

Bar chart values: 2, 7, 70, 20

Percentage that reported the various response alternatives

Legend: ■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A16. Driver: Technology
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Organization of work

	N	C	Neg	Pos	Eval
New technologies will allow new ways of organizing work	41	0.8	72	90	Neg/pos
Technology will to a greater extent determine how work is organized	40	0.61	74	51	Neg

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A17. Driver: Technology
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Productivity, efficiency, and competitive advantages

	N	C	Neg	Pos	Eval
New technologies provide opportunities to utilize residual work capacity and offer services in a global market	41	0.74	41	67	Neutral

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A18. Driver: Technology

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Psychosocial work environment

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A19. Driver: Technology

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Skills and competency

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A20. Driver: Technology
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Time and place

	N	C	Neg	Pos	Eval
Digitalization makes work more flexible in time and place	40	0.81	82	88	Neg/pos

(bar: 8 Neither agree or disagree, 70 Agree, 22 Strongly agree)

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A21. Driver: Technology
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Work content

	N	C	Neg	Pos	Eval
New technologies (e.g. artificial intelligence, robots, ICT) will be a part of more work tasks and change the content of tasks	40	0.79	80	92	Neg/pos
Work tasks will become more varied and complex as new technologies take on more of the routine tasks	41	0.73	69	82	Pos

(bars: 5/62/32 and 2,2/22/66/7)

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A22. Driver: Technology

Block 3: How likely do you think the trends in the following statements are?

Theme: Interaction, cooperation, and culture

Workers will to a larger extent have to cooperate with robots

| N | C |
| 64 | 36 | 44 | 0.76 |

Percentage that reported the various response alternatives

■ Very unlikely ■ Unlikely ■ Somewhat likely ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
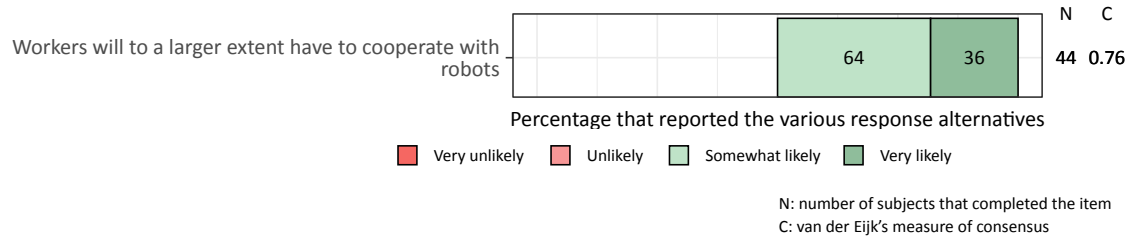
Figure A23. Driver: Technology

Block 3: How likely do you think the trends in the following statements are?

Theme: Leadership

Workers will to a larger extent be managed and lead by robots

| N | C |
| 32 | 45 | 18 | 5 | 44 | 0.45 |

Percentage that reported the various response alternatives

■ Very unlikely ■ Unlikely ■ Somewhat likely ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A24. Driver: Technology

Block 3: How likely do you think the trends in the following statements are?

Theme: Skills and competency

The digital economy will lead to increased socioeconomic differences between groups with different educations and skills (e.g. technology skills)

| N | C |
| 16 | 43 | 41 | 44 | 0.52 |

Percentage that reported the various response alternatives

■ Very unlikely ■ Unlikely ■ Somewhat likely ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A25. Driver: Demography
Block 1: To what extent do you agree with the following statements?
Theme: Demography

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A26. Driver: Demography
Block 1: To what extent do you agree with the following statements?
Theme: Productivity, efficiency, and competitive advantages

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
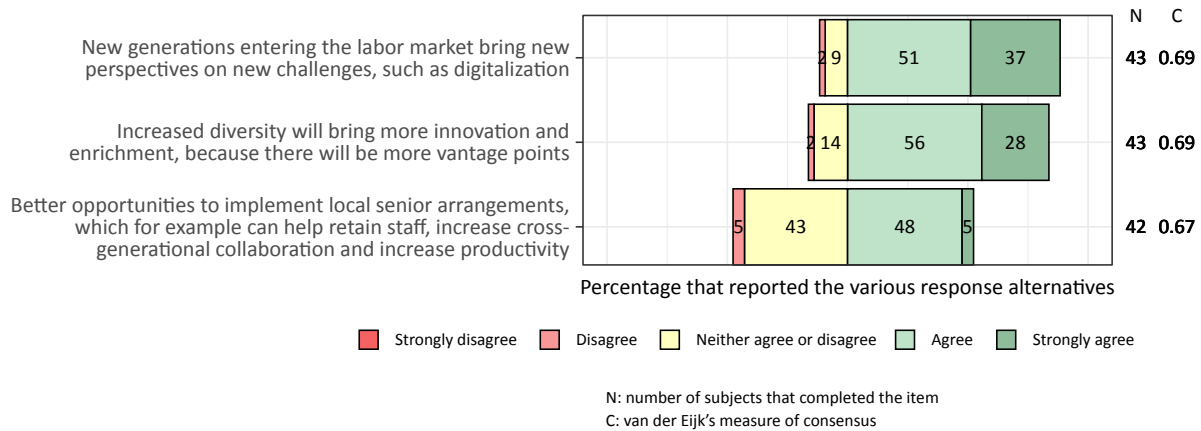
Figure A27. Driver: Demography
Block 1: To what extent do you agree with the following statements?
Theme: Skills and competency

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A28. Driver: Demography
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Demography

	N	C	Neg	Pos	Eval
The workforce will become more diverse, with a more equal distribution of gender, ethnicity, and nationalities	42	0.85	67	88	Pos
There will be a higher proportion of elderly workers in important positions	42	0.55	56	63	NA

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   □ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A29. Driver: Demography
Block 3: How likely do you think the trends in the following statements are?
Theme: Demography

	N	C
The proportion of older workers will increase	44	0.71
Migration will increase	44	0.64

Percentage that reported the various response alternatives

■ Very unlikely   ■ Unlikely   ■ Somewhat likely   ■ Very likely
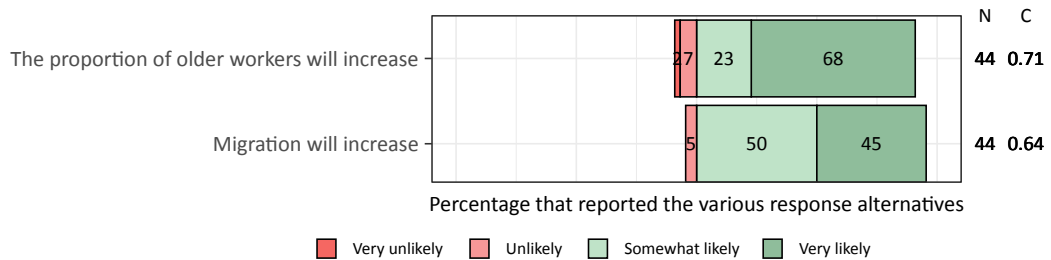
N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A30. Driver: Globalization
Block 1: To what extent do you agree with the following statements?
Theme: Interaction, cooperation, and culture

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
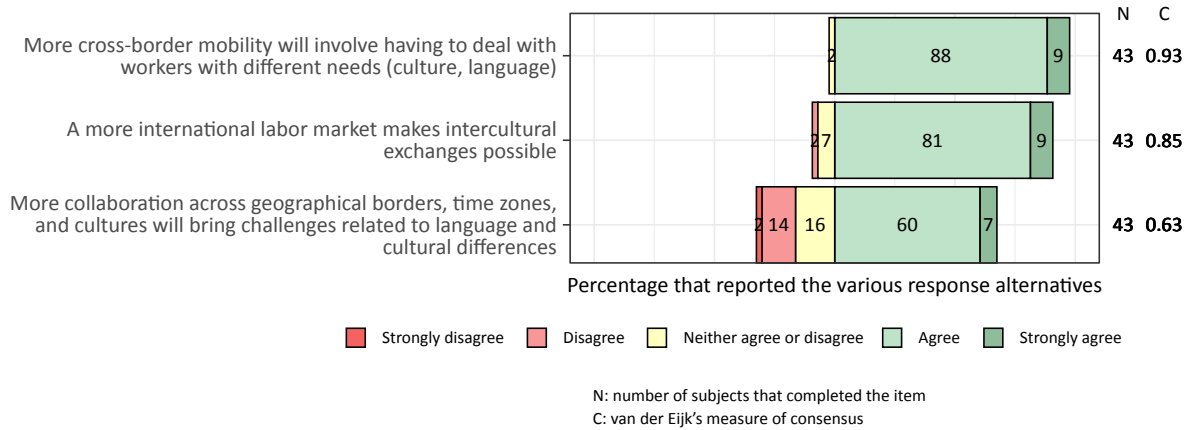
Figure A31. Driver: Globalization
Block 1: To what extent do you agree with the following statements?
Theme: Productivity, efficiency, and competitive advantages

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
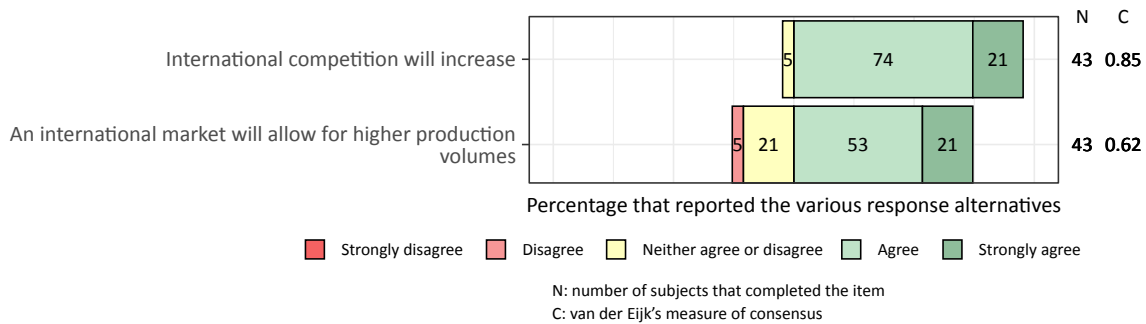
Figure A32. Driver: Globalization
Block 1: To what extent do you agree with the following statements?
Theme: Time and place

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
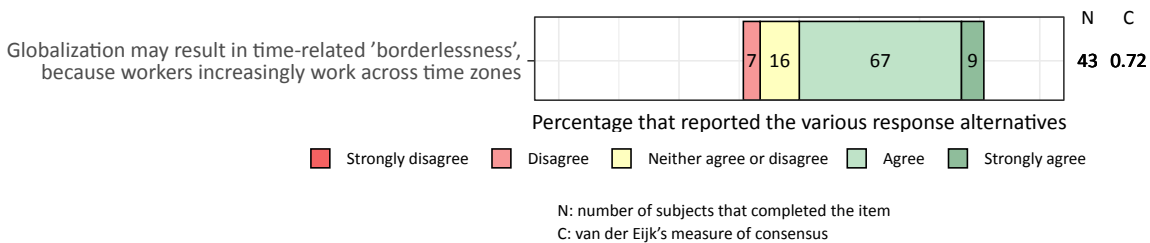
Figure A33. Driver: Globalization

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Theme: Demography
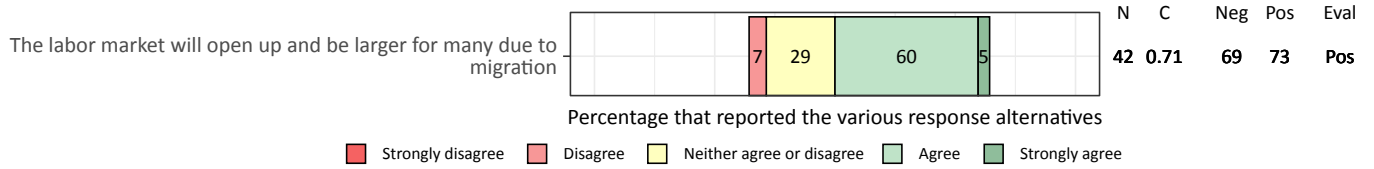
N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A34. Driver: Globalization
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Globalization

	N	C	Neg	Pos	Eval
Workers will experience more competition due to globalization	42	0.86	95	60	Neg
Globalization will increase (e.g. cross-border businesses, offshoring)	42	0.85	80	83	Neg/pos
Globalization will make it easier to recruit the appropriate labor resources across country borders	40	0.76	66	69	Neutral

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   □ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A35. Driver: Globalization
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Productivity, efficiency, and competitive advantages

New technologies provide opportunities to utilize residual work capacity and offer services in a global market

	N	C	Neg	Pos	Eval
	41	0.74	41	67	Neutral

Bar values: 5 | 34 | 59 | 2

Percentage that reported the various response alternatives

Strongly disagree ☐ Disagree ☐ Neither agree or disagree ☐ Agree ☐ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A36. Driver: Environment
Block 1: To what extent do you agree with the following statements?
Theme: Interaction, cooperation, and culture

Digital solutions and climate considerations will lead to solitary work/working from home, which may hamper social relations in the workplace

	N	C
	43	0.63

Bar values: 21 | 33 | 47

Percentage that reported the various response alternatives

Strongly disagree ☐ Disagree ☐ Neither agree or disagree ☐ Agree ☐ Strongly agree
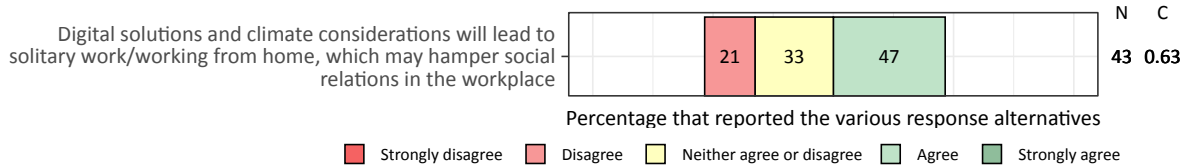
N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A37. Driver: Environment
Block 1: To what extent do you agree with the following statements?
Theme: Job creation, job destruction, job change, and predictability
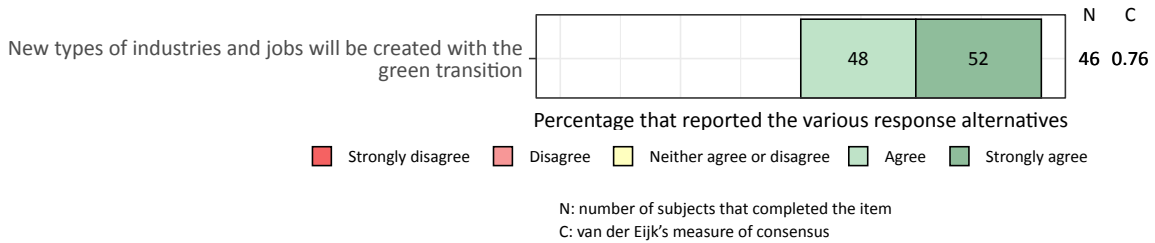
Figure A38. Driver: Environment
Block 1: To what extent do you agree with the following statements?
Theme: Productivity, efficiency, and competitive advantages
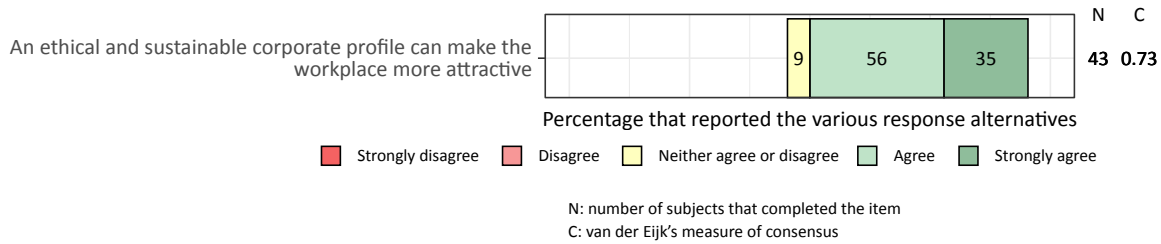
Figure A39. Driver: Environment
Block 1: To what extent do you agree with the following statements?
Theme: Sustainability
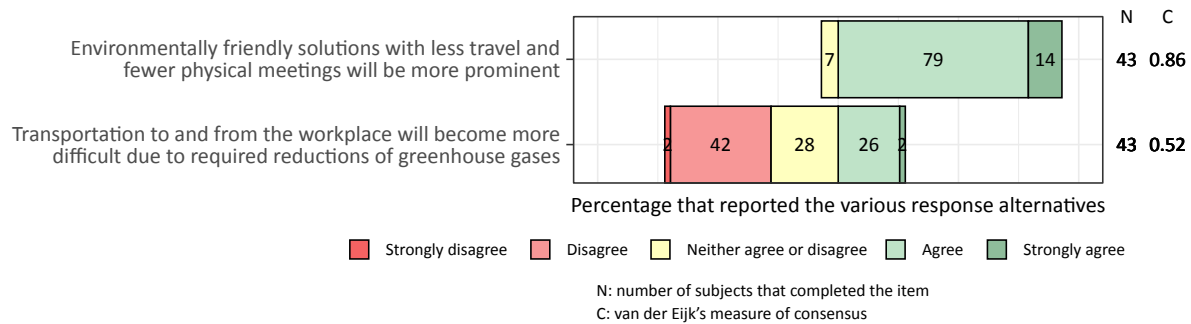
Figure A40. Driver: Environment
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Sustainability

		N	C	Neg	Pos	Eval
A sustainable work environment will become more important as a strategic competitive factor	22 / 55 / 22	40	0.66	23	87	Pos

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A41. Driver: Environment
Block 3: How likely do you think the trends in the following statements are?
Theme: Sustainability

		N	C
Demands for ethical awareness, sustainability, and environmental awareness will increase across all workplaces	2 / 43 / 55	44	0.68

Percentage that reported the various response alternatives

■ Very unlikely ■ Unlikely ■ Somewhat likely ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
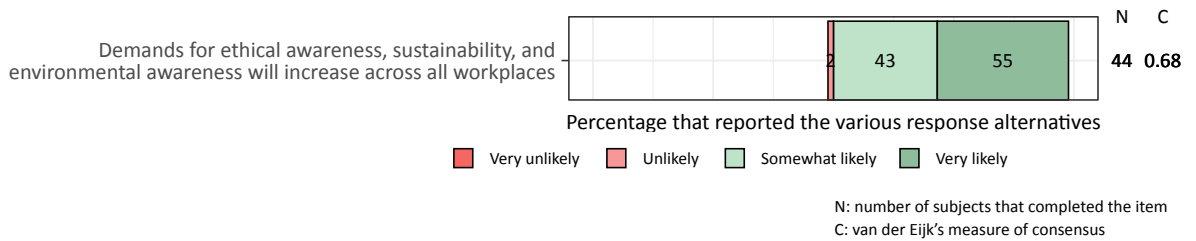
Figure A42. Driver: Skills

Block 1: To what extent do you agree with the following statements?

Theme: General work environment

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
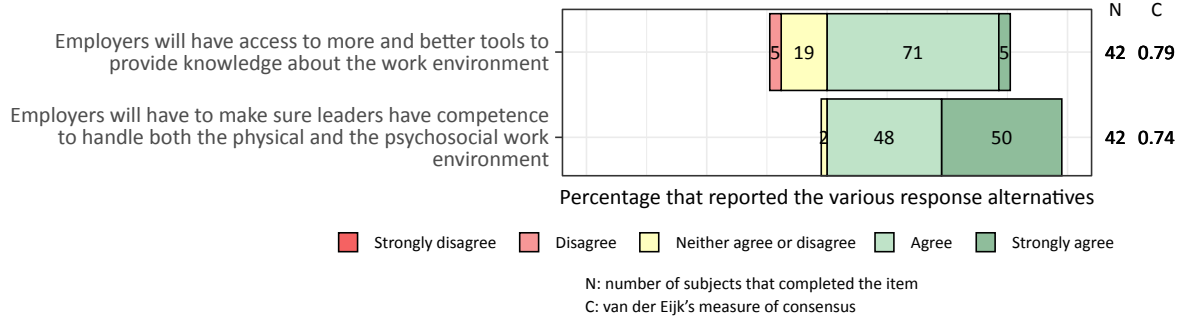
Figure A43. Driver: Skills

Block 1: To what extent do you agree with the following statements?

Theme: Job creation, job destruction, job change, and predictability

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
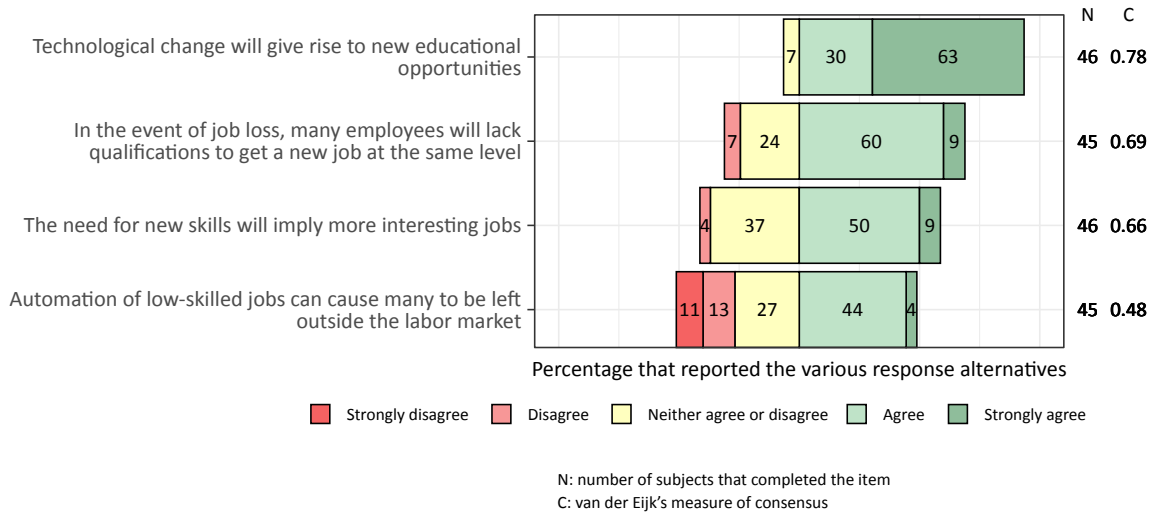
Figure A44. Driver: Skills
      Block 1: To what extent do you agree with the following statements?
      Theme: Organization of work

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
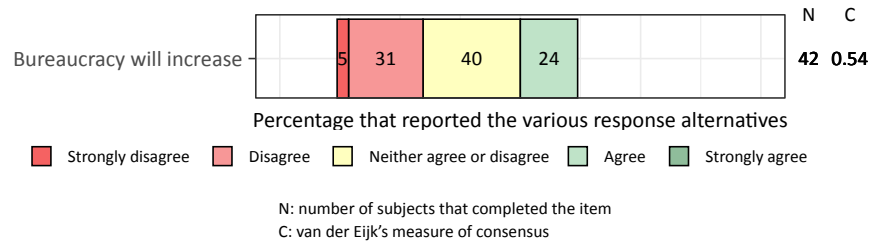
Figure A45. Driver: Skills
      Block 1: To what extent do you agree with the following statements?
      Theme: Productivity, efficiency, and competitive advantages

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
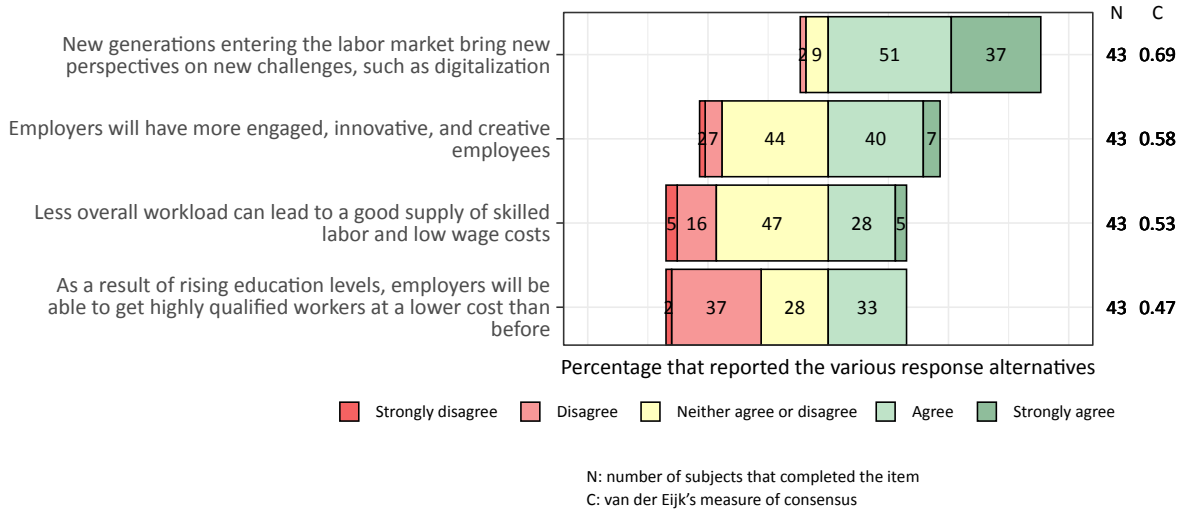
Figure A46. Driver: Skills
Block 1: To what extent do you agree with the following statements?
Theme: Psychosocial work environment

It will be more difficult to satisfy the need for meaningful tasks, sufficient organizational resources, adequate feedback culture, opportunities for influence, skill development and collaboration

	N	C
7	34	27	32		**41**	**0.41**

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
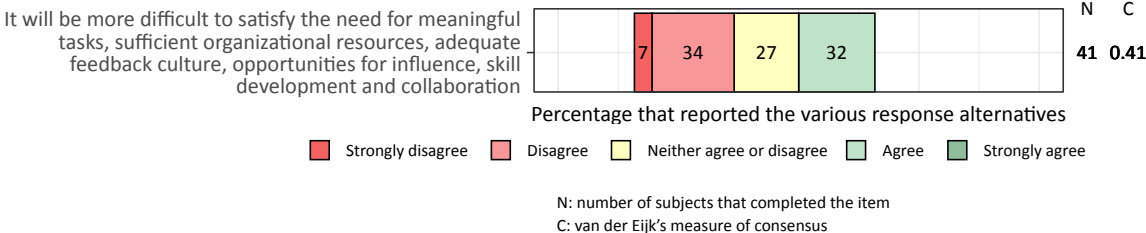
Figure A47. Driver: Skills
Block 1: To what extent do you agree with the following statements?
Theme: Skills and competency

Percentage that reported the various response alternatives

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A48. Driver: Skills
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Flexibility
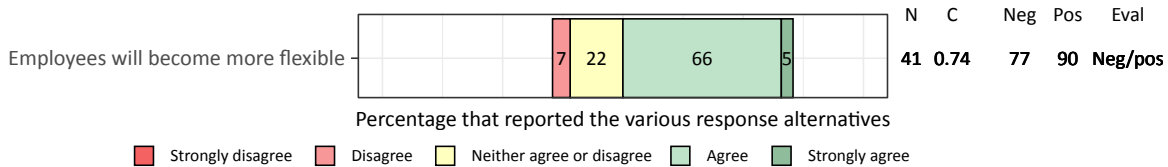
N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A49. Driver: Skills
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Fragmentation and individualization

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A50. Driver: Skills

> **Block 2:** To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
> **Theme:** General work environment

Innovation culture will become more important

N	C	Neg	Pos	Eval
42	0.62	42	80	Pos

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A51. Driver: Skills

> **Block 2:** To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
> **Theme:** Globalization

Globalization will make it easier to recruit the appropriate labor resources across country borders

N	C	Neg	Pos	Eval
40	0.76	66	69	Neutral

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
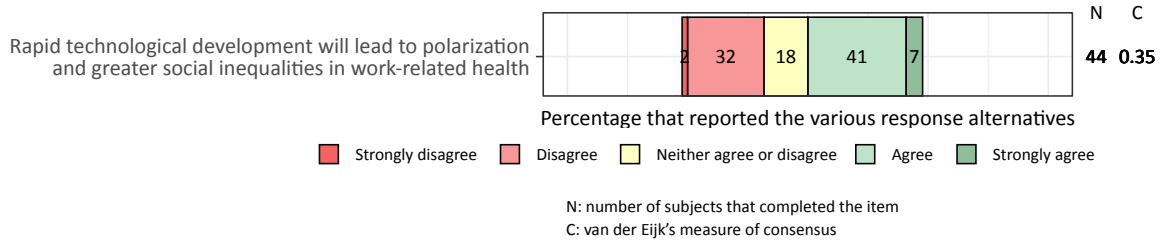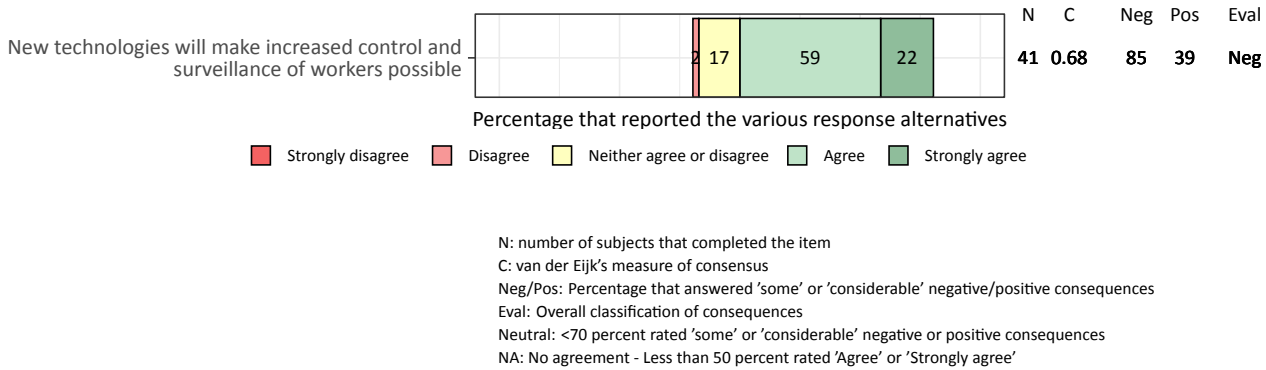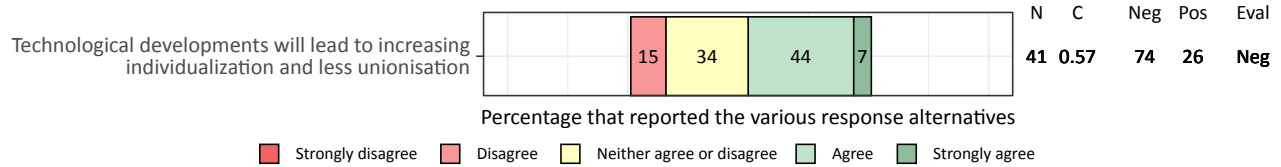NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A52. Driver: Skills
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Interaction, cooperation, and culture

Collaboration between professionals and volunteers in the labor market will become more widespread

	N	C	Neg	Pos	Eval
	41	0.65	61	66	NA

12 | 39 | 46 | 2

Percentage that reported the various response alternatives

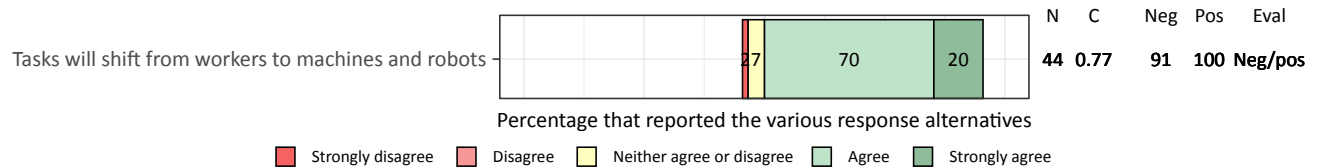■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A53. Driver: Skills
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Leadership

Self leadership will be required to a larger extent

	N	C	Neg	Pos	Eval
	41	0.84	95	92	Neg/pos

2 10 | 83 | 5

Percentage that reported the various response alternatives

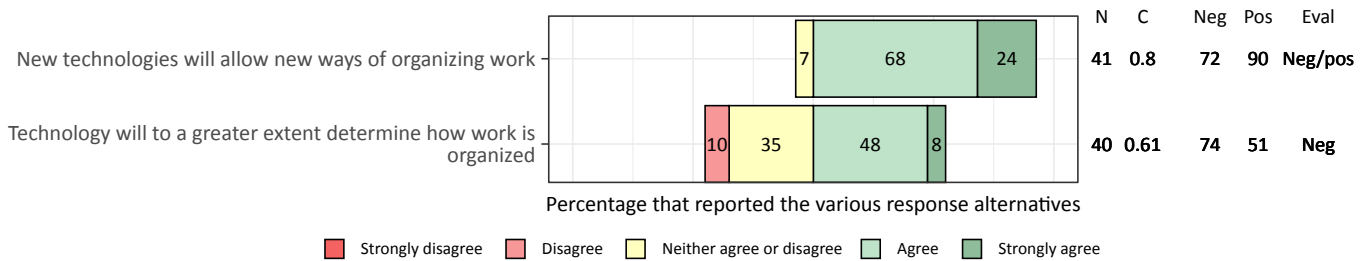■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A54. Driver: Skills
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Organization of work

	N	C	Neg	Pos	Eval
Work life will become more task-driven	41	0.68	61	69	Neutral

Percentage that reported the various response alternatives

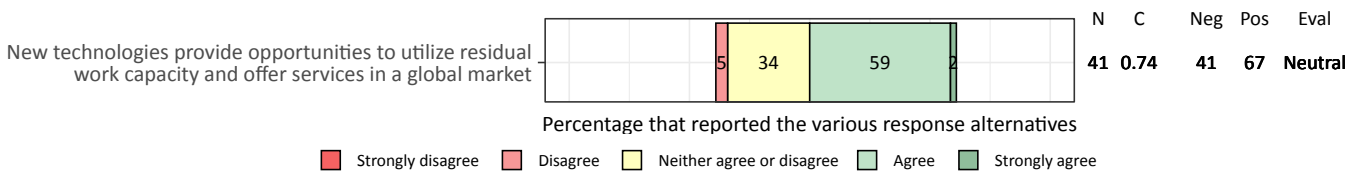☐ Strongly disagree ☐ Disagree ☐ Neither agree or disagree ☐ Agree ☐ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A55. Driver: Skills
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Productivity, efficiency, and competitive advantages

	N	C	Neg	Pos	Eval
Streamlining demands will increase	40	0.79	84	56	Neg

Percentage that reported the various response alternatives

☐ Strongly disagree ☐ Disagree ☐ Neither agree or disagree ☐ Agree ☐ Strongly agree
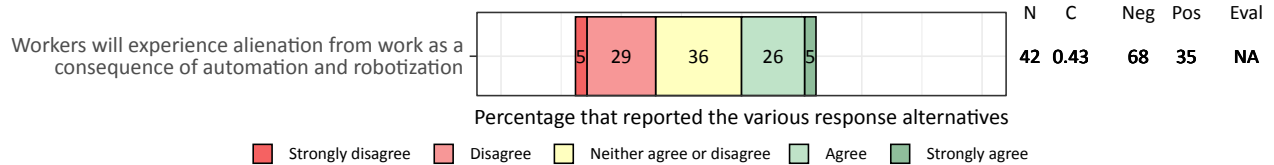
N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'
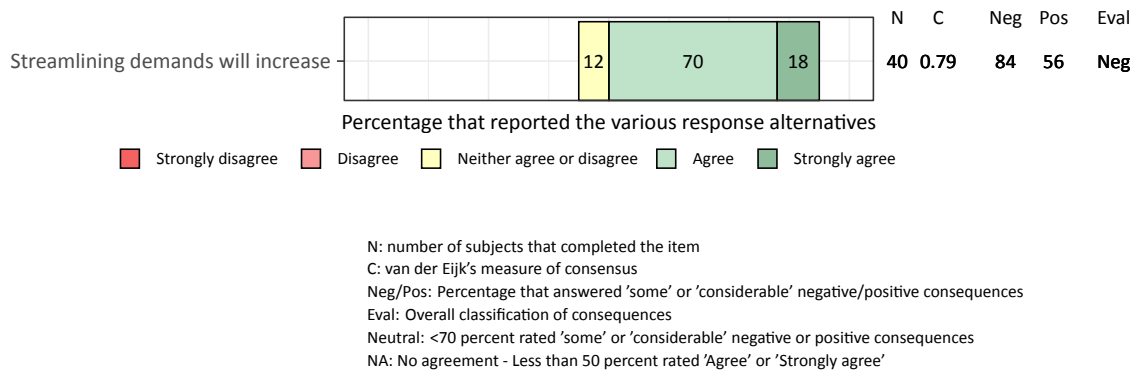
Figure A56. Driver: Skills

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Roles and responsibilities

Percentage that reported the various response alternatives

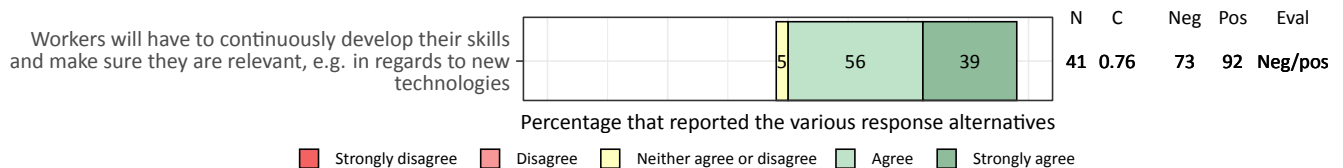■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A57. Driver: Skills
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Skills and competency

Percentage that reported the various response alternatives

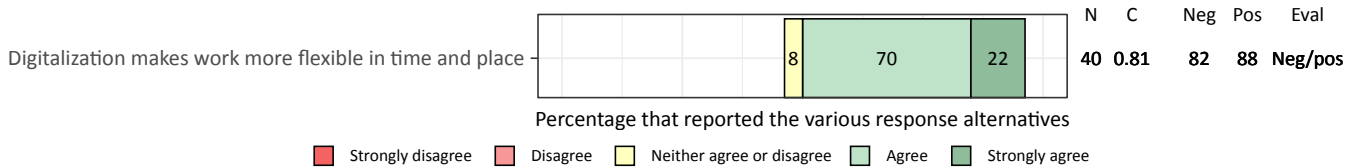■ Strongly disagree   ■ Disagree   □ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A58. Driver: Skills

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Theme: Sustainability

	N	C	Neg	Pos	Eval
A sustainable work environment will become more important as a strategic competitive factor (22 / 55 / 22)	40	0.66	23	87	Pos

Percentage that reported the various response alternatives

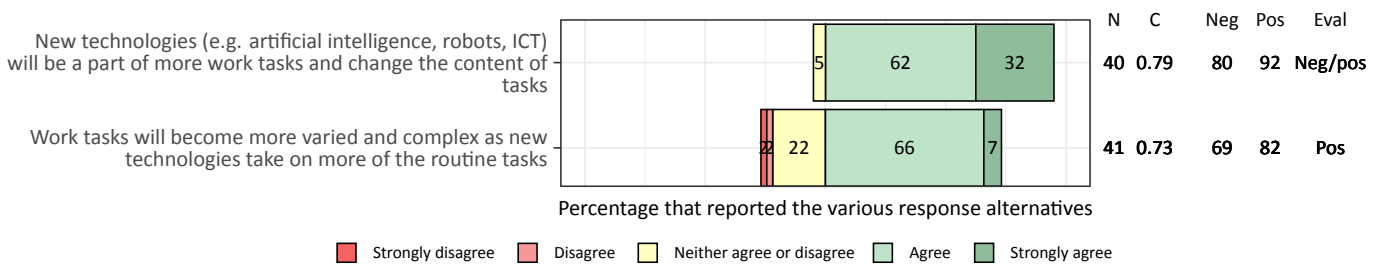■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A59. Driver: Skills

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Theme: Terms and conditions of work

	N	C	Neg	Pos	Eval
Requirements to remain in work longer will increase (2 7 / 67 / 24)	42	0.77	86	69	Neg

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A60. Driver: Skills
Block 3: How likely do you think the trends in the following statements are?
Theme: Affiliation and connection

Figure A61. Driver: Skills
Block 3: How likely do you think the trends in the following statements are?
Theme: General work environment
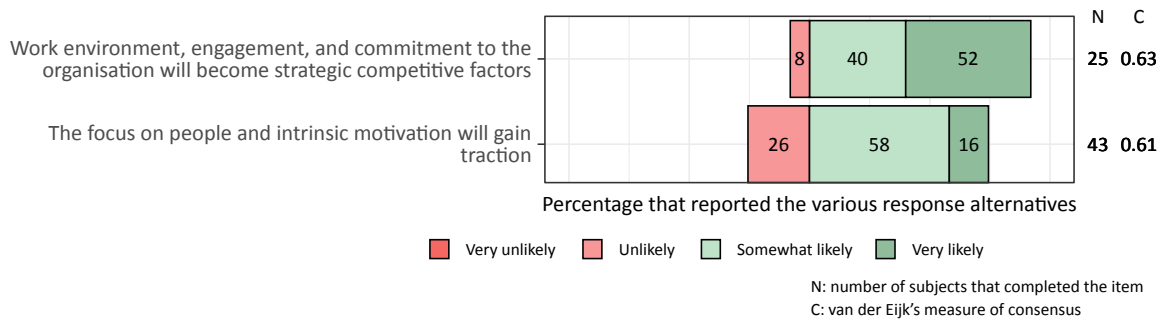
Figure A62. Driver: Skills
Block 3: How likely do you think the trends in the following statements are?
Theme: Regulations and control over work life
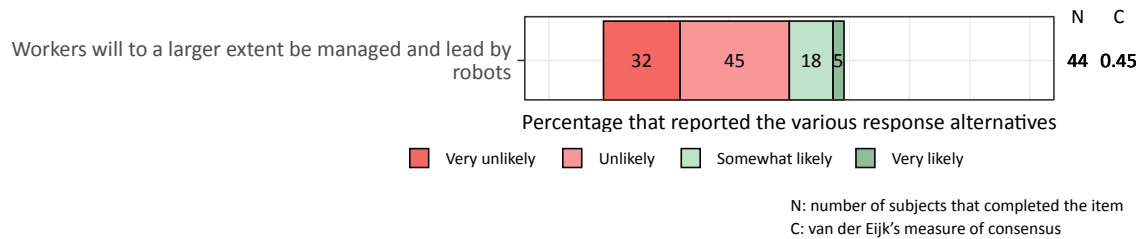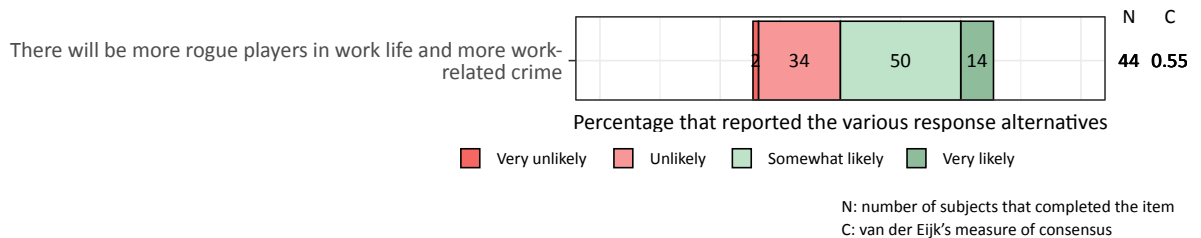
Figure A63. Driver: Skills
Block 3: How likely do you think the trends in the following statements are?
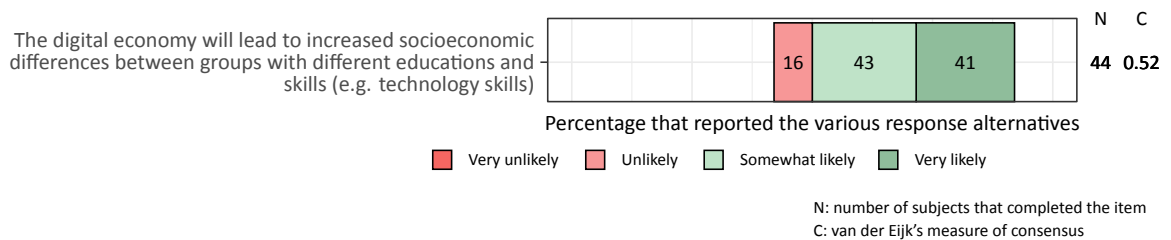**Theme:** Skills and competency
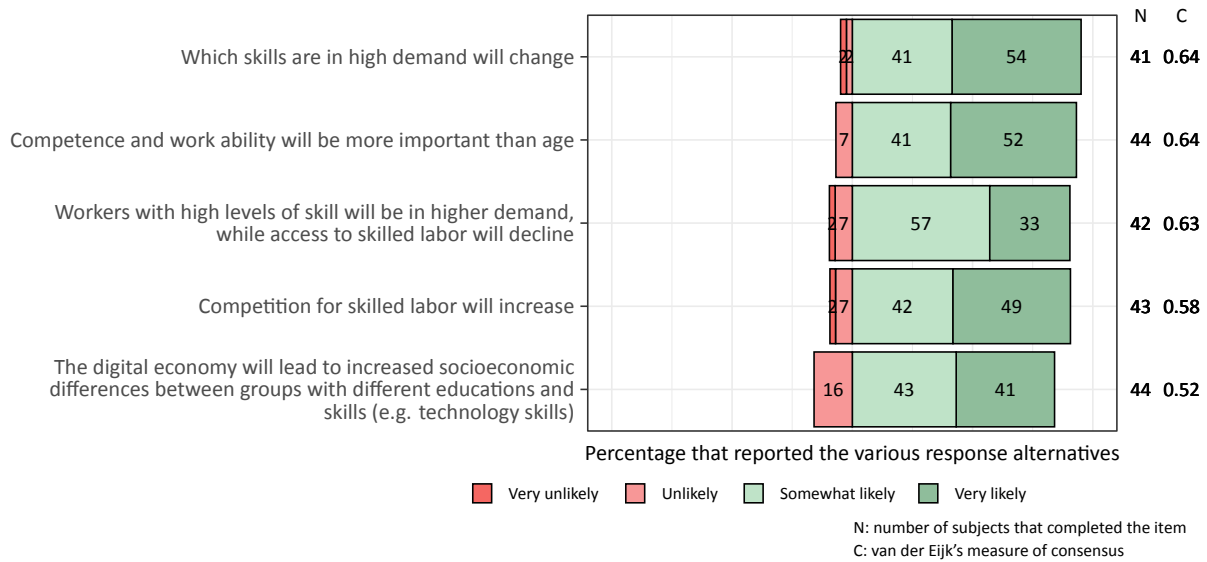
Figure A64. Driver: Skills
Block 3: How likely do you think the trends in the following statements are?
Theme: Types of organizations
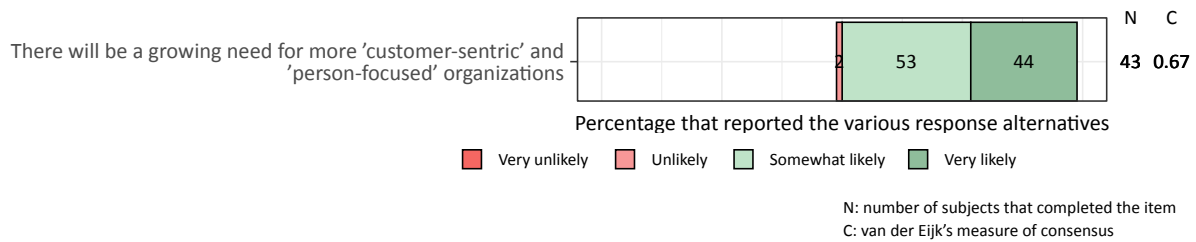
Figure A65. Driver: Political, social, and cultural
Block 1: To what extent do you agree with the following statements?
Theme: Demography

Employers will have to deal with more diversity in the workplace, e.g. gender issues (male, female, other genders)

| 2 | 23 | 52 | 23 | | N 44 | C 0.62 |

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   ■ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
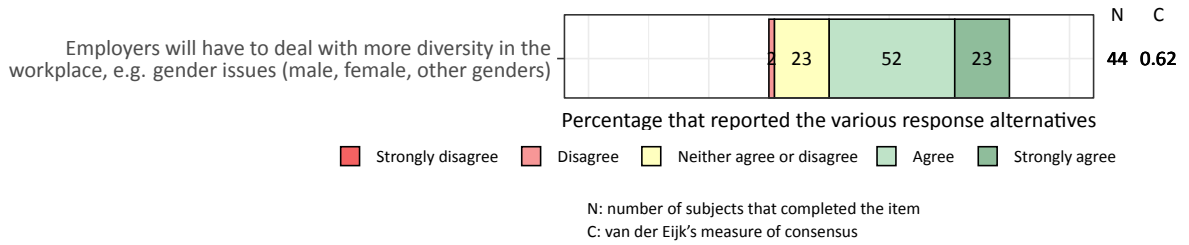
Figure A66. Driver: Political, social, and cultural
Block 1: To what extent do you agree with the following statements?
Theme: Inclusiveness

There will be more focus on diversity and inclusion in the workplace

| 2 | 21 | 70 | 7 | N 43 | C 0.79 |

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   ■ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
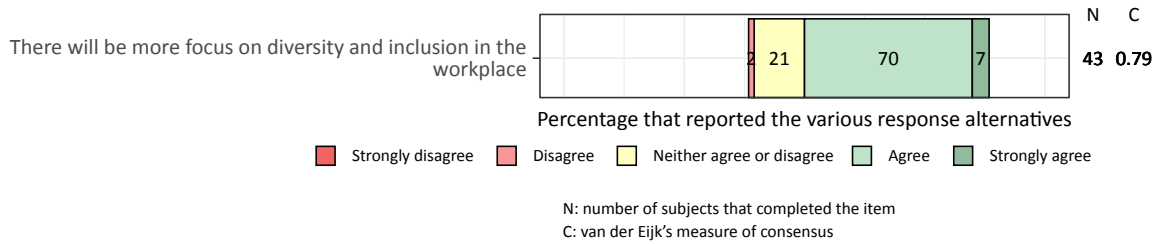
Figure A67. Driver: Political, social, and cultural
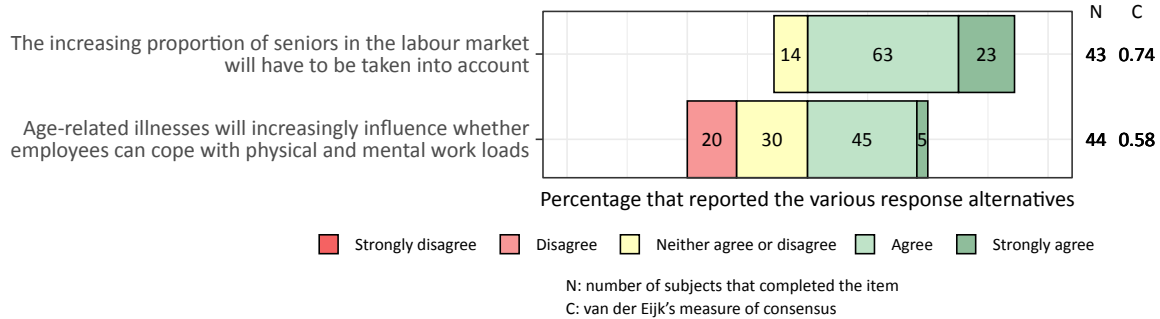**Block 1:** To what extent do you agree with the following statements?
Theme: Productivity, efficiency, and competitive advantages

Increased diversity will bring more innovation and enrichment, because there will be more vantage points

| 2 | 14 | 56 | 28 | N 43 | C 0.69 |

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   ■ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
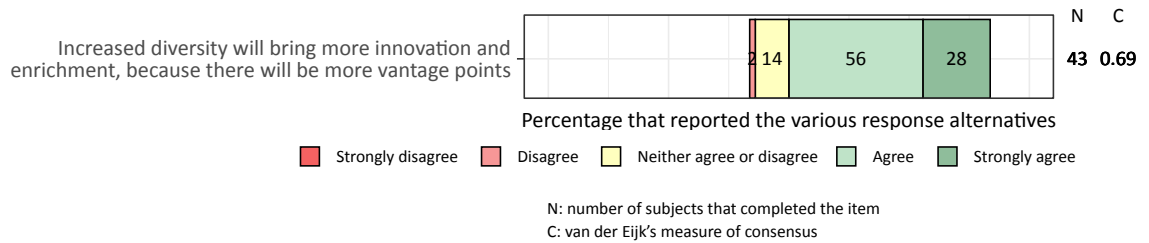
Figure A68. Driver: Political, social, and cultural
Block 1: To what extent do you agree with the following statements?
Theme: Terms and conditions of work

N: number of subjects that completed the item
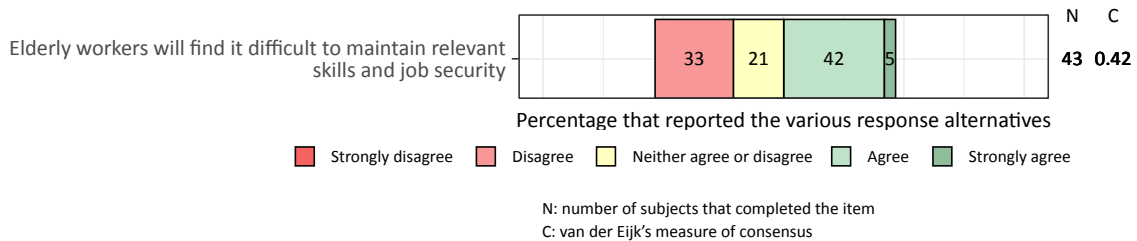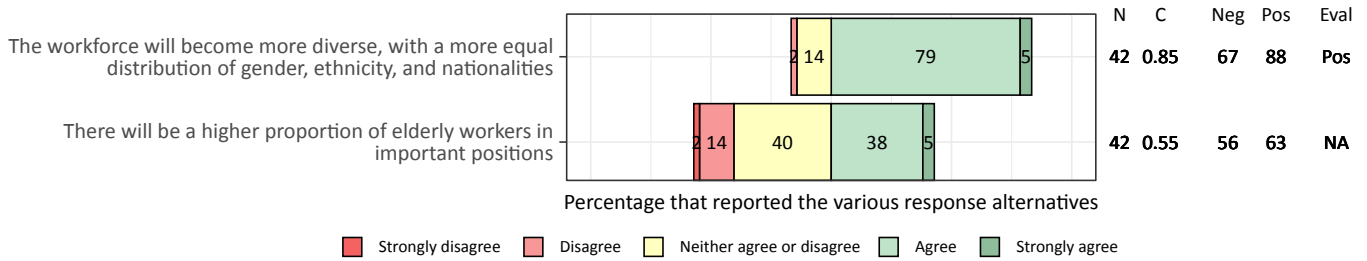C: van der Eijk's measure of consensus

Figure A69. Driver: Political, social, and cultural
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Demography

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A70. Driver: Political, social, and cultural
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Regulations and control over work life

	N	C	Neg	Pos	Eval
Working conditions will to a lesser extent be regulated and controlled	41	0.55	65	38	NA
Legislation and regulations will be more complex	42	0.55	55	31	NA

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   □ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A71. Driver: Political, social, and cultural
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Terms and conditions of work

	N	C	Neg	Pos	Eval
Requirements to remain in work longer will increase	42	0.77	86	69	Neg

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   □ Neither agree or disagree   ■ Agree   ■ Strongly agree
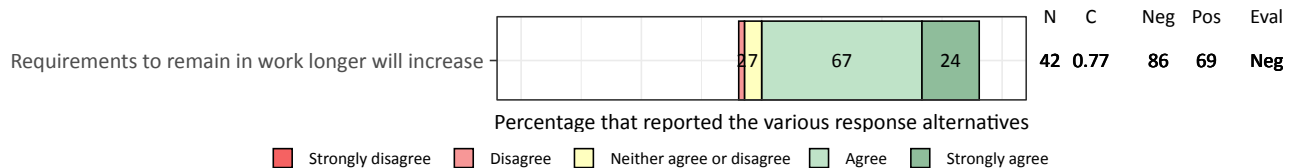
N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A72. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Affiliation and connection
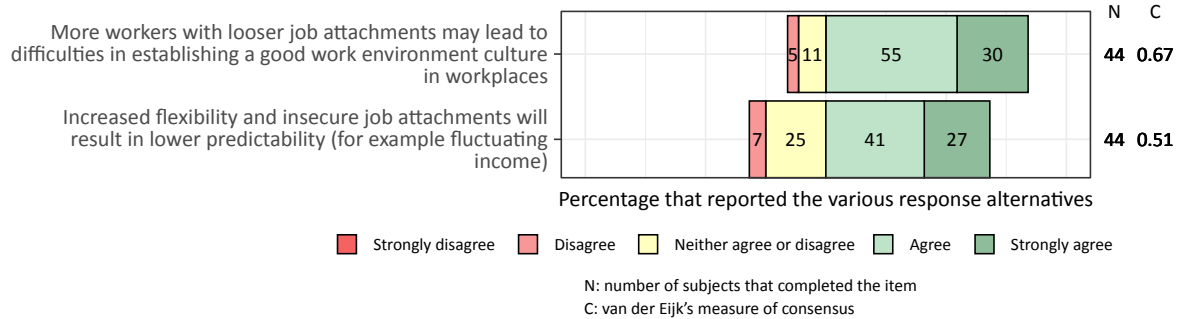
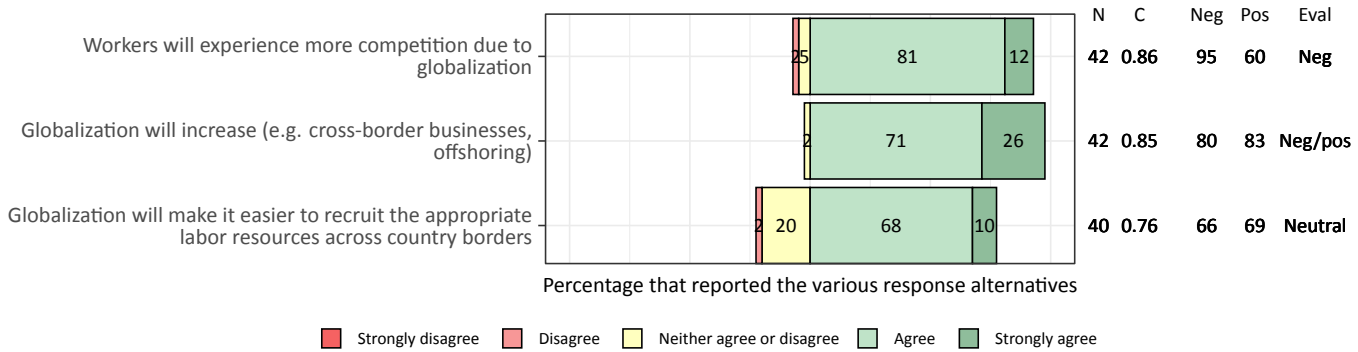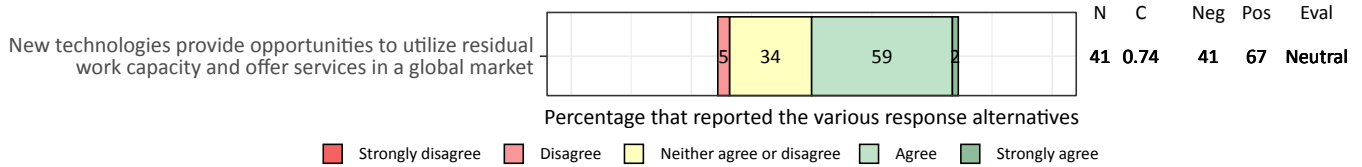**Figure A73. Driver:** Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Control and surveillance
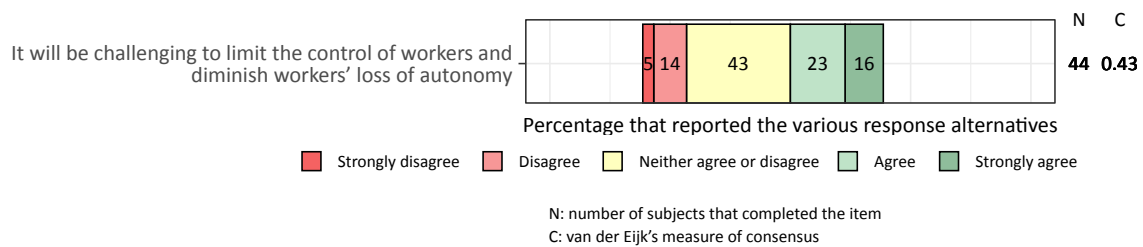
Figure A74. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Flexibility
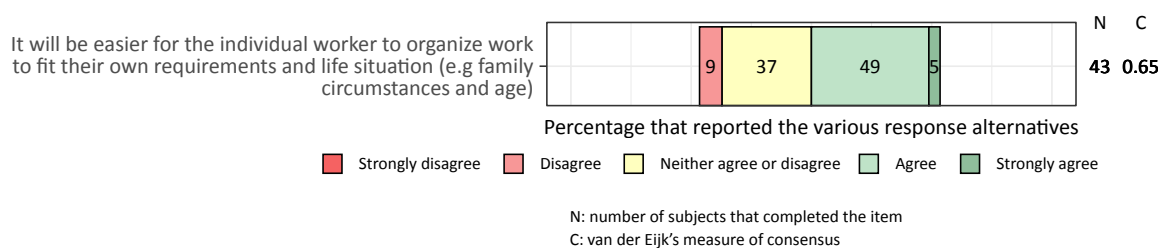
Figure A75. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: General work environment

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
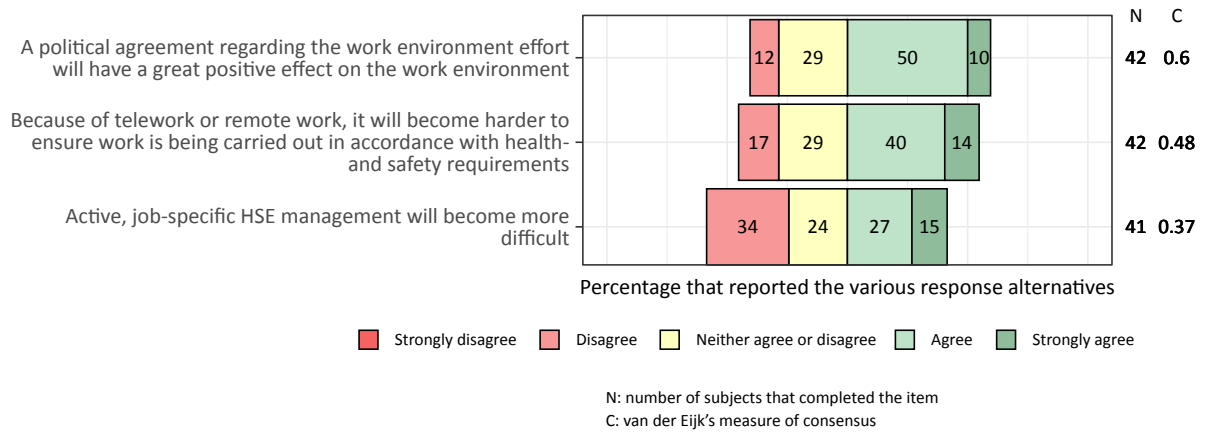
Figure A76. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Health

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
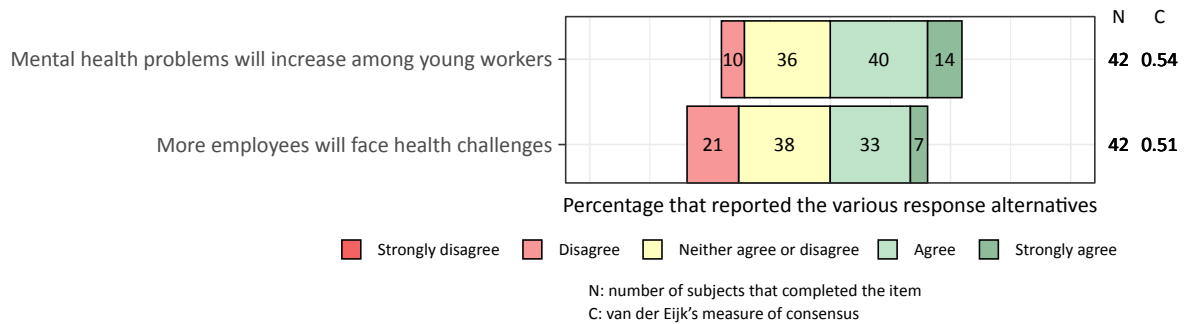
Figure A77. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Inclusiveness

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
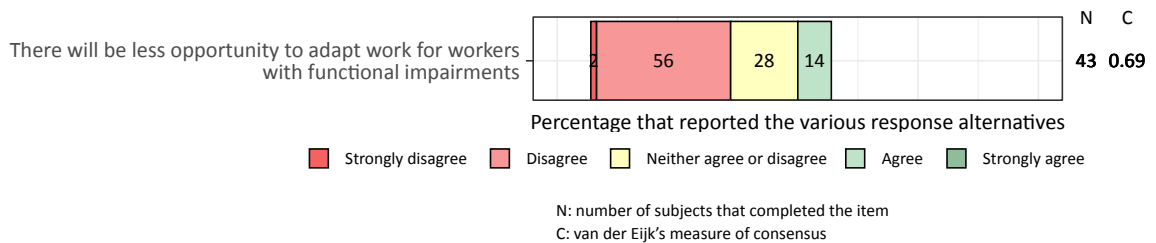
Figure A78. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Interaction, cooperation, and culture
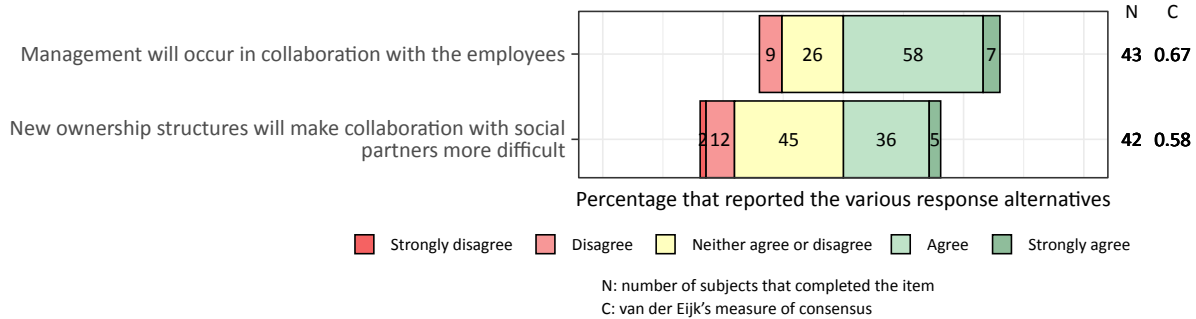
Figure A79. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
**Theme:** Job creation, job destruction, job change, and predictability
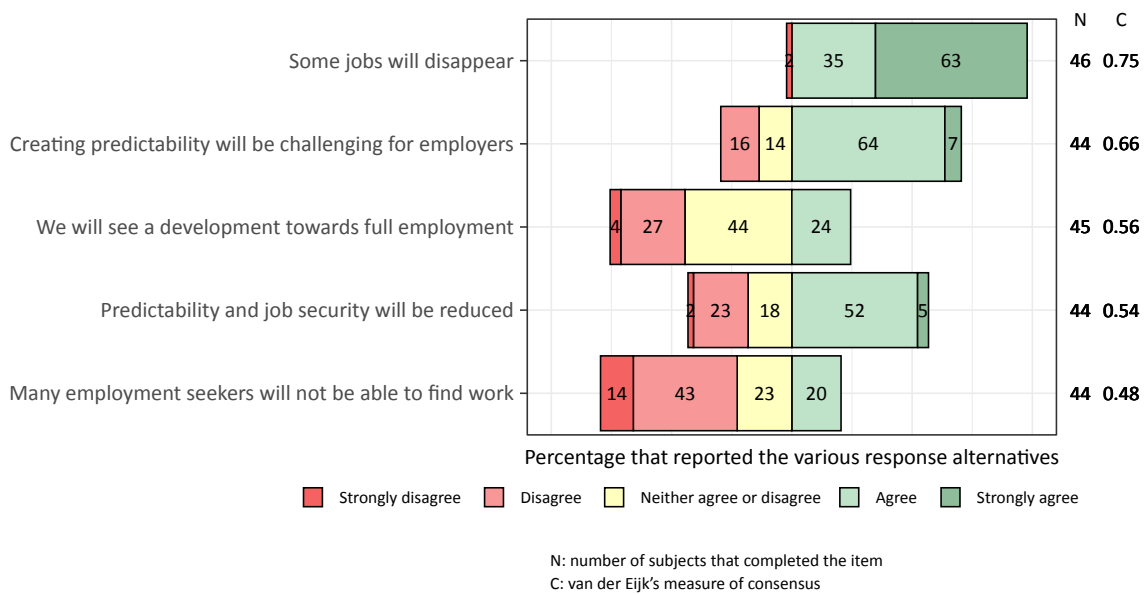
Figure A80. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Mobility

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
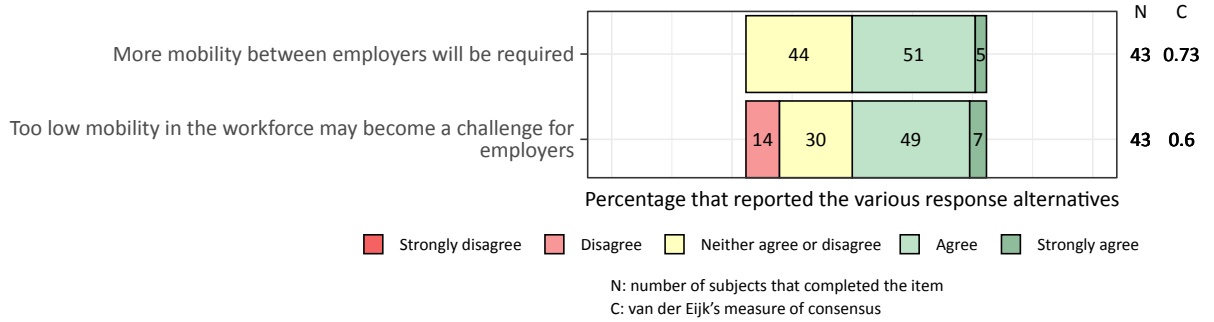
Figure A81. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Physical, ergonomical, chemical working conditions and accidents

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
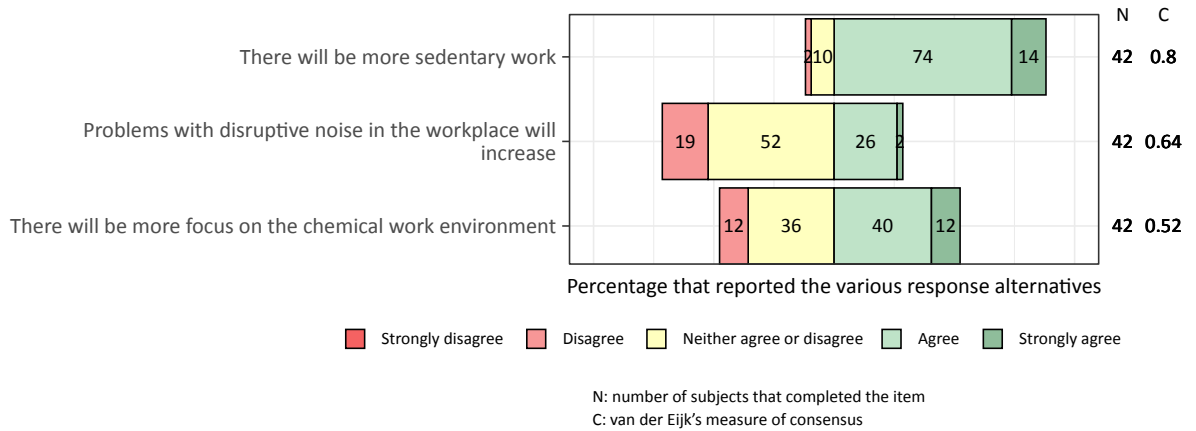
Figure A82. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
**Theme:** Productivity, efficiency, and competitive advantages

Percentage that reported the various response alternatives

Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
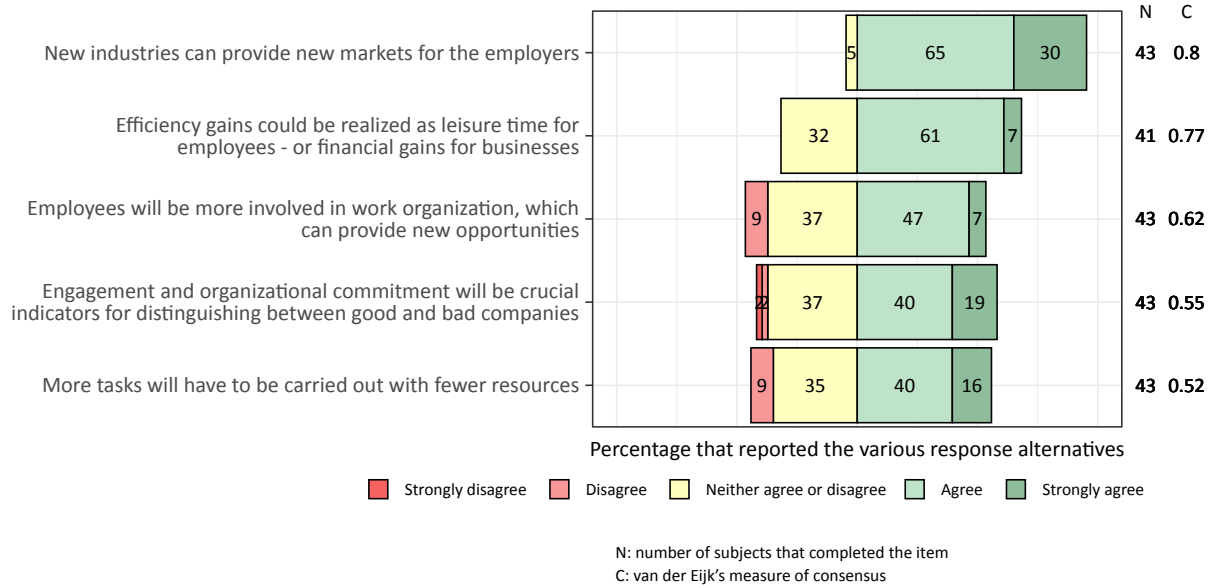
Figure A83. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Psychosocial work environment
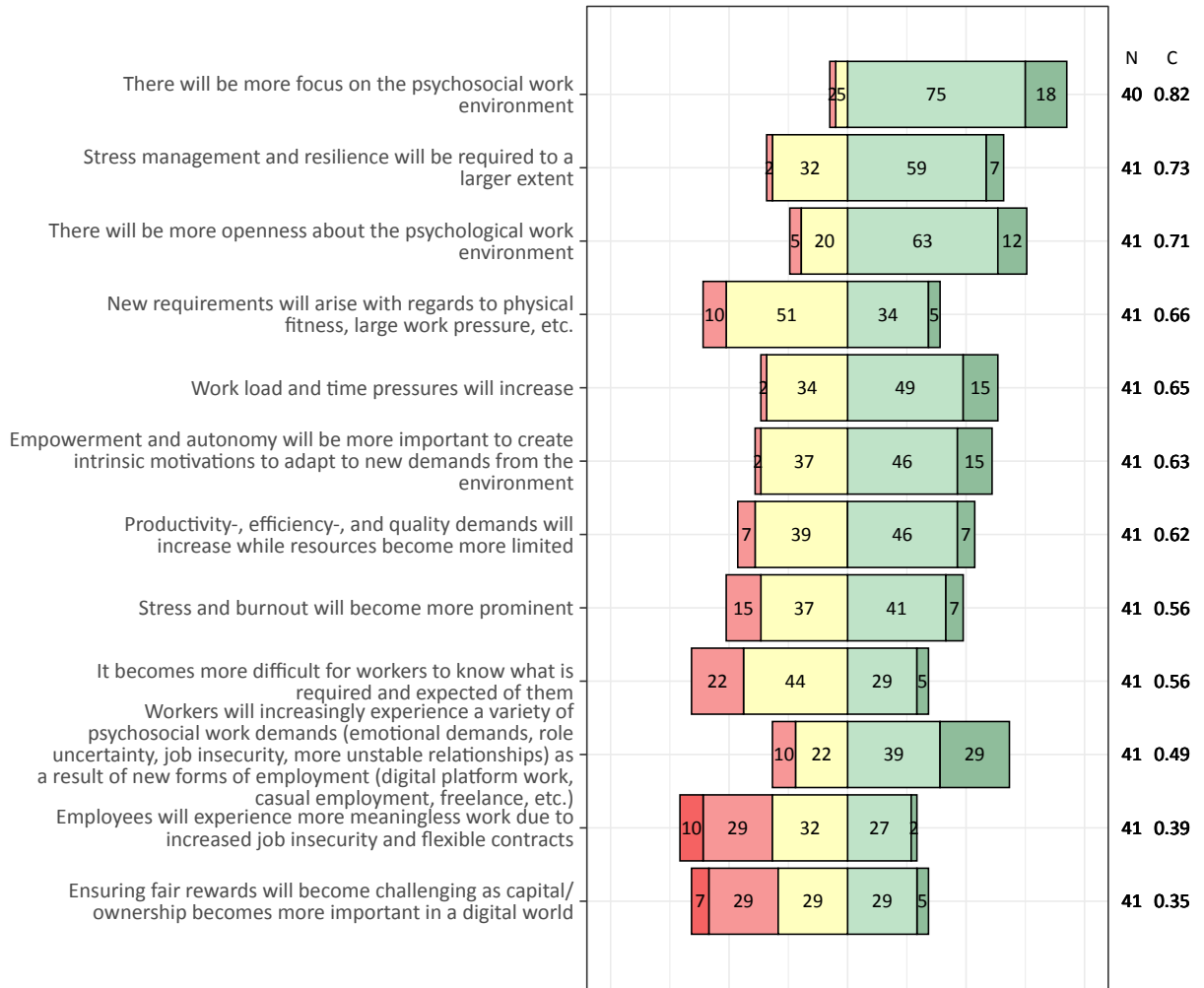
Percentage that reported the various response alternatives

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A84. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Regulations and control over work life

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
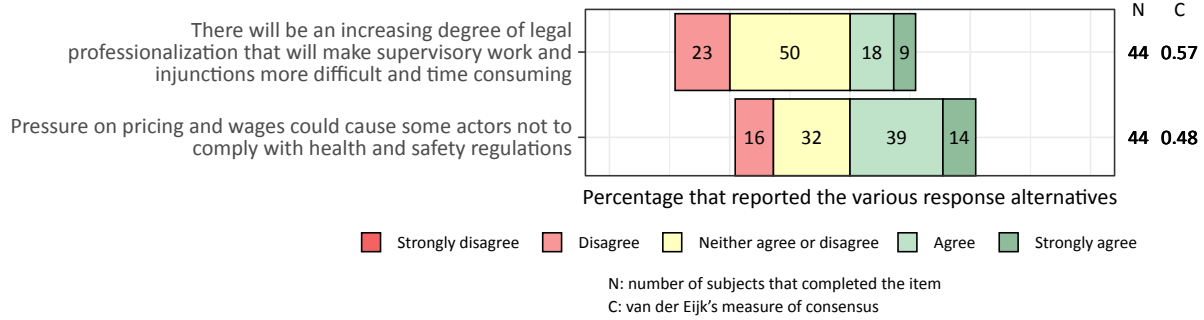
Figure A85. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Relation between employee and employer

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
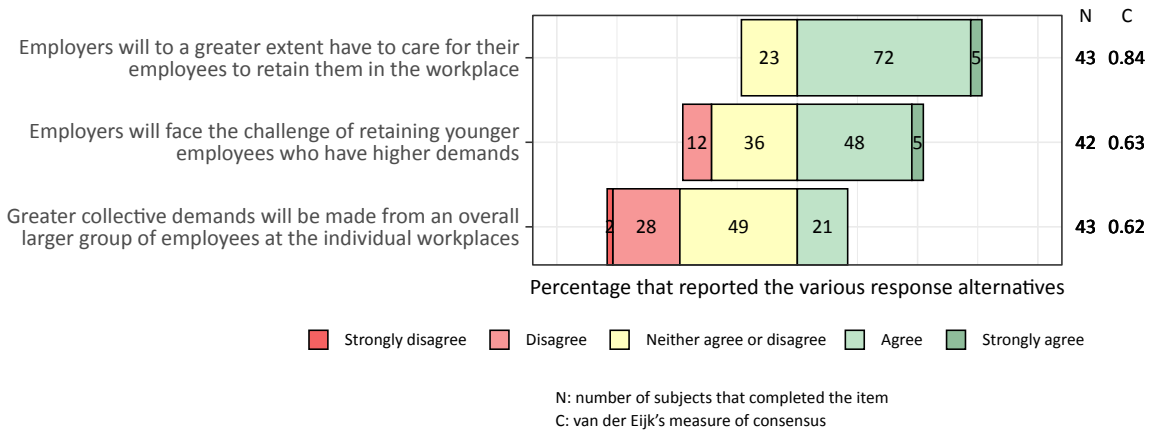
Figure A86. Driver: Other statements
   Block 1: To what extent do you agree with the following statements?
   Theme: Roles and responsibilities

	N	C
New organizational forms could reduce the costs associated with the employer's responsibility for working conditions.	43	0.47
Responsibilities and roles will be less clear, for instance the roles as employer and employee	43	0.38
It will become less clear who is responsible for health, work environment and safety	43	0.35

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   ☐ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure A87. Driver: Other statements
   Block 1: To what extent do you agree with the following statements?
   Theme: Sustainability

	N	C
It will be possible to aim attention at creating sustainable solutions in a sustainable labor market	43	0.71

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   ☐ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
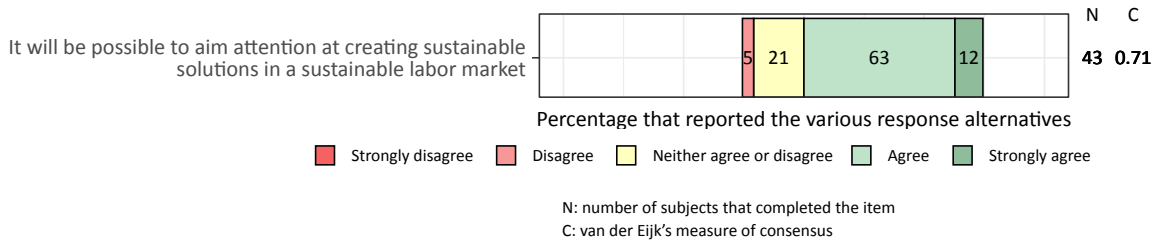
Figure A88. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Terms and conditions of work

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
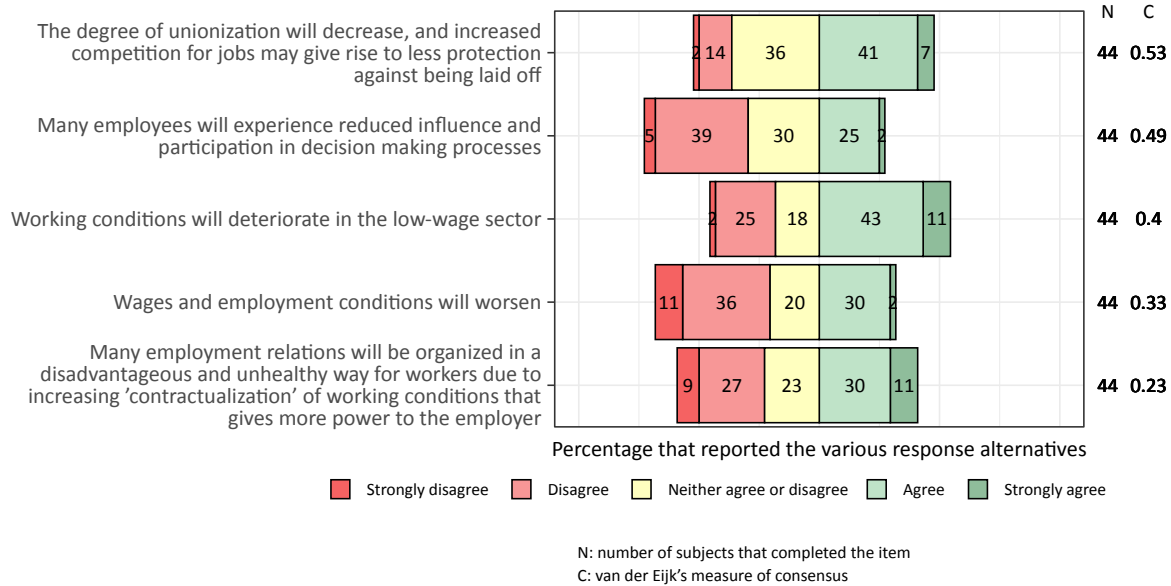
Figure A89. Driver: Other statements
Block 1: To what extent do you agree with the following statements?
Theme: Time and place

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
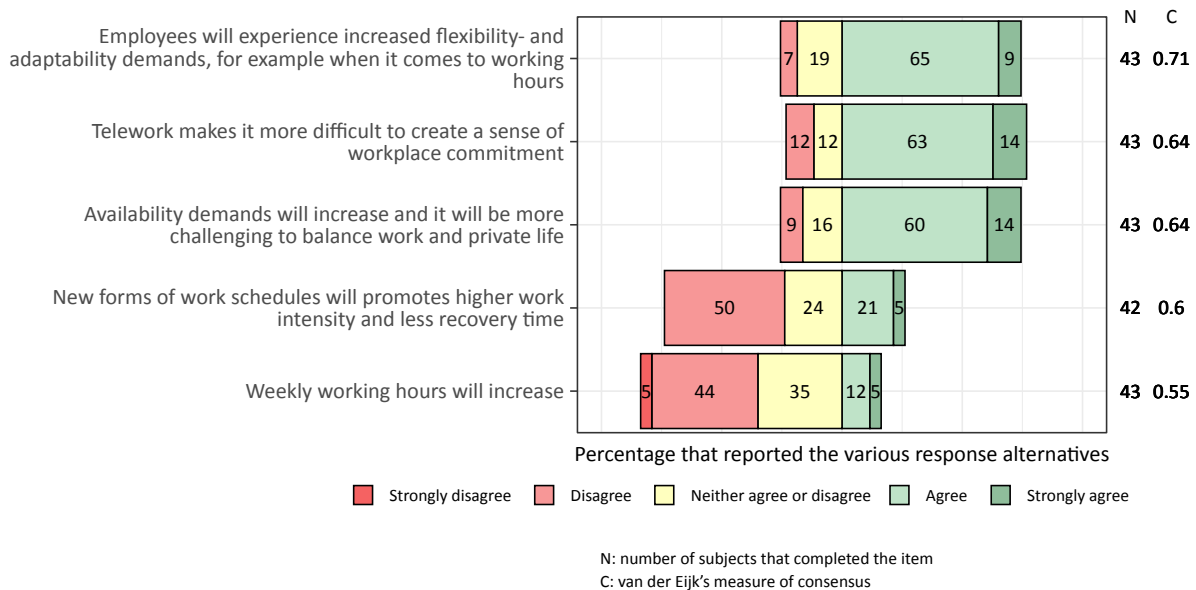
Figure A90. Driver: Other statements

Block 1: To what extent do you agree with the following statements?

Theme: Work content

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
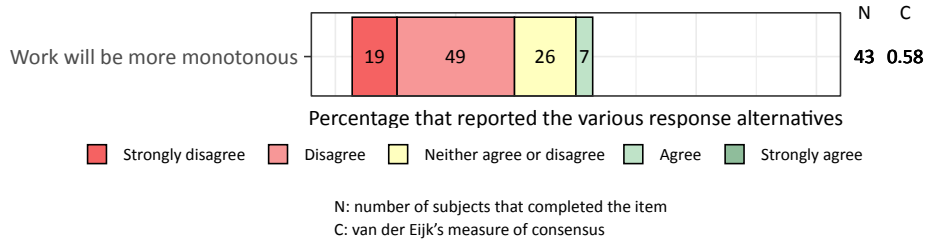
Figure A91. Driver: Other statements

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Theme: Affiliation and connection

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A92. Driver: Other statements

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Theme: Demography

Percentage that reported the various response alternatives

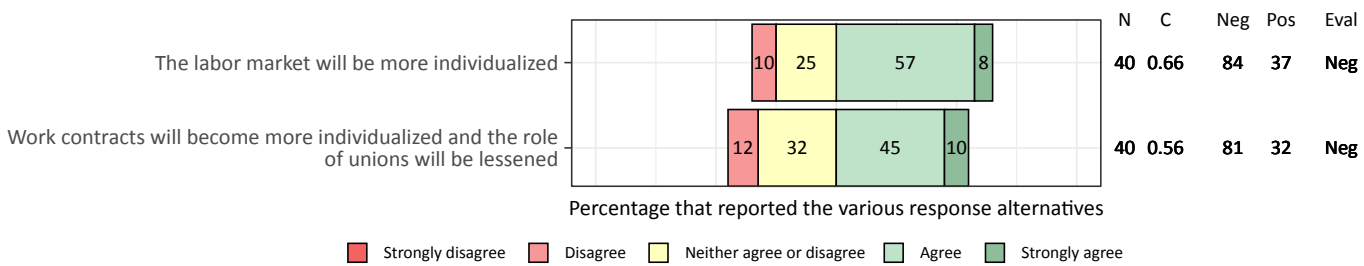■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A93. Driver: Other statements
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: General work environment

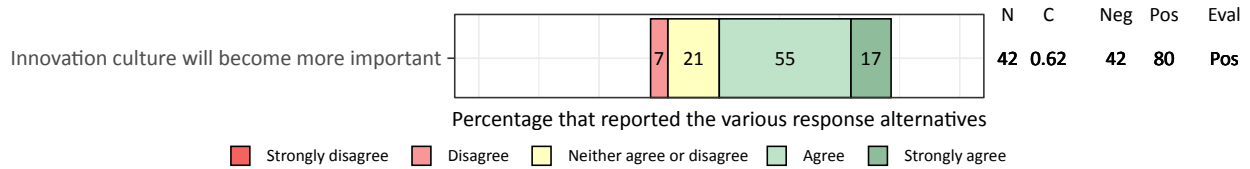Percentage that reported the various response alternatives
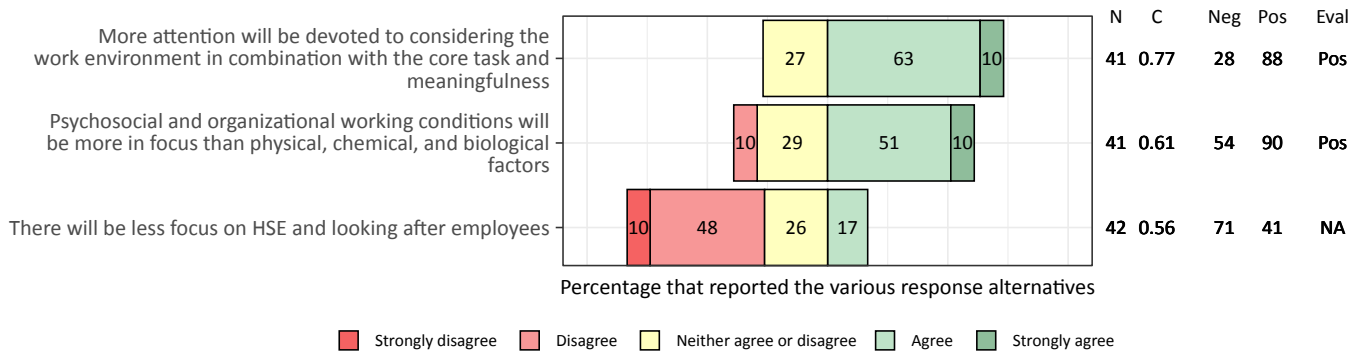
N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A94. Driver: Other statements
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Interaction, cooperation, and culture

	N	C	Neg	Pos	Eval
There will be more problem solving across professions and disciplines	41	0.77	49	87	Pos
Appropriate utilization of established collaboration systems will provide adaptability	41	0.71	30	79	Pos

Percentage that reported the various response alternatives

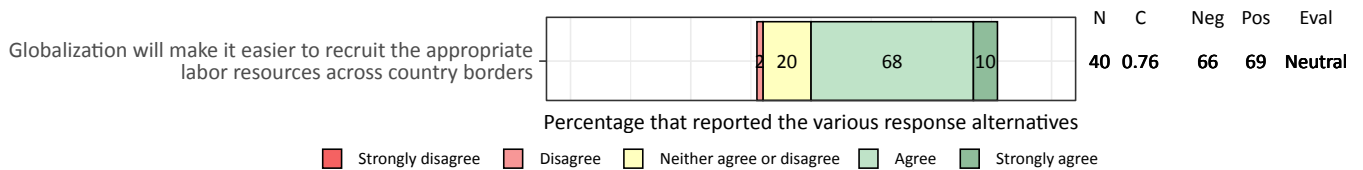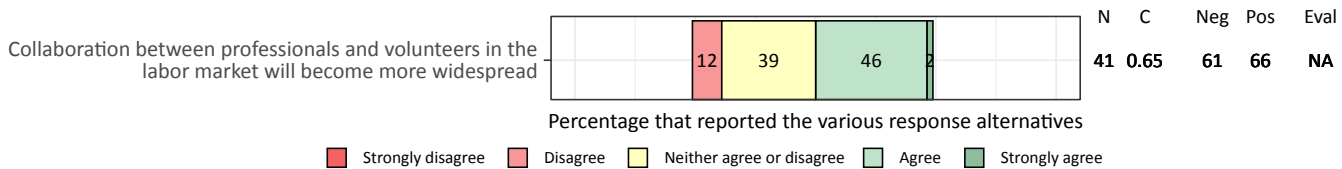■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A95. Driver: Other statements
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Job creation, job destruction, job change, and predictability

	N	C	Neg	Pos	Eval
It will be easier to adjust the workforce to fit market needs	44	0.57	71	55	NA

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree
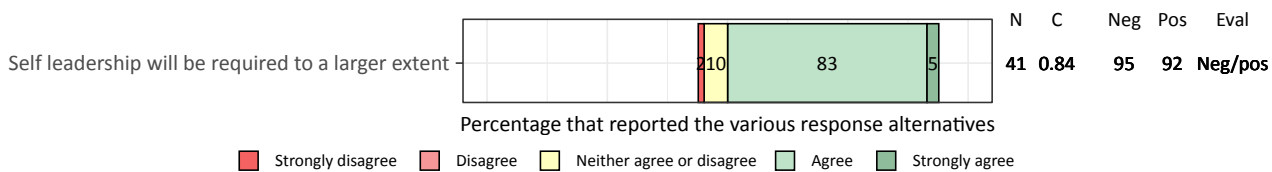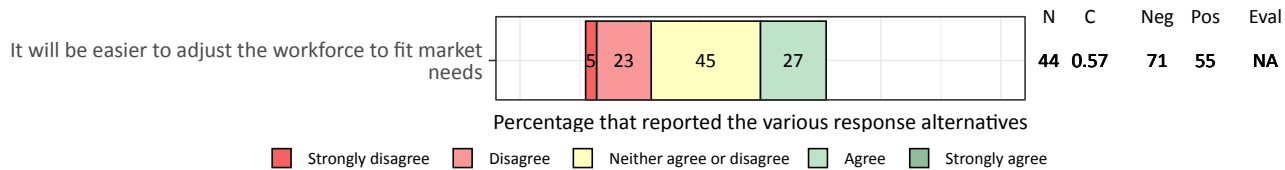
N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A96. Driver: Other statements
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Leadership

Percentage that reported the various response alternatives

Strongly disagree ◻ Disagree ◻ Neither agree or disagree ◻ Agree ◻ Strongly agree
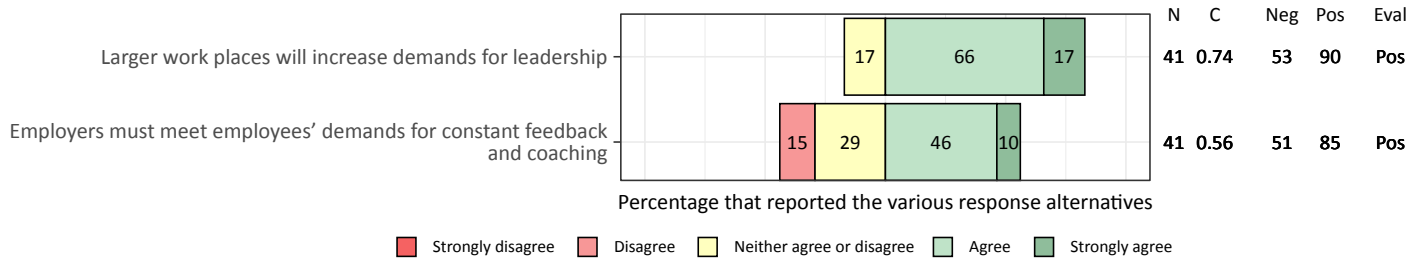
N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A97. Driver: Other statements
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Psychosocial work environment

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree □ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A98. Driver: Other statements

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
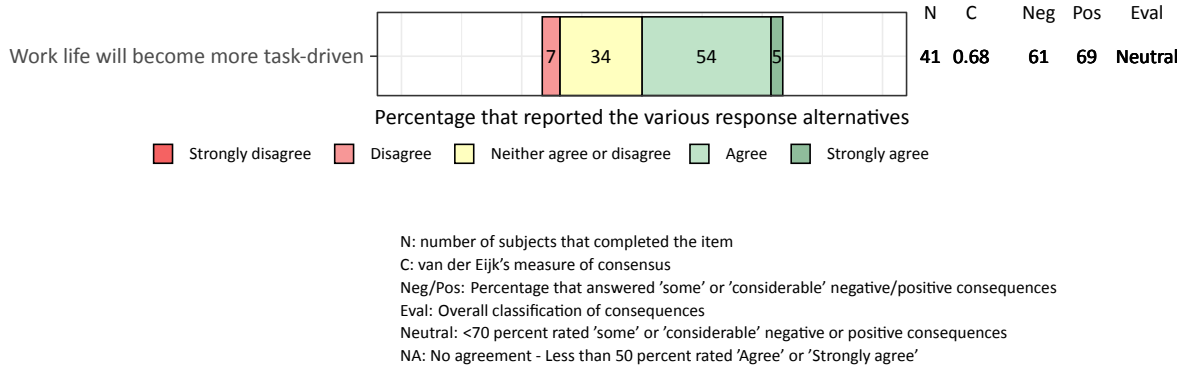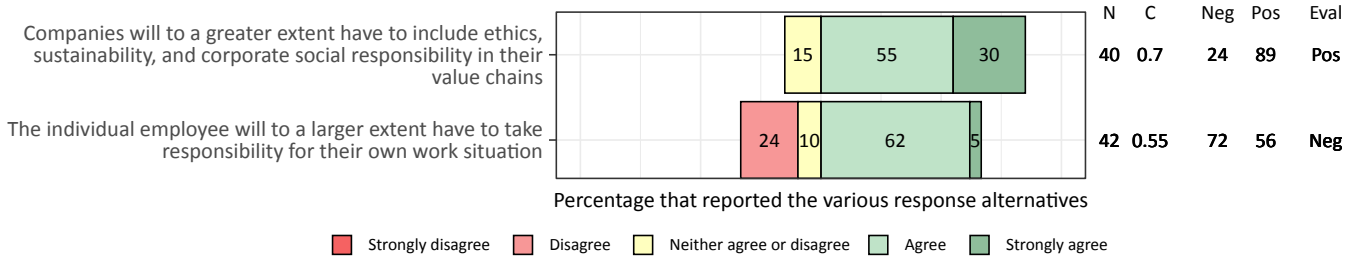
Theme: Regulations and control over work life

	N	C	Neg	Pos	Eval
A larger proportion of employees will work jobs that are not adequately covered by work environment legislation	42	0.4	81	26	**Neg**

Percentage that reported the various response alternatives

☐ Strongly disagree ☐ Disagree ☐ Neither agree or disagree ☐ Agree ☐ Strongly agree
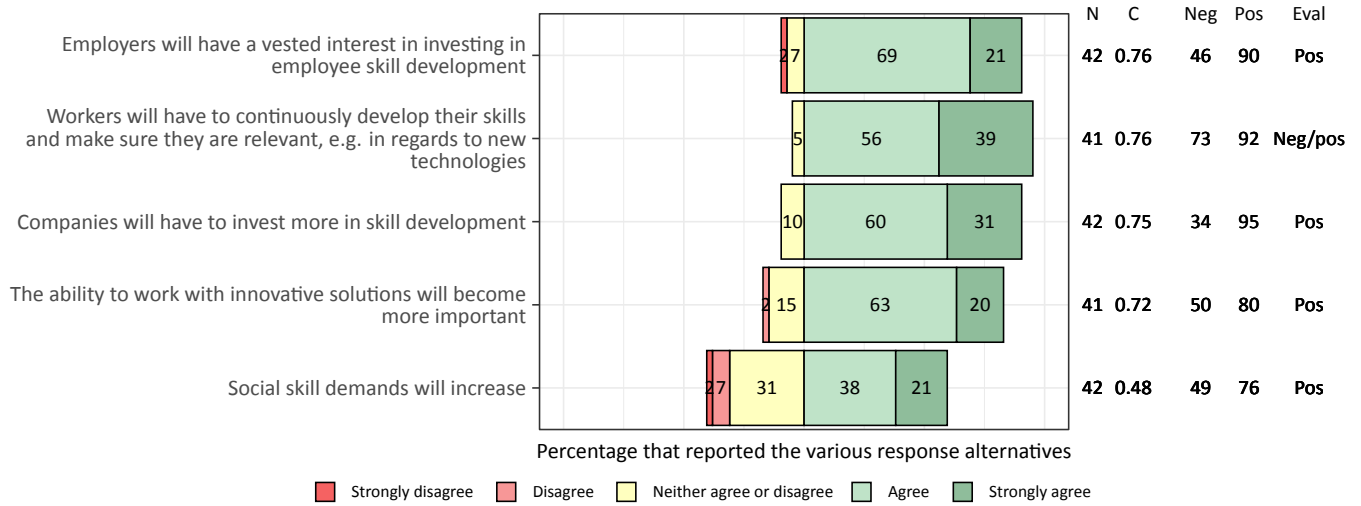
N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A99. Driver: Other statements

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Theme: Relation between employee and employer

	N	C	Neg	Pos	Eval
Employees will to larger extent demand individual adaptations of the work	40	0.81	68	92	**Pos**

Percentage that reported the various response alternatives

☐ Strongly disagree ☐ Disagree ☐ Neither agree or disagree ☐ Agree ☐ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A100. Driver: Other statements
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
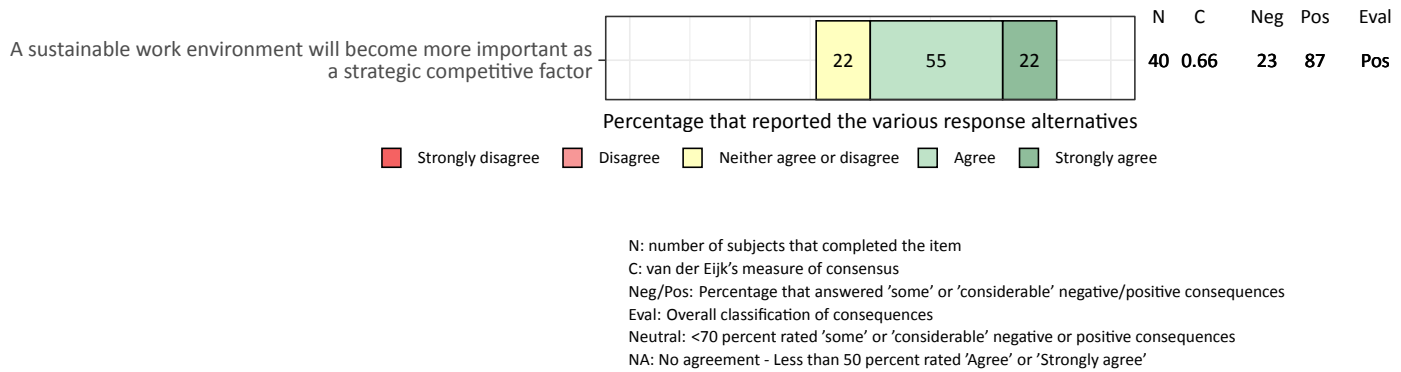**Theme:** Roles and responsibilities

Percentage that reported the various response alternatives

■ Strongly disagree ■ Disagree ■ Neither agree or disagree ■ Agree ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure A101. Driver: Other statements
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Types of organizations

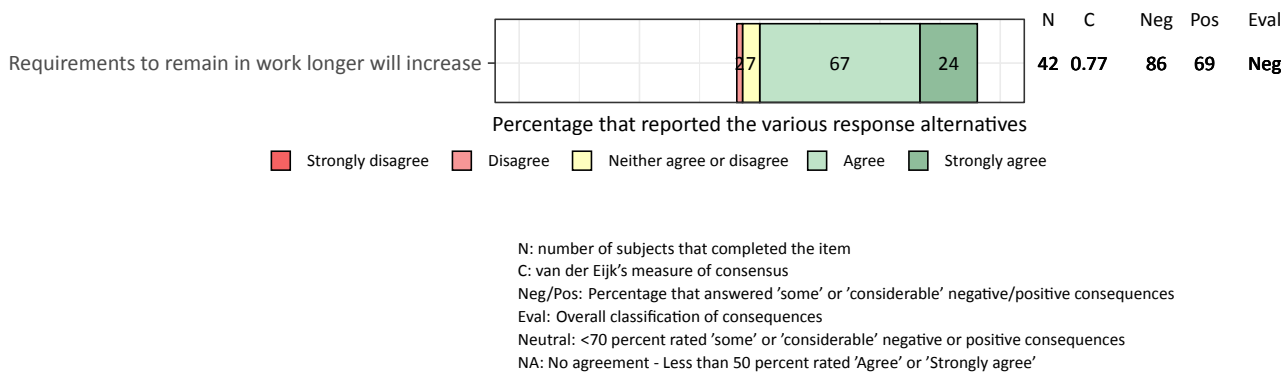
N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'
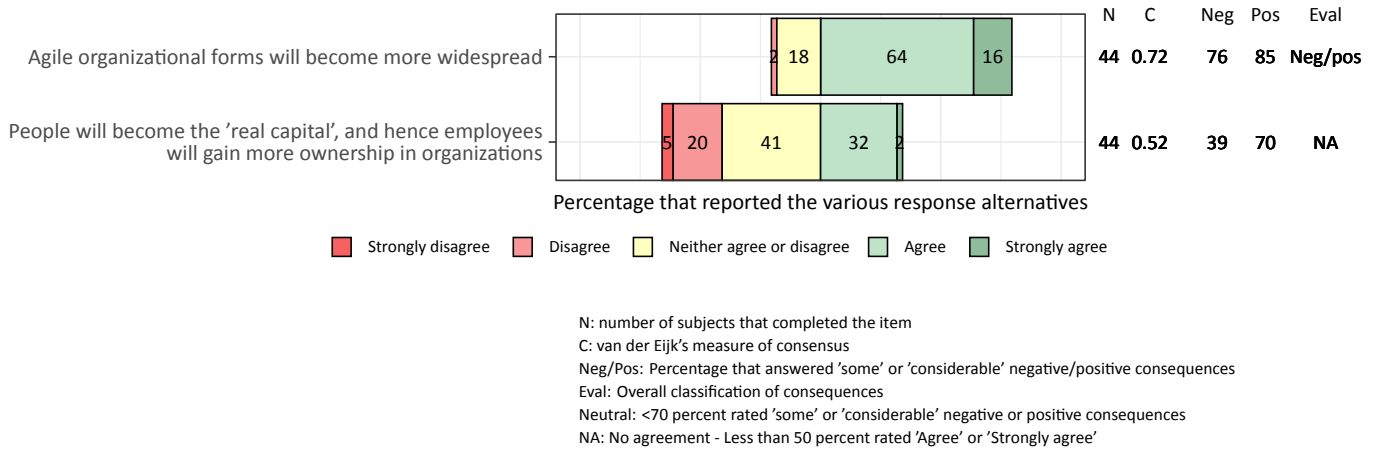
Figure A102. Driver: Other statements
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
Theme: Work content

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'
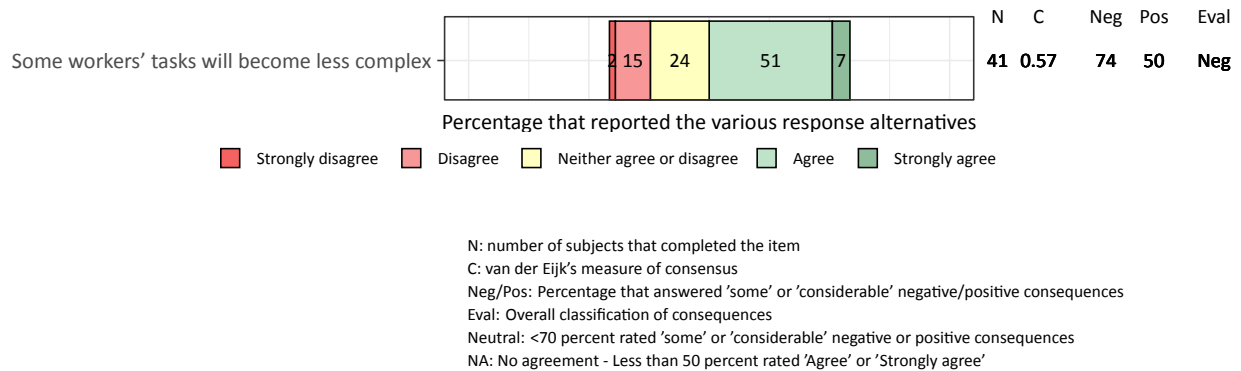
Figure A103. Driver: Other statements
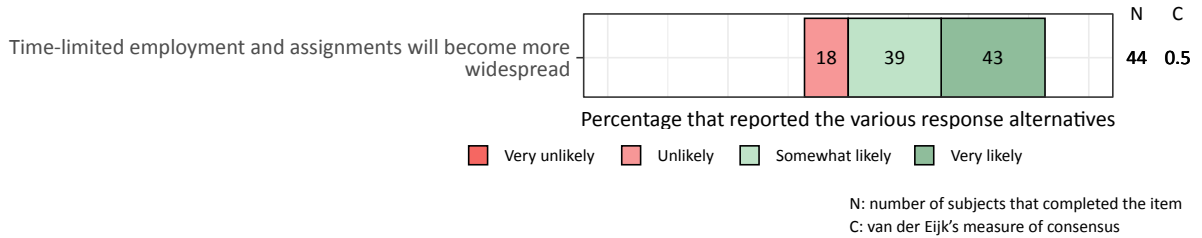**Block 3:** How likely do you think the trends in the following statements are?
Theme: General work environment
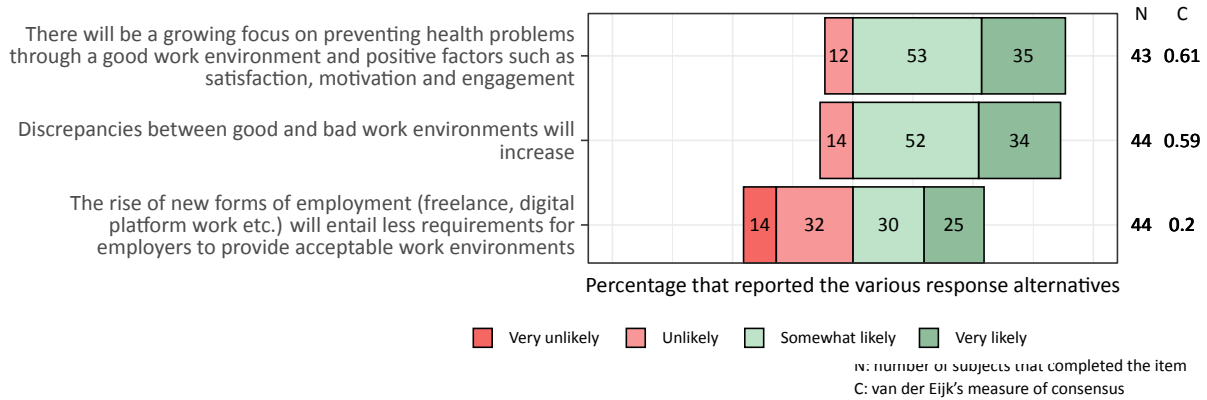
Figure A104. Driver: Other statements
Block 3: How likely do you think the trends in the following statements are?
Theme: Health
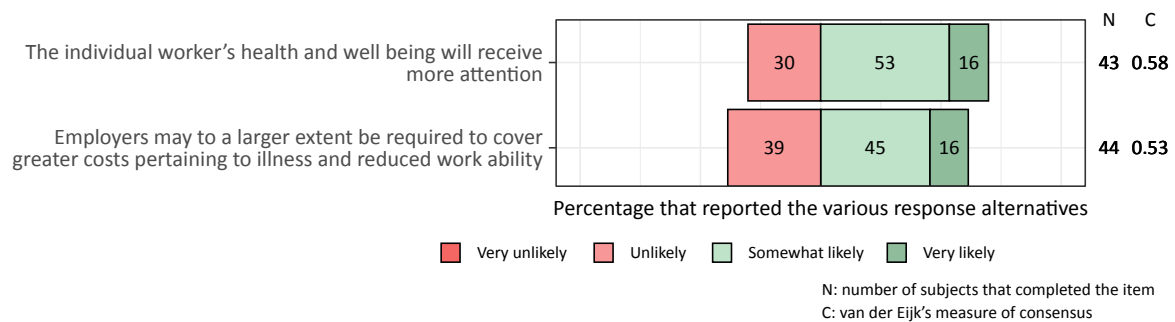
Figure A105. Driver: Other statements

Block 3: How likely do you think the trends in the following statements are?

Theme: Interaction, cooperation, and culture

Aquisitions by foreign owners with a different management culture will become more common

	N	C
20 50 30	44	0.53

Percentage that reported the various response alternatives

■ Very unlikely   ■ Unlikely   ■ Somewhat likely   ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
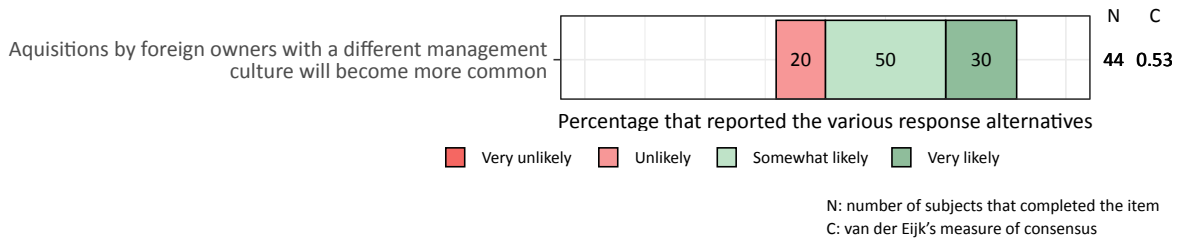
Figure A106. Driver: Other statements

Block 3: How likely do you think the trends in the following statements are?

Theme: Psychosocial work environment

There will be an increase in conflicts and bullying in the workplace and an increased focus on preventing offensive or abusive behaviors

	N	C
2 48 41 9	44	0.56

Percentage that reported the various response alternatives

■ Very unlikely   ■ Unlikely   ■ Somewhat likely   ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
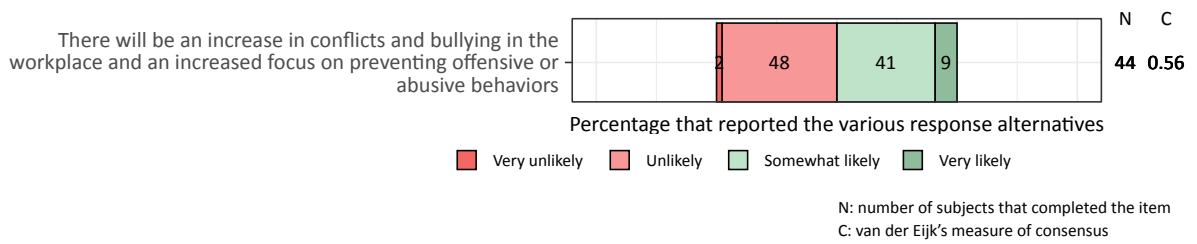
Figure A107. Driver: Other statements

Block 3: How likely do you think the trends in the following statements are?

Theme: Terms and conditions of work

Employees will become more involved in the facilitation of the work

	N	C
30 58 12	43	0.64

Percentage that reported the various response alternatives

■ Very unlikely   ■ Unlikely   ■ Somewhat likely   ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
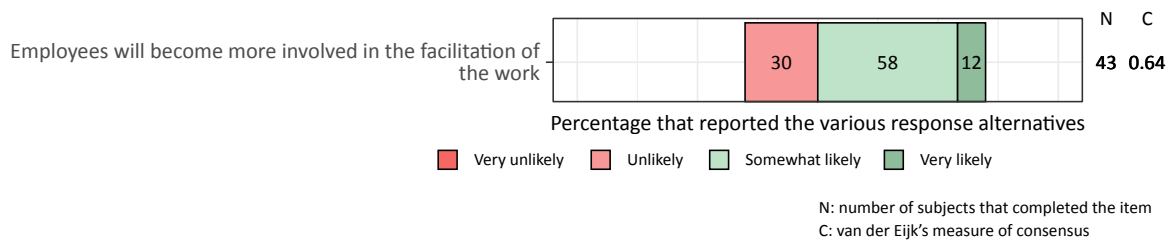
Figure A108. Driver: Other statements
Block 3: How likely do you think the trends in the following statements are?
Theme: Time and place

Percentage that reported the various response alternatives

Legend: Very unlikely | Unlikely | Somewhat likely | Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
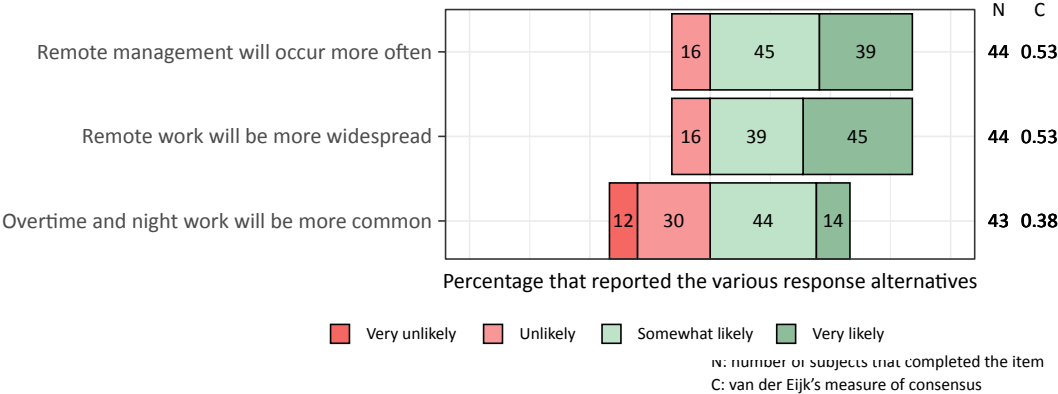
APPENDIX B - Comparisons: Norway versus Denmark

The following tables give the distributions of responses separately for the two countries. A p-value of below 0.05 signifies a statistically significant difference between the distributions for the two countries.

Technology

Table B1. *Productivity, efficiency, and competitive advantages*
To what extent do you agree with the following statements?

Statement	Response	Denmark %	Norway %	p
New technologies make it easier to connect service users with service providers	Neither agree or disagree	37.5	5.3	0.046
	Agree	41.7	68.4	
	Strongly agree	20.8	26.3	

Table B2. *Productivity, efficiency, and competitive advantages*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

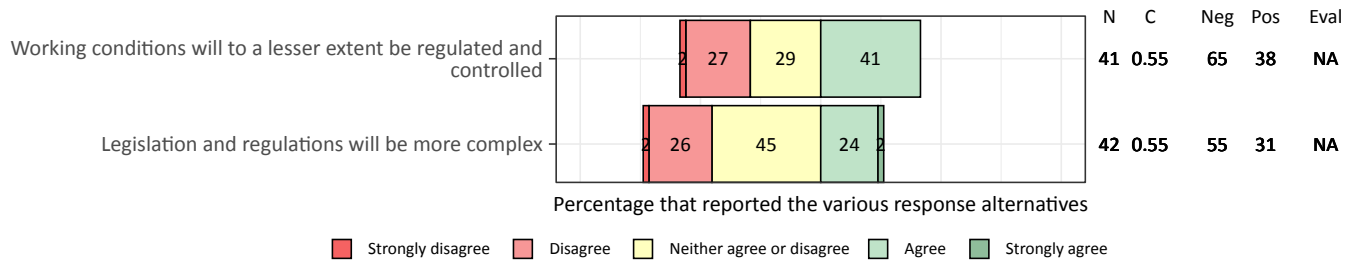| Statement	Response	Denmark %	Norway %	p
New technologies provide opportunities to utilize residual work capacity and offer services in a global market: Positive consequences	No consequences	43.5	18.8	0.039
	Some consequences	21.7	62.5	
	Considerable consequences	34.8	18.8	

Demography

Globalization

Table B3. *Globalization*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	Denmark %	Norway %	p
Globalization will increase (e.g. cross-border businesses, offshoring): Positive consequences	No consequences	27.3	5.3	0.024
	Some consequences	63.6	52.6	
	Considerable consequences	9.1	42.1	

Table B4. *Productivity, efficiency, and competitive advantages*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

		Denmark	Norway	
Statement	Response	%	%	p
New technologies provide opportunities to utilize residual work capacity and offer services in a global market: Positive consequences	No consequences	43.5	18.8	0.039
	Some consequences	21.7	62.5	
	Considerable consequences	34.8	18.8	

Environment

Skills/competence

Table B5. *Skills and competency*
To what extent do you agree with the following statements?

		Denmark	Norway	
Statement	Response	%	%	p
New industries will increase the demand for previously less sought after skills	Strongly disagree	4.2	NA	0.006
	Disagree	4.2	15.8	
	Neither agree or disagree	54.2	5.3	
	Agree	37.5	68.4	
	Strongly agree	NA	10.5	

Table B6. *Roles and responsibilities*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

		Denmark	Norway	
Statement	Response	%	%	p
The individual employee will to a larger extent have to take responsibility for their own work situation: Positive consequences	No consequences	60.9	22.2	0.049
	Some consequences	34.8	66.7	
	Considerable consequences	4.3	11.1	

Table B7. *Terms and conditions of work*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	Denmark %	Norway %	p
Requirements to remain in work longer will increase: Negative consequences	No consequences	4.2	27.8	0.032
	Some consequences	66.7	66.7	
	Considerable consequences	29.2	5.6	

Table B8. *General work environment*

How likely do you think the trends in the following statements are?

Statement	Response	Denmark %	Norway %	p
The focus on people and intrinsic motivation will gain traction	Unlikely	21.7	30	0.037
	Somewhat likely	73.9	40	
	Very likely	4.3	30	
Work environment, engagement, and commitment to the organisation will become strategic competitive factors	Unlikely	20.0	5	
	Somewhat likely	80.0	30	
	Very likely	NA	65	

Political, cultural and social developments

Table B9. *Terms and conditions of work*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	Denmark %	Norway %	p
Requirements to remain in work longer will increase: Negative consequences	No consequences	4.2	27.8	0.032
	Some consequences	66.7	66.7	
	Considerable consequences	29.2	5.6	

Other statements

Table B10. *Physical, ergonomical, chemical working conditions and accidents*
To what extent do you agree with the following statements?

Statement	Response	Denmark %	Norway %	p
There will be more focus on the chemical work environment	Disagree	NA	27.8	0
	Neither agree or disagree	20.8	55.6	
	Agree	58.3	16.7	
	Strongly agree	20.8	NA	

Table B11. *Psychosocial work environment*

To what extent do you agree with the following statements?

Statement	Response	Denmark %	Norway %	p
Empowerment and autonomy will be more important to create intrinsic motivations to adapt to new demands from the environment	Disagree	4.2	NA	0.003
	Neither agree or disagree	58.3	5.9	
	Agree	25.0	76.5	
	Strongly agree	12.5	17.6	
It becomes more difficult for workers to know what is required and expected of them	Disagree	33.3	5.9	0.049
	Neither agree or disagree	41.7	47.1	
	Agree	16.7	47.1	
	Strongly agree	8.3	NA	

Table B12. *Roles and responsibilities*
To what extent do you agree with the following statements?

Statement	Response	Denmark %	Norway %	p
Responsibilities and roles will be less clear, for instance the roles as employer and employee	Disagree	41.7	21.1	0.039
	Neither agree or disagree	25.0	5.3	
	Agree	25.0	68.4	
	Strongly agree	8.3	5.3	

Table B13. *Time and place*
To what extent do you agree with the following statements?

Statement	Response	Denmark %	Norway %	p
Availability demands will increase and it will be more challenging to balance work and private life	Disagree	8.3	10.5	0.002
	Neither agree or disagree	29.2	NA	
	Agree	37.5	89.5	
	Strongly agree	25.0	NA	

Table B14. *General work environment*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	Denmark %	Norway %	p
Psychosocial and organizational working conditions will be more in focus than physical, chemical, and biological factors	Disagree	16.7	NA	0.007
	Neither agree or disagree	41.7	11.8	
	Agree	41.7	64.7	
	Strongly agree	NA	23.5	
Psychosocial and organizational working conditions will be more in focus than physical, chemical, and biological factors: Positive consequences	No consequences	17.4	NA	0.034
	Some consequences	47.8	27.8	
	Considerable consequences	34.8	72.2	

Table B15. *Leadership*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	Denmark %	Norway %	p
Employers must meet employees' demands for constant feedback and coaching	Disagree	4.2	29.4	0.044
	Neither agree or disagree	25.0	35.3	
	Agree	54.2	35.3	
	Strongly agree	16.7	NA	
Larger work places will increase demands for leadership	Neither agree or disagree	8.3	29.4	0.024
	Agree	62.5	70.6	
	Strongly agree	29.2	NA	

Table B16. *Psychosocial work environment*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
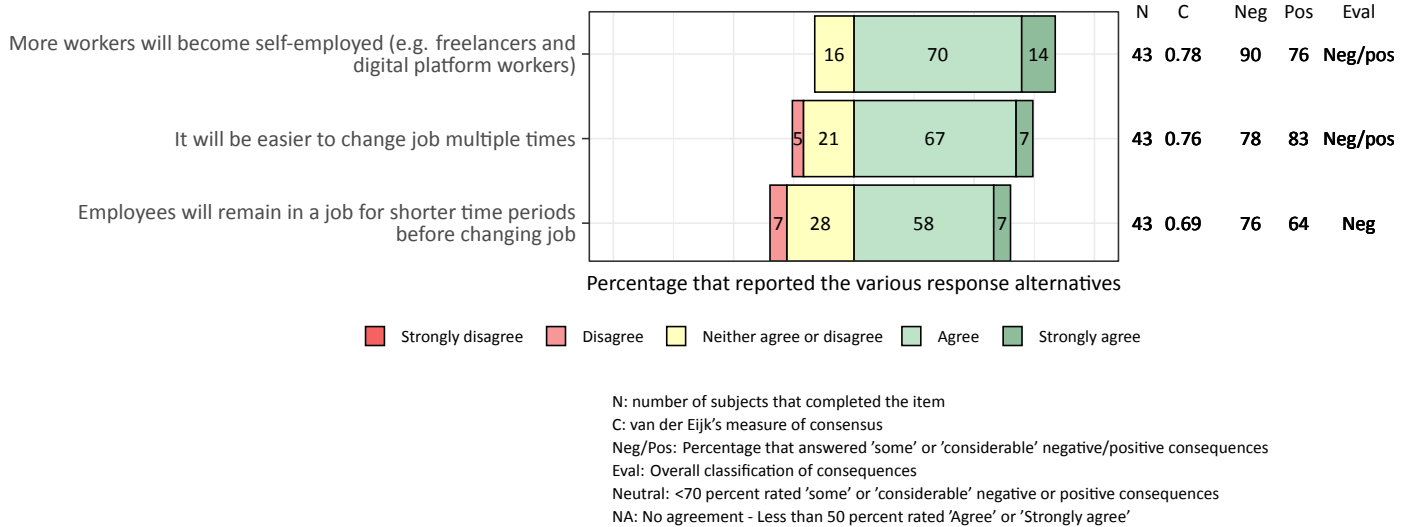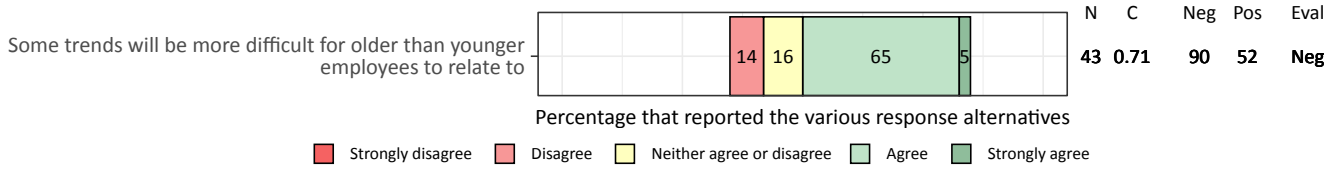
Statement	Response	Denmark %	Norway %	p
Demands from patients/customers/clients will increase: Positive consequences	No consequences	47.8	22.2	0.004
	Some consequences	52.2	38.9	
	Considerable consequences	NA	38.9	
The growing service sector will lead to increased emotional demands	Neither agree or disagree	45.8	5.6	0.012
	Agree	45.8	66.7	
	Strongly agree	8.3	27.8	
The growing service sector will lead to increased emotional demands: Positive consequences	No consequences	56.5	35.3	0.045
	Some consequences	43.5	41.2	
	Considerable consequences	NA	23.5	

Table B17. *Roles and responsibilities*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	Denmark %	Norway %	p
Employees' own responsibility for the work environment will become more apparent: Positive consequences	No consequences	65.2	23.5	0.005
	Some consequences	34.8	47.1	
	Considerable consequences	NA	29.4	

Table B18. *Work content*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

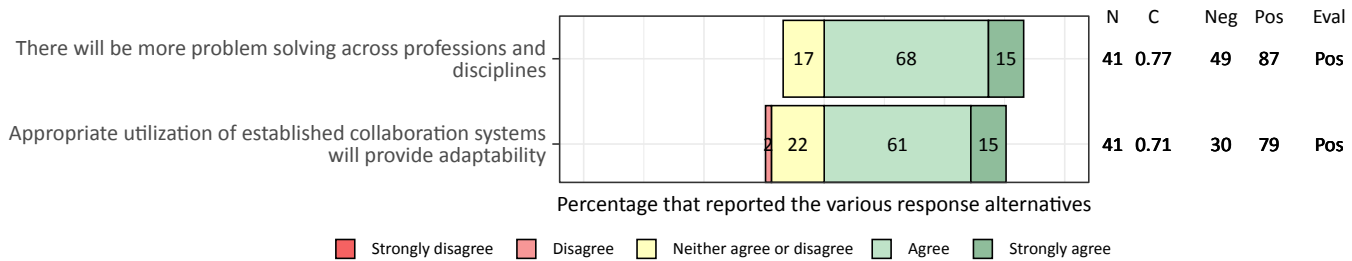| Statement	Response	Denmark %	Norway %	p
Some workers' tasks will become less complex: Negative consequences	No consequences	39.1	6.7	0.008
	Some consequences	34.8	86.7	
	Considerable consequences	26.1	6.7	

Table B19. *Psychosocial work environment*
How likely do you think the trends in the following statements are?

Statement	Response	Denmark %	Norway %	p
There will be an increase in conflicts and bullying in the workplace and an increased focus on preventing offensive or abusive behaviors	Very unlikely	4.2	NA	0.041
	Unlikely	33.3	65	
	Somewhat likely	58.3	20	
	Very likely	4.2	15	

Table B20. *Terms and conditions of work*
How likely do you think the trends in the following statements are?

Statement	Response	Denmark %	Norway %	p
Employees will become more involved in the facilitation of the work	Unlikely	30.4	30	0.035
	Somewhat likely	69.6	45	
	Very likely	NA	25	

APPENDIX C - Panel comparisons: Social partners, labour inspection authorities, consultants, researchers and occupational health professionals

The following tables give the distributions of responses separately for the different panels, i.e. employee organizations, employer organizations, labour inspection authorities, and researchers, consultants, and other experts on occupational health. A p-value of below 0.05 signifies a statistically significant difference between the distributions for the different panels.

Technology

Table C1. *Job creation, job destruction, job change, and predictability*
To what extent do you agree with the following statements?

Statement	Response	TU	EMP	IA	RCO	p
Technological change will give rise to new educational opportunities	Neither agree or disagree	10	10	9.1	0	0.049
	Agree	70	10	27.3	20	
	Strongly agree	20	80	63.6	80	

Note:
TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C2. *Job creation, job destruction, job change, and predictability*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
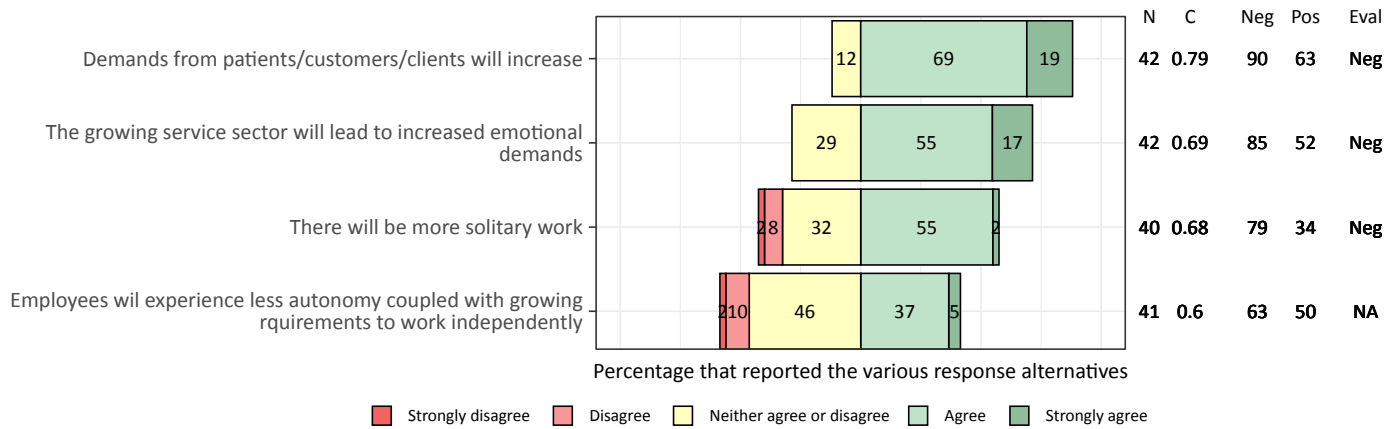
Statement	Response	TU	EMP	IA	RCO	p
Tasks will shift from workers to machines and robots: Negative consequences	No consequences	0.0	0	0	26.7	0.04
	Some consequences	66.7	100	100	60.0	
	Considerable consequences	33.3	0	0	13.3	

Note:
TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Demography

Table C3. *Productivity, efficiency, and competitive advantages*
To what extent do you agree with the following statements?

Statement	Response	TU	EMP	IA	RCO	p
New generations entering the labor market bring new perspectives on new challenges, such as digitalization	Disagree	11.1	0	0	0.0	0.039
	Neither agree or disagree	22.2	0	20	0.0	
	Agree	55.6	70	50	35.7	
	Strongly agree	11.1	30	30	64.3	

Note:
TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C4. *Demography*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
There will be a higher proportion of elderly workers in important positions: Positive consequences	No consequences	0.0	20	55.6	57.1	0.008
	Some consequences	55.6	40	11.1	35.7	
	Considerable consequences	44.4	40	33.3	7.1	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Globalization

Table C5. *Demography*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
The labor market will open up and be larger for many due to migration	Disagree	11.1	10.0	10	0.0	0.000
	Neither agree or disagree	55.6	70.0	0	0.0	
	Agree	33.3	20.0	90	84.6	
	Strongly agree	0.0	0.0	0	15.4	
The labor market will open up and be larger for many due to migration: Positive consequences	No consequences	22.2	44.4	40	14.3	0.014
	Some consequences	77.8	55.6	40	42.9	
	Considerable consequences	0.0	0.0	20	42.9	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C6. *Globalization*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

| Statement	Response	TU	EMP	IA	RCO	p
Globalization will make it easier to recruit the appropriate labor resources across country borders: Positive consequences	No consequences	66.7	20	37.5	15.4	0.013
	Some consequences	33.3	60	37.5	30.8	
	Considerable consequences	0.0	20	25.0	53.8	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Environment

Table C7. *Sustainability*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
A sustainable work environment will become more important as a strategic competitive factor	Neither agree or disagree	44.4	33.3	11.1	7.7	0.033
	Agree	55.6	44.4	66.7	53.8	
	Strongly agree	0.0	22.2	22.2	38.5	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Skills/competence

Table C8. *General work environment*

To what extent do you agree with the following statements?

Statement	Response	TU	EMP	IA	RCO	p
Employers will have access to more and better tools to provide knowledge about the work environment	Disagree	0	0.0	9.1	7.7	0.024
	Neither agree or disagree	0	0.0	27.3	38.5	
	Agree	100	88.9	63.6	46.2	
	Strongly agree	0	11.1	0.0	7.7	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C9. *Job creation, job destruction, job change, and predictability*
To what extent do you agree with the following statements?

Statement	Response	TU	EMP	IA	RCO	p
Technological change will give rise to new educational opportunities	Neither agree or disagree	10	10	9.1	0	0.049
	Agree	70	10	27.3	20	
	Strongly agree	20	80	63.6	80	

Note:
TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C10. *Productivity, efficiency, and competitive advantages*
To what extent do you agree with the following statements?

Statement	Response	TU	EMP	IA	RCO	p
New generations entering the labor market bring new perspectives on new challenges, such as digitalization	Disagree	11.1	0	0	0.0	0.039
	Neither agree or disagree	22.2	0	20	0.0	
	Agree	55.6	70	50	35.7	
	Strongly agree	11.1	30	30	64.3	

Note:
TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C11. *Skills and competency*
To what extent do you agree with the following statements?

Statement	Response	TU	EMP	IA	RCO	p
Shortages of skilled labor is an advantage for the highly qualified	Strongly disagree	11.1	20	0.0	0.0	0.028
	Disagree	0.0	10	9.1	15.4	
	Neither agree or disagree	55.6	20	45.5	0.0	
	Agree	22.2	50	45.5	53.8	
	Strongly agree	11.1	0	0.0	30.8	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C12. *Flexibility*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
Employees will become more flexible	Disagree	0.0	10	0.0	15.4	0.012
	Neither agree or disagree	55.6	30	11.1	0.0	
	Agree	44.4	60	77.8	76.9	
	Strongly agree	0.0	0	11.1	7.7	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C13. *Globalization*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
Globalization will make it easier to recruit the appropriate labor resources across country borders: Positive consequences	No consequences	66.7	20	37.5	15.4	0.013
	Some consequences	33.3	60	37.5	30.8	
	Considerable consequences	0.0	20	25.0	53.8	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C14. *Roles and responsibilities*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
The individual employee will to a larger extent have to take responsibility for their own work situation: Positive consequences	No consequences	66.7	50	62.5	14.3	0.044
	Some consequences	33.3	30	37.5	78.6	
	Considerable consequences	0.0	20	0.0	7.1	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C15. *Skills and competency*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
Social skill demands will increase	Strongly disagree	0.0	0	0.0	7.1	0.050
	Disagree	22.2	10	0.0	0.0	
	Neither agree or disagree	44.4	30	55.6	7.1	
	Agree	22.2	40	33.3	50.0	
	Strongly agree	11.1	20	11.1	35.7	
Social skill demands will increase: Positive consequences	No consequences	33.3	30	37.5	7.1	0.020
	Some consequences	55.6	50	62.5	28.6	
	Considerable consequences	11.1	20	0.0	64.3	
The ability to work with innovative solutions will become more important: Negative consequences	No consequences	12.5	60	33.3	76.9	0.034
	Some consequences	75.0	40	66.7	23.1	
	Considerable consequences	12.5	0	0.0	0.0	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C16. *Sustainability*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
A sustainable work environment will become more important as a strategic competitive factor	Neither agree or disagree	44.4	33.3	11.1	7.7	0.033
	Agree	55.6	44.4	66.7	53.8	
	Strongly agree	0.0	22.2	22.2	38.5	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Political, cultural and social developments

Other statements

Table C17. *Affiliation and connection*

To what extent do you agree with the following statements?

Statement	Response	TU	EMP	IA	RCO	p
Increased flexibility and insecure job attachments will result in lower predictability (for example fluctuating income)	Disagree	10	20	0.0	0.0	0.022
	Neither agree or disagree	0	50	9.1	38.5	
	Agree	20	30	54.5	53.8	
	Strongly agree	70	0	36.4	7.7	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C18. *Psychosocial work environment*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
There will be more solitary work: Negative consequences	No consequences	0.0	11.1	25	35.7	0.015
	Some consequences	22.2	88.9	50	50.0	
	Considerable consequences	77.8	0.0	25	14.3	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals.
P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C19. *Roles and responsibilities*
To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
Employees will to a larger extent have to be proactive and create their own job content	Disagree	22.2	0	0.0	0.0	0.027
	Neither agree or disagree	55.6	30	44.4	21.4	
	Agree	22.2	70	55.6	78.6	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C20. *Types of organizations*

To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Statement	Response	TU	EMP	IA	RCO	p
Agile organizational forms will become more widespread	Disagree	11.1	0	0	0.0	0.034
	Neither agree or disagree	0.0	30	40	6.7	
	Agree	88.9	60	60	53.3	
	Strongly agree	0.0	10	0	40.0	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

Table C21. *Psychosocial work environment*

How likely do you think the trends in the following statements are?

Statement	Response	TU	EMP	IA	RCO	p
There will be an increase in conflicts and bullying in the workplace and an increased focus on preventing offensive or abusive behaviors	Very unlikely	0.0	10	0	0.0	0.049
	Unlikely	11.1	70	30	66.7	
	Somewhat likely	88.9	20	50	20.0	
	Very likely	0.0	0	20	13.3	

Note:

TU: Trade Unions; EMP: Employers' organizations; IA: Labour inspection authority; RCO: Researchers, consultants, and occupational health professionals. P-value from Kruskal-Wallis test by ranks to test whether the distributions are from different populations.

APPENDIX D - "Top 5" and "bottom 5": The highest and lowest consensus statements for each driver/main topic

In the following we present the five statements (or less, where there were less than five statements available) under each driver and block for which the highest levels of consensus were observed, along with the five or less statements for which the lowest levels of consensus were observed. In the case of ties, all statements associated with the five highest and lowest consensus scores were included.

Technology

Fig. D1 exhibits - for statements from "Block 1: Agreement only" concerning the technology driver - the top five statements with regard to consensus among the experts. The statement exhibiting the highest consensus was "technological changes will give rise to new types of jobs", with a consensus rating of 0.84. For this statement 72% of respondents "strongly agreed". As evident in Fig. D1, the experts generally exhibited a high degree of agreement with the content reflected by statements for which there was a high degree of consensus.

Conversely, Fig. D1 also gives the five statements for which the lowest degree of consensus was observed. Consensus ranged from 0.35-0.52. Notably, «rapid technological development will lead to polarization and greater inequalities in work-related health" was the statement which reflected the lowest degree of consensus. However, out of these low-consensus statements, the one with which the experts disagreed the most was "it will be difficult to control the correct execution of automated processes", which 40 per cent either disagreed or strongly disagreed with. The statement with the highest proportion of "strongly disagree" was "automation of low-skilled jobs can cause many to be left outside the labor market", with which 11.1% strongly disagreed.

Fig. D2 presents the statements with highest consensus within "Block 2: Agreement and impact (consequences)", i.e. statements where the experts could indicate their judgement regarding positive and negative consequences. The statement "digitalization makes work more flexible in time and space" received highest consensus with a score of 0.81. However, the distribution of responses for these five statements seemed very similar. As can be seen in Fig. D2, the experts generally also exhibited a high degree of agreement with the content reflected by statements for which there was a high degree of consensus.

Fig. D2 then shows the statements with the lowest consensus for "Block 2: Agreement and impact (consequences)". Although the statements received the lowest ranking with regard to consensus, the consensus score is indicative of relatively high consensus on the statement "Work tasks will become more varied and complex as new technologies take on more of the routine tasks" (C=0.73) and medium consensus for three other statements (C=0.57-0.68). There was low consensus among the experts on the statement "Workers will experience alienation from work as a consequence of automation and robotization" (C=0.43).

For "Block 3: Likelihood" (i.e. statements about the likelihood of different developments, Fig. D3) only three statements pertained to technology. Consensus scores ranged from 0.45 to 0.76. The lowest consensus was observed for the statement "workers will to a larger extent be managed and lead by robots", which most experts also rated "unlikely". Conversely, the highest degree of consensus (score 0.76) and agreement (100% of rated this development as somewhat or very likely) was observed for "workers will to a larger extent have to cooperate with robots".

Demography

Figs. D4, D5 and D6 show the rating of the statements pertaining to the driver demography from block 1, block 2 and block 3 sorted by consensus.

Three statements had high consensus: "The increasing proportion of seniors in the labour market will have to be taken in to account" from Block 1 (Fig. D4), the somewhat similar "The proportion of older workers will increase" from block 3 (Fig. D6) and the statement "The workforce will become

Figure D1. Technology: The highest and lowest ranked statements by consus (C) score

Block 1: To what extent do you agree with the following statements?

Top 5 statements

Statement	N	C
Technological changes will give rise to new types of jobs	46	0.84
Employers will have to address the implications of new technologies and invest in new systems	40	0.83
Technological change will give rise to new educational opportunities	46	0.78
Work will be less physically demanding as a result of developments within robotics	42	0.76
New technologies will provide new opportunities for some	43	0.74

Bottom 5 statements

Statement	N	C
It will be difficult to control the correct execution of automated processes	43	0.52
Technological developments will lead to fewer accidents	42	0.5
There will be less routine work a result of developments within robotics	42	0.49
Automation of low-skilled jobs can cause many to be left outside the labor market	45	0.48
Rapid technological development will lead to polarization and greater social inequalities in work-related health	44	0.35

Percentage that reported the various response alternatives

Strongly disagree   Disagree   Neither agree or disagree   Agree   Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure D2. Technology: The highest and lowest ranked statements by consus (C) score

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Top 5 statements

Statement	N	C	Neg	Pos	Eval
Digitalization makes work more flexible in time and place	40	0.81	82	88	Neg/pos
New technologies will allow new ways of organizing work	41	0.8	72	90	Neg/pos
New technologies (e.g. artificial intelligence, robots, ICT) will be a part of more work tasks and change the content of tasks	40	0.79	80	92	Neg/pos
Tasks will shift from workers to machines and robots	44	0.77	91	100	Neg/pos
Workers will have to continuously develop their skills and make sure they are relevant, e.g. in regards to new technologies	41	0.76	73	92	Neg/pos

Bottom 5 statements

Statement	N	C	Neg	Pos	Eval
Work tasks will become more varied and complex as new technologies take on more of the routine tasks	41	0.73	69	82	Pos
New technologies will make increased control and surveillance of workers possible	41	0.68	85	39	Neg
Technology will to a greater extent determine how work is organized	40	0.61	74	51	Neg
Technological developments will lead to increasing individualization and less unionisation	41	0.57	74	26	Neg
Workers will experience alienation from work as a consequence of automation and robotization	42	0.43	68	35	NA

Percentage that reported the various response alternatives

Strongly disagree · Disagree · Neither agree or disagree · Agree · Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure D3. Technology: Statements ranked by consensus (C) score

Block 3: How likely do you think the trends in the following statements are?

All 3 statements

		N	C
Workers will to a larger extent have to cooperate with robots	64 / 36	44	0.76
The digital economy will lead to increased socioeconomic differences between groups with different educations and skills (e.g. technology skills)	16 / 43 / 41	44	0.52
Workers will to a larger extent be managed and lead by robots	32 / 45 / 18 / 5	44	0.45

Percentage that reported the various response alternatives

■ Very unlikely   ■ Unlikely   ■ Somewhat likely   ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

more diverse, with a more equal distribution of gender, ethnicity, and nationalities" from block 2 (Fig. D5). The consensus score was 0.72, 0.71 and 0.85 respectively. 7 statements related to demography was rated with a medium consensus. Just one statement about demography showed low consensus. This was the statement "Elderly workers will find it difficult to maintain relevant skills and experiencing job security" (Fig. D4).

A high proportion of experts (at least 90%) deemed it somewhat or very likely that migration and the proportion of older workers will increase (Fig. D6).

A high proportion of the experts (at least 80%) showed agreement (agree or strongly agree) with statements related to a changing and diversification to the composition of the workforce, both due to an aging population and migration. According to the statements, this change in composition will bring both a need to take this change into account and more innovation.

Other statements had less proportion of experts that rated agreement with the statement. There was 42% of experts in agreement, with medium consensus, with "There will be a higher proportion of elderly workers in important positions", 47% of experts in agreement, with low consensus, with "Elderly workers will find it difficult to maintain relevant skills and job security", and 50% in agreement,

Figure D4. Demography: Statements ranked by consensus (C) score
Block 1: To what extent do you agree with the following statements?

All 6 statements

Statement	N	C
The increasing proportion of seniors in the labour market will have to be taken into account	43	0.74
New generations entering the labor market bring new perspectives on new challenges, such as digitalization	43	0.69
Increased diversity will bring more innovation and enrichment, because there will be more vantage points	43	0.69
Better opportunities to implement local senior arrangements, which for example can help retain staff, increase cross-generational collaboration and increase productivity	42	0.67
Age-related illnesses will increasingly influence whether employees can cope with physical and mental work loads	44	0.58
Elderly workers will find it difficult to maintain relevant skills and job security	43	0.42

Percentage that reported the various response alternatives

Legend: Strongly disagree | Disagree | Neither agree or disagree | Agree | Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure D5. Demography: Statements ranked by consensus (C) score
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

All 2 statements

Percentage that reported the various response alternatives

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

and medium consensus with the statement "Age-related illnesses will increasingly influence whether employees can cope with physical and mental work loads".

Globalization

Fig. D7 shows all 6 statements from "Block 1: Agreement only" sorted according to the consensus score, which ranged from 0.62 to 0.93. Highest consensus score was achieved for "more cross-border mobility will involve having to deal with workers with different needs (culture, language)" (consensus score 0.93). Four of the six statements achieved a high degree of consensus (consensus score >0.7), and a medium degree of consensus (0.5-0.7) was achieved by the last two statement. In general, more than 70% of the respondents agreed with the statements. The highest proportion of respondents that disagreed was found for "more collaboration across geographical borders, time zones and cultures, will bring challenges related to language and cultural differences" (16% disagreed or strongly disagreed, while 67% agreed or strongly agreed).

Fig. D8 presents the 5 statements in "Block 2: Agreement and impact (consequences)". The statement "new technologies provide opportunities to utilize residual work capacity and offer services in a global market" was also discussed in the chapter on the Technology driver, as this statement also apply to that topic. The consensus score ranged from 0.71 to 0.86. Highest consensus was reached for "workers will experience more competition due to globalization" (consensus score 0.86) and "globalization will increase (e.g., cross-border business, offshoring)" (consensus score 0.85). The majority of

Figure D6. Demography: Statements ranked by consensus (C) score

Block 3: How likely do you think the trends in the following statements are?

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
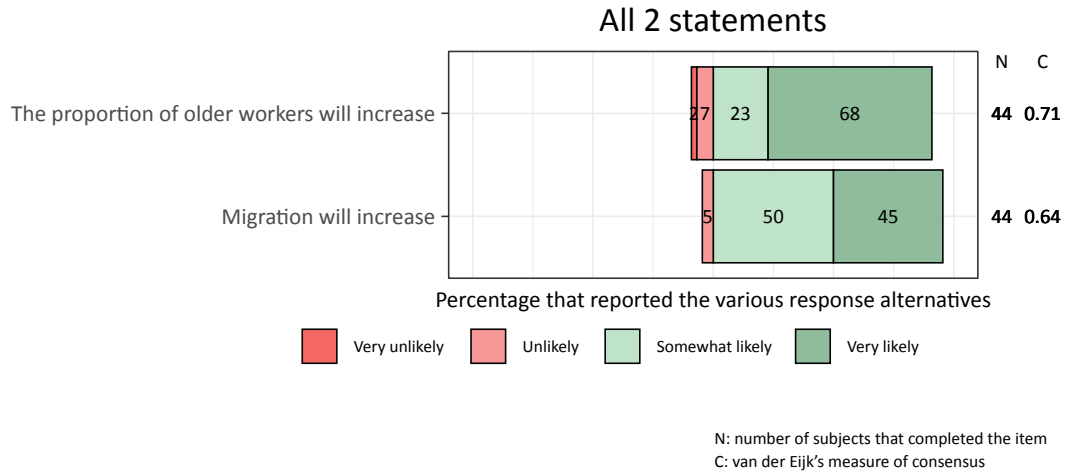
the respondents agreed (or strongly agreed) with the statements. A significant proportion of respondents neither agreed or disagreed, or (strongly) disagreed, with just two statements, "new technologies provide opportunities to utilize residual work capacity and offer services in a global market" (a total of 39% neither agreed or disagreed, or disagreed or strongly with this statement) and "the labor market will open up and be larger for many due to migration" (36% neither agreed or disagreed, or disagreed or strongly).

Three topics related to globalization seems to pervade the statements. They are culture and language (3 statements, an example is "more cross-border mobility will involve having to deal with workers with different needs (culture, language", see Fig. D7), competition and productivity (3 statements, for example "an international market will allow for higher production volumes", Fig. D7), and the 'borderlessness' of work and the labor market (6 statements, for example, "globalization will make it easier to recruit the appropriate labor resources across country borders", Fig. D8). One statement, "more collaboration across geographical borders, time zones, and cultures will bring challenges related to language and cultural differences" pertained to both culture and language and the 'borderlessness' of work and the labor market.

Environment

Fig. D10 shows all five statements within "Block 1: Agreement only" on the driver "Environment" sorted in descending order by consensus among the experts. The highest consensus score was observed for the statement "Environmentally friendly solutions with less travel and fewer physical meet-

Figure D7. Globalization: Statements ranked by consensus (C) score
Block 1: To what extent do you agree with the following statements?

All 6 statements

Statement	N	C
More cross-border mobility will involve having to deal with workers with different needs (culture, language)	43	0.93
International competition will increase	43	0.85
A more international labor market makes intercultural exchanges possible	43	0.85
Globalization may result in time-related 'borderlessness', because workers increasingly work across time zones	43	0.72
More collaboration across geographical borders, time zones, and cultures will bring challenges related to language and cultural differences	43	0.63
An international market will allow for higher production volumes	43	0.62

Percentage that reported the various response alternatives

Legend: Strongly disagree | Disagree | Neither agree or disagree | Agree | Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure D8. Globalization: Statements ranked by consensus (C) score

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

All 5 statements

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
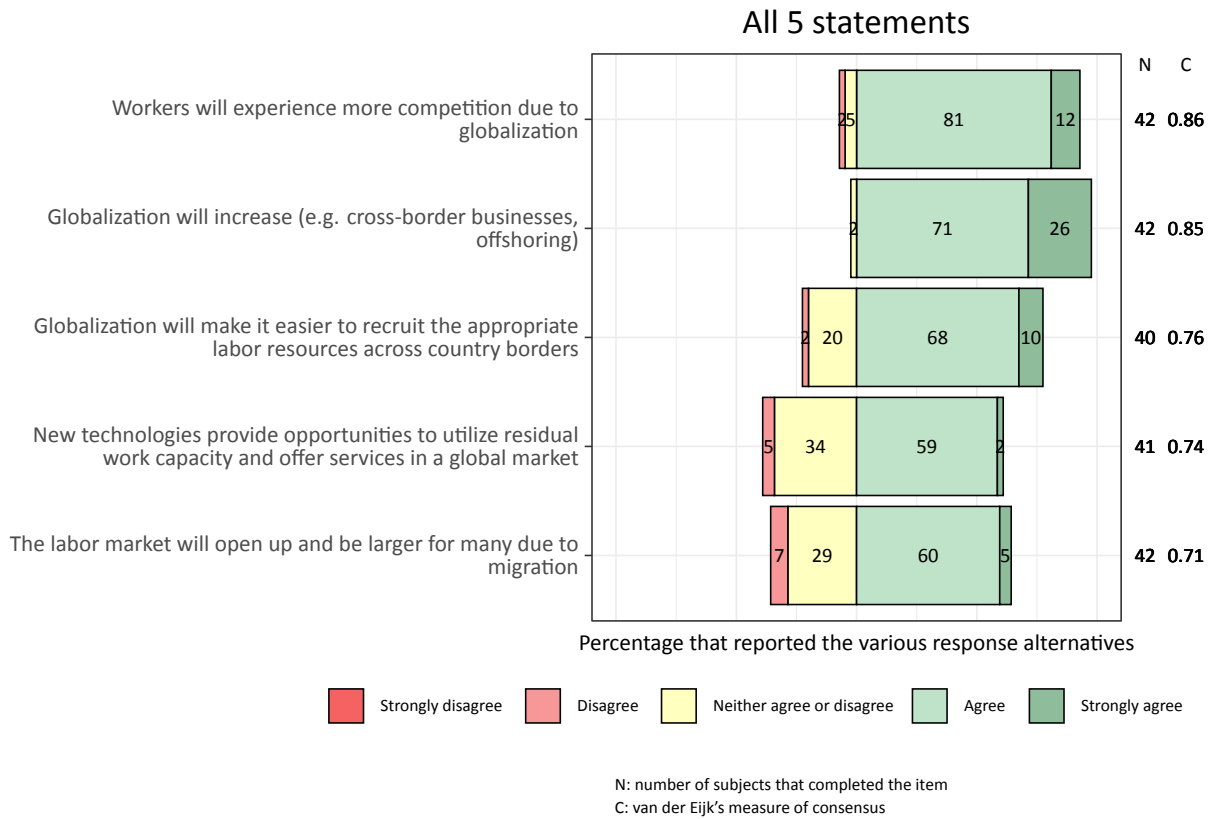
Figure D9. Globalization: Statements ranked by consensus (C) score

Block 3: How likely do you think the trends in the following statements are?

No statements for *'Globalization'* were identified for *'Block 3'*

Figure D10. Environment: Statements ranked by consensus (C) score

Block 1: To what extent do you agree with the following statements?
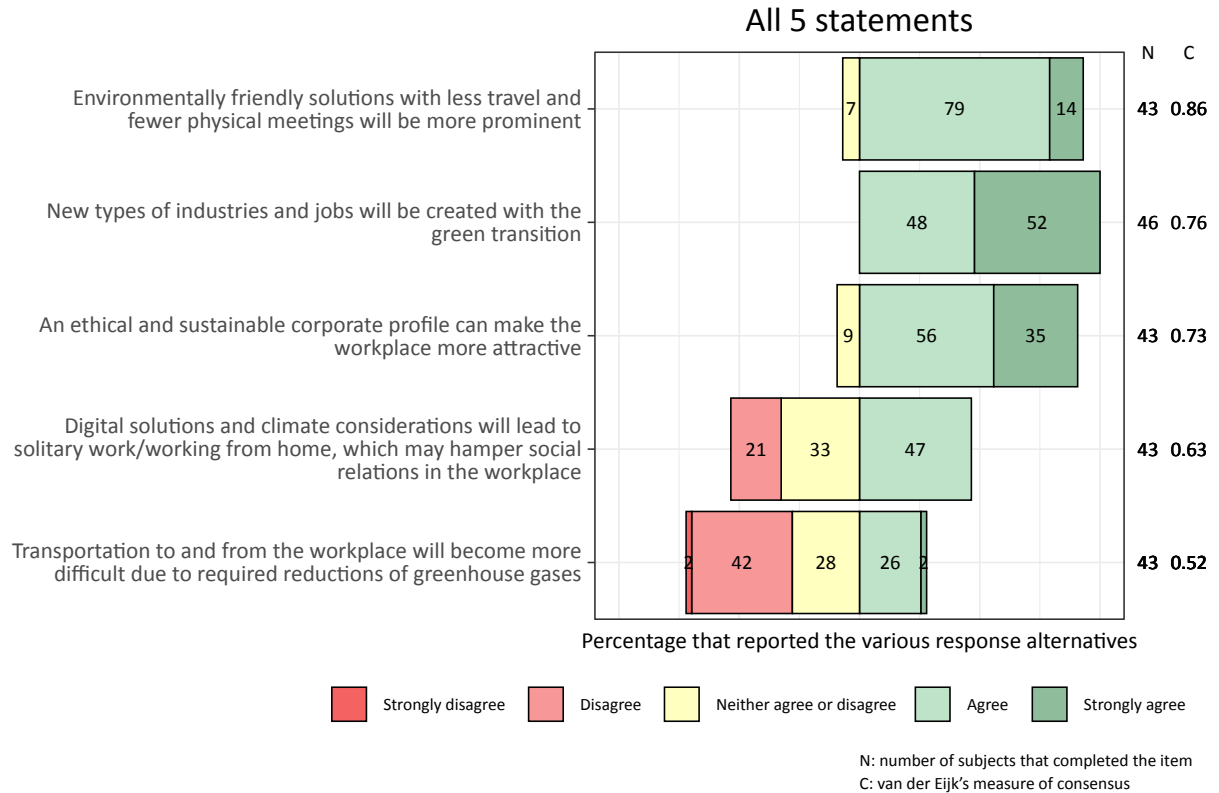
ings will be more prominent", with a consensus score of 0.86. For this statement 14% of respondents "strongly agreed", and 79% of respondents "agreed". The statement "Transportation to and from the workplace will become more difficult due to required reductions of greenhouse gases" exhibited the lowest consensus score for statements from "Block 1: Agreement only", with a consensus score of 0.52 and two respondents stating "strongly disagree" while two respondents stated "strongly agree".

Fig. D11 displays the consensus score for the one statement that pertained to the Environment driver within "Block 2: Agreement and impact (consequences)". For this statement "A sustainable work environment will become more important as a strategic competitive factor" most respondents agreed, while 22% of respondents strongly agreed to the statement and another 22% neither agreed or disagreed.

Figure D11. Environment: Statements ranked by consensus (C) score
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

All 1 statements

A sustainable work environment will become more important as a strategic competitive factor

22	55	22

N   C
40 0.66

Percentage that reported the various response alternatives

- Strongly disagree
- Disagree
- Neither agree or disagree
- Agree
- Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure D12. Environment: Statements ranked by consensus (C) score
Block 3: How likely do you think the trends in the following statements are?

All 1 statements

Demands for ethical awareness, sustainability, and environmental awareness will increase across all workplaces

2	43	55

N   C
44 0.68

Percentage that reported the various response alternatives

- Very unlikely
- Unlikely
- Somewhat likely
- Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

As Fig. D12 shows, for "Block 3: Likelihood" only one statement pertained to the Environment driver; "Demands for ethical awareness, sustainability, and environmental awareness will increase across all workplaces". Most respondents assumed this development to be very likely (55%) or somewhat likely (43%), and the consensus score was 0.68.

Skills/competence

The *lowest* consensus was observed for a statement from "Block 1: Agreement only", namely "It will be more difficult to satisfy the need for meaningful tasks, sufficient organizational resources, adequate feedback culture, opportunities for influence, skill development and collaboration" (C = 0.41, Fig. D13). However, it may be noted that there were statements exhibiting slightly higher consensus but a larger spread of observations - for instance, in Fig. D13 two statements received responses for all five response options from "Strongly disagree" to "Strongly agree" ("Automation of low-skilled jobs can cause many to be left outside the labor market" and "Shortages of skilled labor is an advantage for the highly qualified"). Hence, these statements may in some ways be seen as even more polarizing than the lower consensus statement, although a larger proportion of responses were observed for one of the categories of these statements.

The *highest* consensus for statements pertaining to skills was observed for a statement from "Block 2: Agreement and impact (consequences)", namely "Self leadership will be required to a larger extent" (C = 0.84, Fig. D14).

Interestingly, none of the statements from "Block 3: Likelihood" exhibited high consensus (see Fig. D15). However, there was generally high agreement - very few experts responded "Very unlikely". Although there was only medium consensus for these statements, the division between the experts consisted in whether they believed the developments to be "Very likely" or merely "Somewhat likely".

Political, cultural and social developments

Fig. D16 lists the consensus to all four statements in "Block 1: Agreement only", with regard to the present driver. Highest consensus is found for the statement "There will be more focus on diversity and inclusion in the workplace", which showed a consensus score of 0.79. For this statement 7% of respondents answered "strongly agree", and 70% of respondents answered "agree". The lowest consensus score within "Block 1: Agreement only" is observed for the statement "More workers will experience a lack of social security at work (e.g. entitlement to parental leave, vacation, sickpay, etc.)", with 2% of respondents stating they strongly disagree and 2% of respondents stating they strongly agree, and a consensus rating of 0.42.

Fig. D17 shows the consensus scores for the statements within the present driver for "Block 2: Agreement and impact (consequences)". Highest consensus is observed for the statement "It will be possible to attain a stronger gender balance in the labor market (more female leaders, more men in disciplines traditionally dominated by women)", as 71% of respondents agreed with this statement, and a further 5% stated they strongly agreed, resulting in a consensus score of 0.79. Lowest consensus for the statements relating to "Political, cultural and social developments" in "Block 2: Agreement and impact (consequences)" is observed for the statement "There will be an increased awareness of gender differences in the significance of the work environment", which gained a consensus score of 0.5.

As mentioned previously, no statements relating to the present driver were identified for "Block 3: Likelihood".

Figure D13. Skills: The highest and lowest ranked statements by consus (C) score
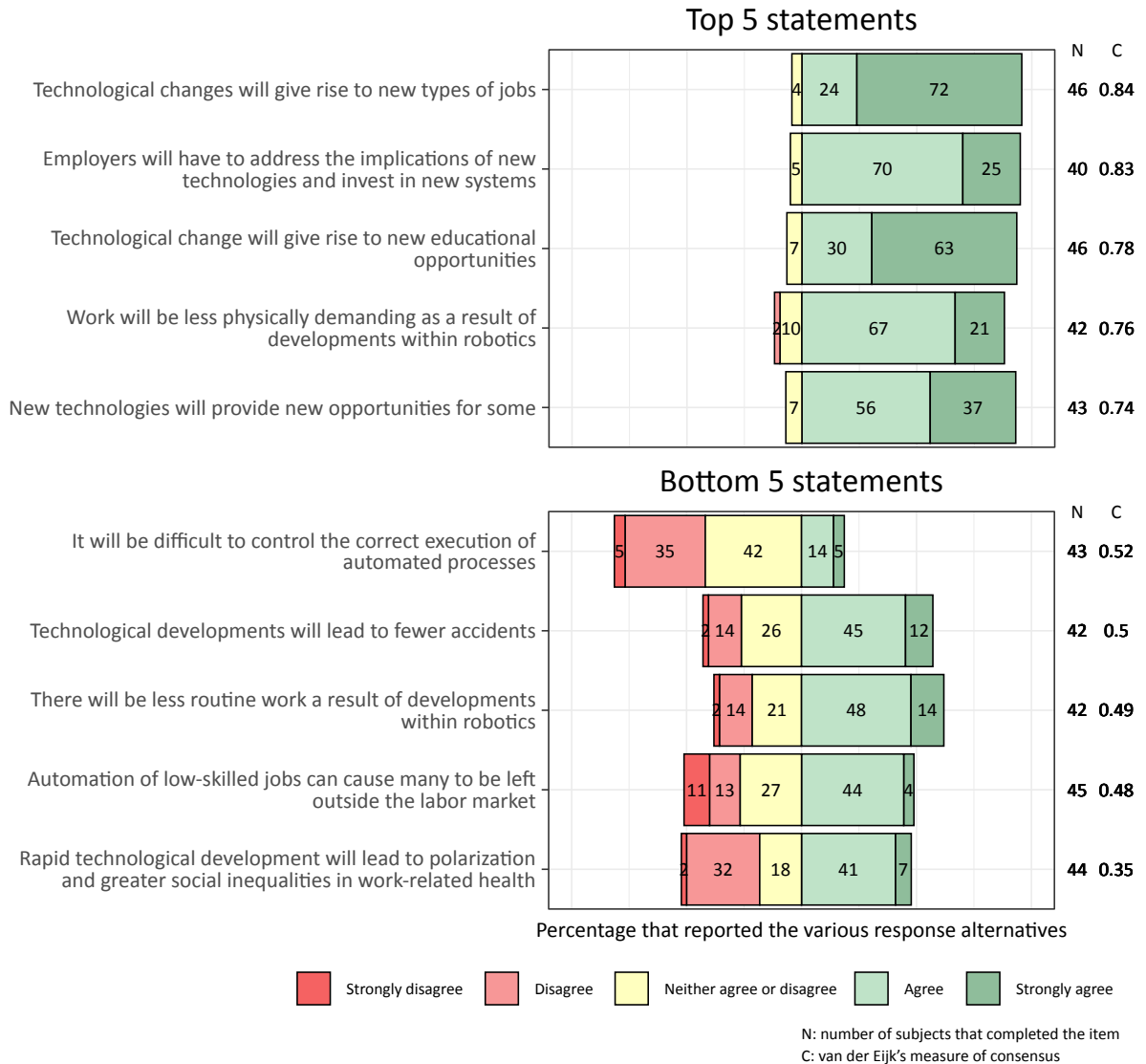*Block 1: To what extent do you agree with the following statements?*

Top 5 statements

Statement	N	C
New generations entering the labor market will bring new types of skills	43	0.81
Employers will have access to more and better tools to provide knowledge about the work environment	42	0.79
Technological change will give rise to new educational opportunities	46	0.78
Employers will have to make sure leaders have competence to handle both the physical and the psychosocial work environment	42	0.74
Technology and expertise may increase innovation and productivity	43	0.73

Bottom 5 statements

Statement	N	C
Automation of low-skilled jobs can cause many to be left outside the labor market	45	0.48
Shortages of skilled labor is an advantage for the highly qualified	43	0.47
As a result of rising education levels, employers will be able to get highly qualified workers at a lower cost than before	43	0.47
Elderly workers will find it difficult to maintain relevant skills and job security	43	0.42
It will be more difficult to satisfy the need for meaningful tasks, sufficient organizational resources, adequate feedback culture, opportunities for influence, skill development and collaboration	41	0.41

Percentage that reported the various response alternatives

Strongly disagree   Disagree   Neither agree or disagree   Agree   Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure D14. Skills: The highest and lowest ranked statements by consus (C) score
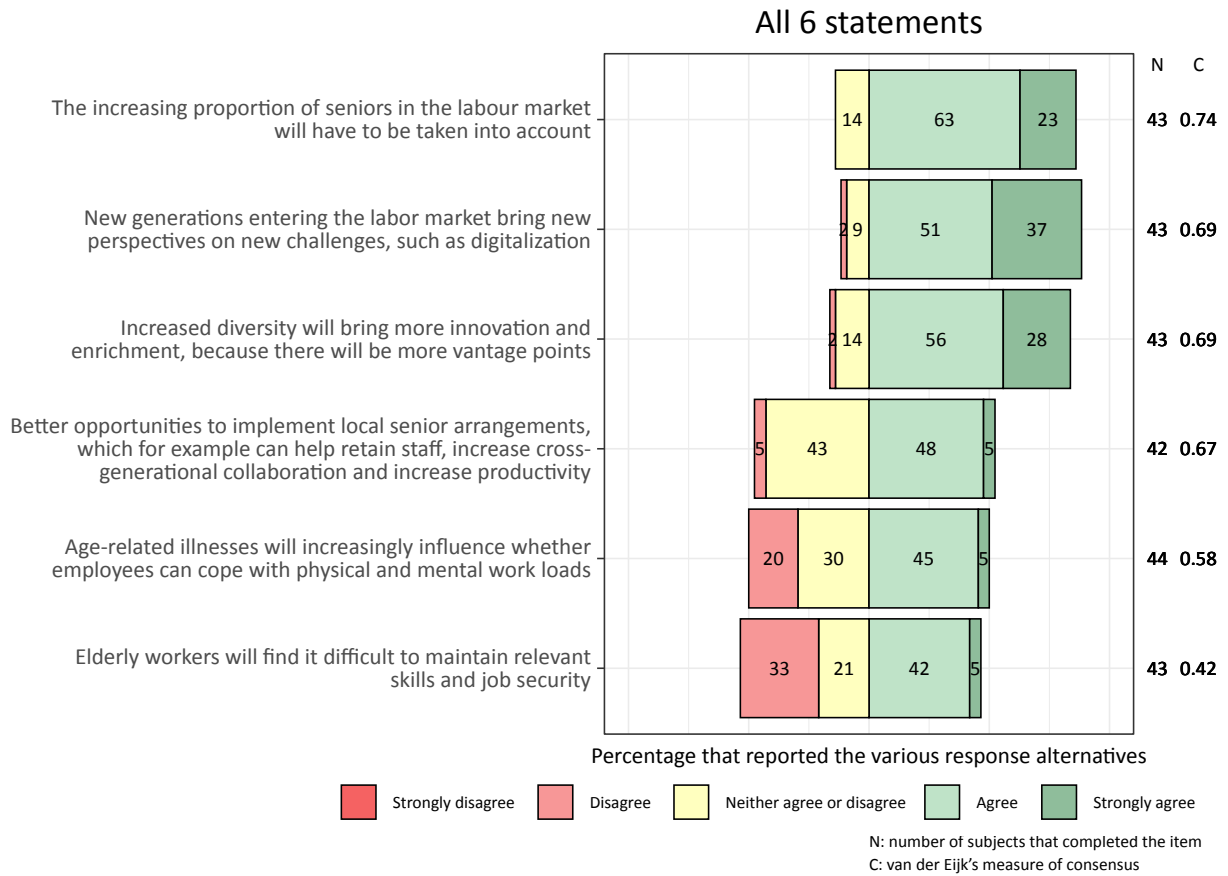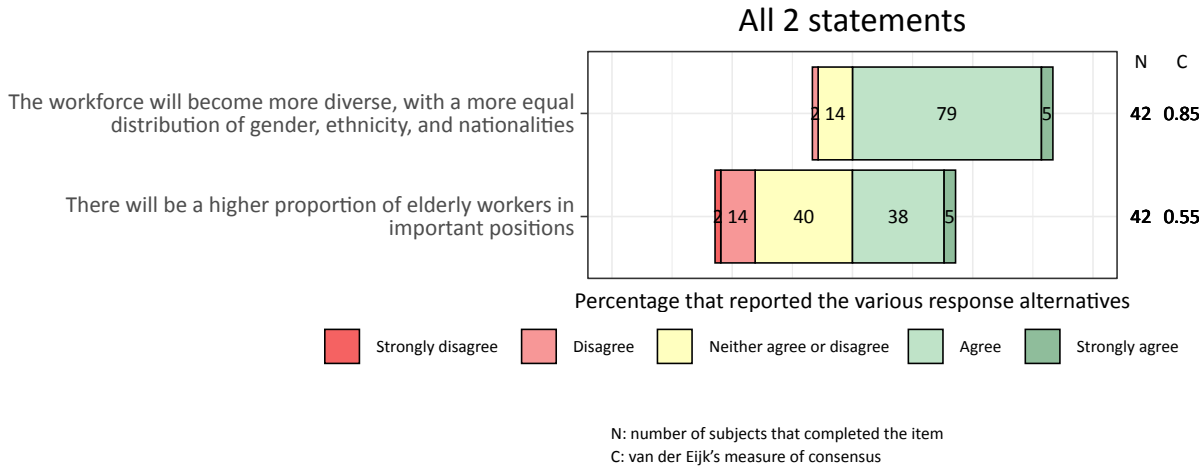*Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?*

Top 5 statements

Statement	Strongly disagree	Disagree	Neither	Agree	Strongly agree	N	C	Neg	Pos	Eval
Self leadership will be required to a larger extent		2	10	83	5	41	0.84	95	92	Neg/pos
Streamlining demands will increase			12	70	18	40	0.79	84	56	Neg
Requirements to remain in work longer will increase		2	7	67	24	42	0.77	86	69	Neg
Employers will have a vested interest in investing in employee skill development		2	7	69	21	42	0.76	46	90	Pos
Globalization will make it easier to recruit the appropriate labor resources across country borders		2	20	68	10	40	0.76	66	69	Neutral

Bottom 5 statements

Statement	Strongly disagree	Disagree	Neither	Agree	Strongly agree	N	C	Neg	Pos	Eval
Collaboration between professionals and volunteers in the labor market will become more widespread		12	39	46	2	41	0.65	61	66	NA
Innovation culture will become more important		7	21	55	17	42	0.62	42	80	Pos
Work contracts will become more individualized and the role of unions will be lessened		12	32	45	10	40	0.56	81	32	Neg
The individual employee will to a larger extent have to take responsibility for their own work situation		24	10	62	5	42	0.55	72	56	Neg
Social skill demands will increase		2	7	31	38	21	42	0.48	49	76	Pos

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   ■ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure D15. Skills: The highest and lowest ranked statements by consus (C) score

Block 3: How likely do you think the trends in the following statements are?

Top 5 statements

		N	C
There will be a growing need for more 'customer-sentric' and 'person-focused' organizations	2 / 53 / 44	43	0.67
Which skills are in high demand will change	22 / 41 / 54	41	0.64
Competence and work ability will be more important than age	7 / 41 / 52	44	0.64
Work environment, engagement, and commitment to the organisation will become strategic competitive factors	8 / 40 / 52	25	0.63
Workers with high levels of skill will be in higher demand, while access to skilled labor will decline	27 / 57 / 33	42	0.63

Bottom 5 statements

		N	C
The focus on people and intrinsic motivation will gain traction	26 / 58 / 16	43	0.61
Competition for skilled labor will increase	27 / 42 / 49	43	0.58
There will be more rogue players in work life and more work-related crime	2 / 34 / 50 / 14	44	0.55
The digital economy will lead to increased socioeconomic differences between groups with different educations and skills (e.g. technology skills)	16 / 43 / 41	44	0.52
Time-limited employment and assignments will become more widespread	18 / 39 / 43	44	0.5

Percentage that reported the various response alternatives

Very unlikely   Unlikely   Somewhat likely   Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure D16. Political, social, and cultural: Statements ranked by consensus (C) score

Block 1: To what extent do you agree with the following statements?

N: number of subjects that completed the item
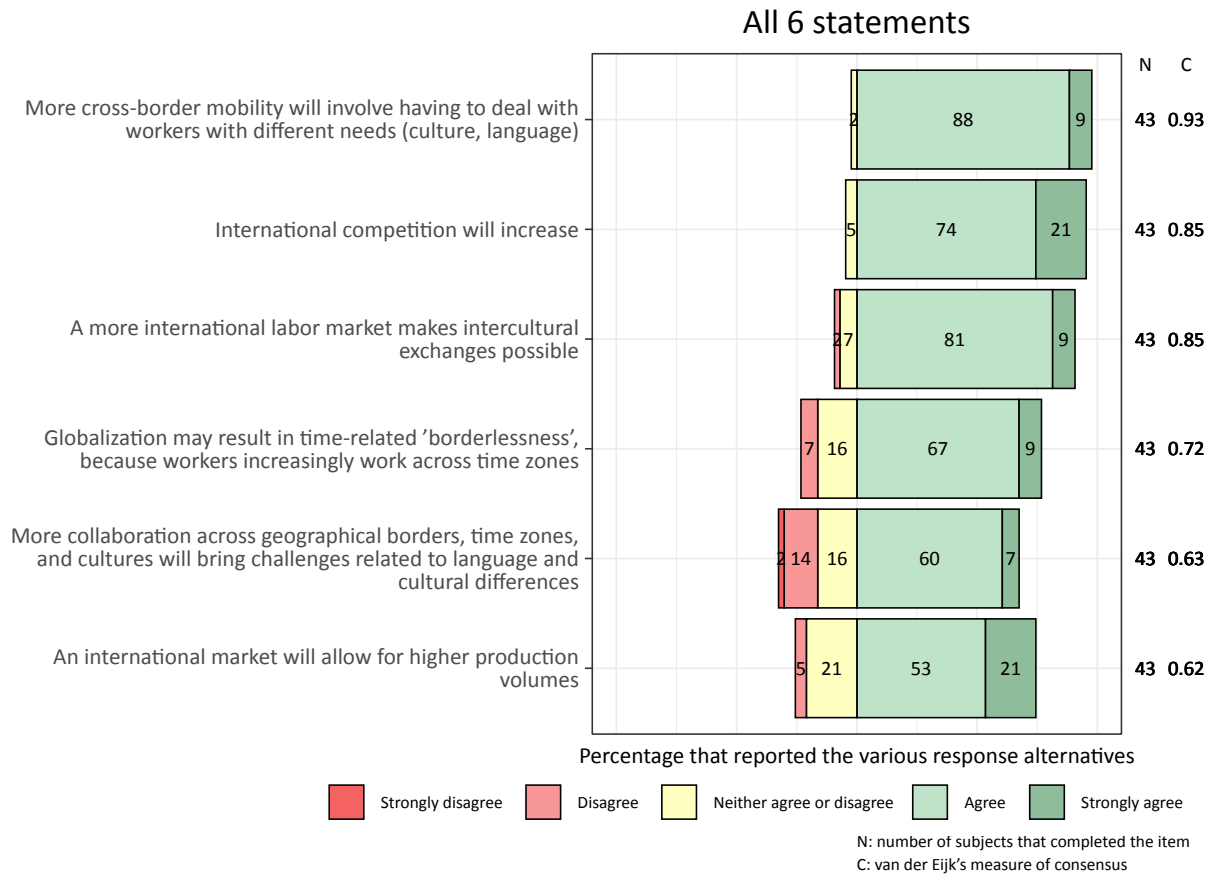C: van der Eijk's measure of consensus
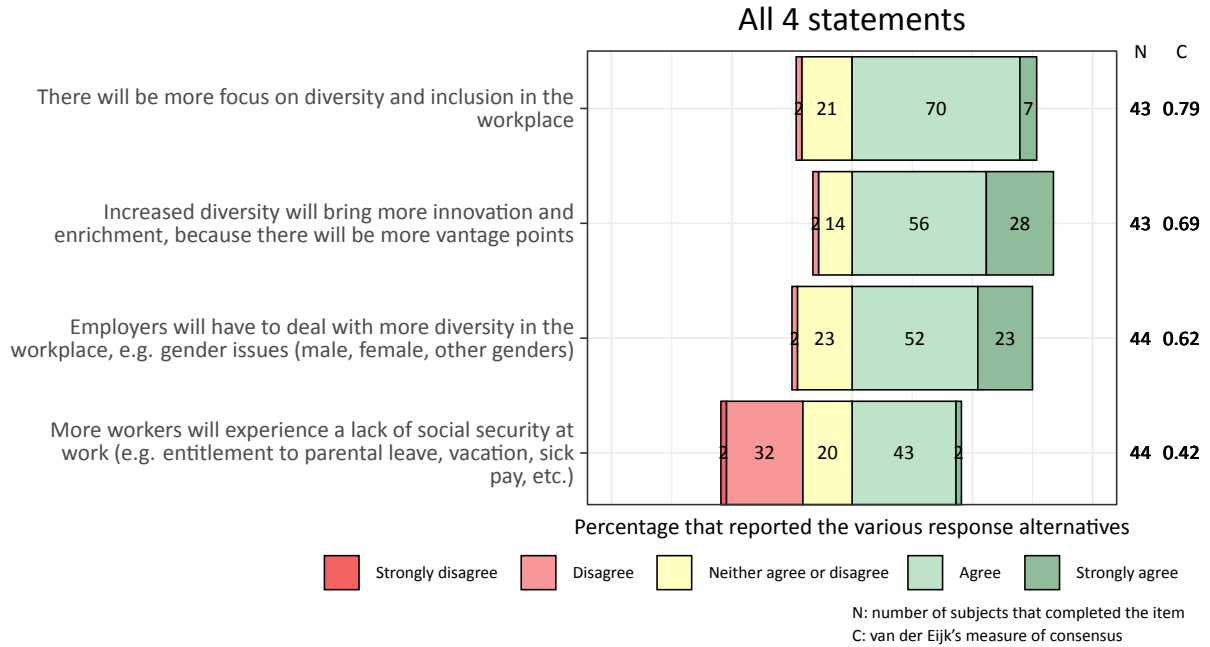
Other statements

Fig. D19 shows the top five and bottom five statements from "Block 1: Agreement only" as ranked by consensus score, which ranged from 0.23 to 0.84. The highest consensus score was achieved for "Employers will to a greater extent have to care for their employees to retain them in the workplace", and the lowest consensus was observed for "Many employment relations will be organized in a disadvantageous and unhealthy way for workers due to increasing 'contractualization' of working conditions that gives more power to the employer". All of the "top five" statements exhibited high consensus (i.e. >0.7) and all of the "bottom five" statements exhibited low consensus (i.e. <0.5). For the "top five" the proportion of agreement ranged from 68% to 85%, and for the "bottom five" there was relatively high degree of disagreement, with the proportion of "disagree" or "strongly disagree" responses ranging from 36% to 47%.

Fig. D20 presents the top and bottom five statements from "Block 2: Agreement and impact (consequences)". The consensus scores ranged from 0.4 to 0.81. The highest consensus was reached for "Employees will to larger extent demand individual adaptations of the work" and the lowest for "A larger proportion of employees will work jobs that are not adequately covered by work environment

Figure D17. Political, social, and cultural: Statements ranked by consensus (C) score

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
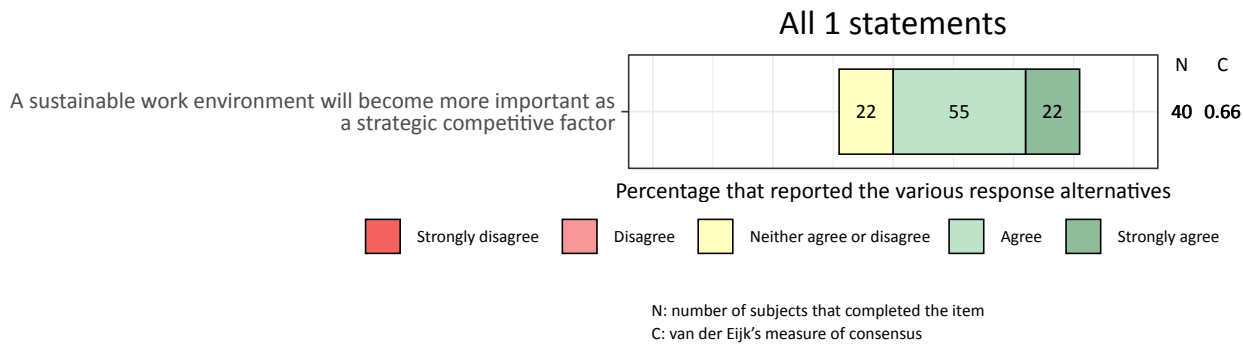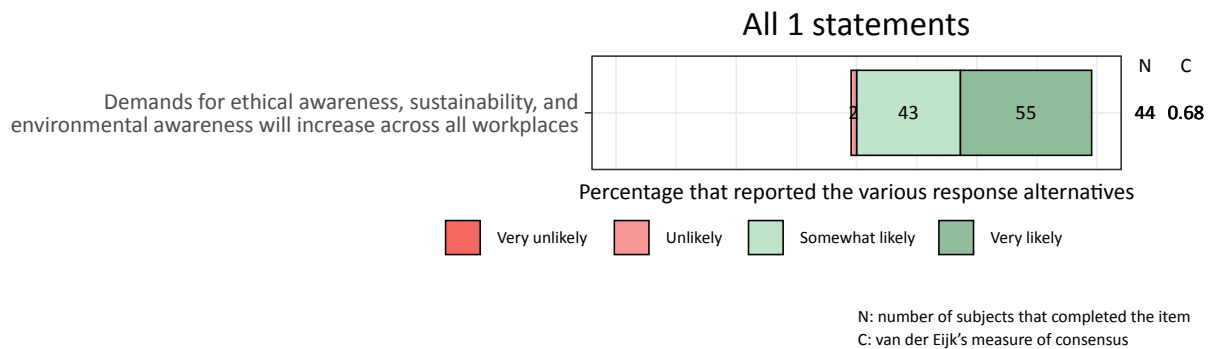

Figure D18. Political, social, and cultural: Statements ranked by consensus (C) score

Block 3: How likely do you think the trends in the following statements are?

No statements for *'Political, social, and cultural'* were identified for *'Block 3'*

Figure D19. **Other statements: The highest and lowest ranked statements by consus (C) score**
Block 1: To what extent do you agree with the following statements?

Top 5 statements

	N	C
Employers will to a greater extent have to care for their employees to retain them in the workplace	43	0.84
There will be more focus on the psychosocial work environment	40	0.82
New industries can provide new markets for the employers	43	0.8
There will be more sedentary work	42	0.8
Efficiency gains could be realized as leisure time for employees - or financial gains for businesses	41	0.77

Bottom 5 statements

	N	C
Active, job-specific HSE management will become more difficult	41	0.37
It will become less clear who is responsible for health, work environment and safety	43	0.35
Ensuring fair rewards will become challenging as capital/ ownership becomes more important in a digital world	41	0.35
Wages and employment conditions will worsen	44	0.33
Many employment relations will be organized in a disadvantageous and unhealthy way for workers due to increasing 'contractualization' of working conditions that gives more power to the employer	44	0.23

Percentage that reported the various response alternatives

Strongly disagree   Disagree   Neither agree or disagree   Agree   Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure D20. Other statements: The highest and lowest ranked statements by consus (C) score

Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?

Top 5 statements

Statement	N	C	Neg	Pos	Eval
Employees will to larger extent demand individual adaptations of the work	40	0.81	68	92	Pos
Demands from patients/customers/clients will increase	42	0.79	90	63	Neg
More workers will become self-employed (e.g. freelancers and digital platform workers)	43	0.78	90	76	Neg/pos
Workers will have a larger influence on their own work environment and work content	42	0.77	55	80	Pos
Employees will to a larger extent have to be proactive and create their own job content	42	0.77	76	82	Neg/pos

Bottom 5 statements

Statement	N	C	Neg	Pos	Eval
Employers must meet employees' demands for constant feedback and coaching	41	0.56	51	85	Pos
There will be less focus on HSE and looking after employees	42	0.56	71	41	NA
Employees' own responsibility for the work environment will become more apparent	41	0.54	68	51	NA
People will become the 'real capital', and hence employees will gain more ownership in organizations	44	0.52	39	70	NA
A larger proportion of employees will work jobs that are not adequately covered by work environment legislation	42	0.4	81	26	Neg

Percentage that reported the various response alternatives

Legend: Strongly disagree — Disagree — Neither agree or disagree — Agree — Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure D21. Other statements: The highest and lowest ranked statements by consus (C) score

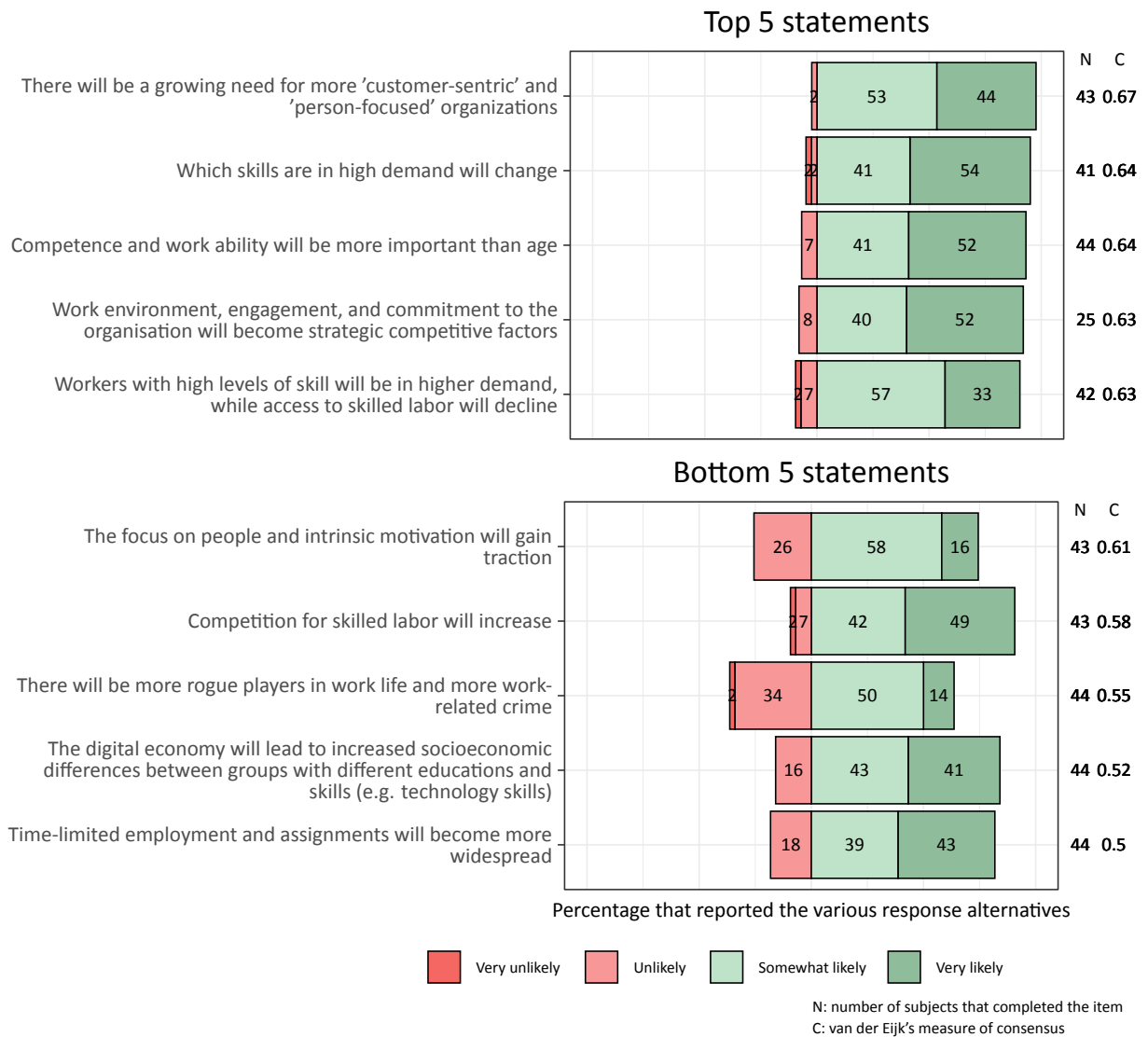*Block 3: How likely do you think the trends in the following statements are?*

Top 5 statements

Statement		N	C
Employees will become more involved in the facilitation of the work	30 / 58 / 12	43	0.64
There will be a growing focus on preventing health problems through a good work environment and positive factors such as satisfaction, motivation and engagement	12 / 53 / 35	43	0.61
Discrepancies between good and bad work environments will increase	14 / 52 / 34	44	0.59
The individual worker's health and well being will receive more attention	30 / 53 / 16	43	0.58
There will be an increase in conflicts and bullying in the workplace and an increased focus on preventing offensive or abusive behaviors	2 / 48 / 41 / 9	44	0.56

Bottom 5 statements

Statement		N	C
Remote management will occur more often	16 / 45 / 39	44	0.53
Remote work will be more widespread	16 / 39 / 45	44	0.53
Employers may to a larger extent be required to cover greater costs pertaining to illness and reduced work ability	39 / 45 / 16	44	0.53
Overtime and night work will be more common	12 / 30 / 44 / 14	43	0.38
The rise of new forms of employment (freelance, digital platform work etc.) will entail less requirements for employers to provide acceptable work environments	14 / 32 / 30 / 25	44	0.2

Percentage that reported the various response alternatives

■ Very unlikely   ■ Unlikely   ■ Somewhat likely   ■ Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

legislation". Agreement was generally high for the "top five" statements, with 60% to 88% reporting "agree" or "strongly agree". For the "bottom five" statements agreement varied more, with 17% to 60% reporting agreement or strong agreement. For one statement in a particular a considerable proportion of disagreement was observed, namely "There will be less focus on HSE and looking after employees", with which 58% of the experts disagreed or strongly disagreed.

For block 3 consensus was generally lower, ranging from 0.2 for "The rise of new forms of employment (freelance, digital platform work etc.) will entail less requirements for employers to provide

acceptable work environments" to 0.64 for "Employees will become more involved in the facilitation of the work" (Fig. D21). The proportion of experts that reported the different developments to be likely or very likely was fairly similar for the "top five" and "bottom five" statements.

APPENDIX E - Overall ”Top 5” and ”Bottom 5”: The highest and lowest consensus statements of each block

Figure E1. The highest and lowest ranked statements by consus (C) score

Block 1: To what extent do you agree with the following statements?

Top 5 statements

	N	C
More cross-border mobility will involve having to deal with workers with different needs (culture, language) — 2, 88, 9	43	0.93
Environmentally friendly solutions with less travel and fewer physical meetings will be more prominent — 7, 79, 14	43	0.86
International competition will increase — 5, 74, 21	43	0.85
A more international labor market makes intercultural exchanges possible — 2 7, 81, 9	43	0.85
Employers will to a greater extent have to care for their employees to retain them in the workplace — 23, 72, 5	43	0.84

Bottom 5 statements

	N	C
Rapid technological development will lead to polarization and greater social inequalities in work-related health — 2, 32, 18, 41, 7	44	0.35
It will become less clear who is responsible for health, work environment and safety — 2, 42, 16, 23, 16	43	0.35
Ensuring fair rewards will become challenging as capital/ ownership becomes more important in a digital world — 7, 29, 29, 29, 5	41	0.35
Wages and employment conditions will worsen — 11, 36, 20, 30, 2	44	0.33
Many employment relations will be organized in a disadvantageous and unhealthy way for workers due to increasing 'contractualization' of working conditions that gives more power to the employer — 9, 27, 23, 30, 11	44	0.23

Percentage that reported the various response alternatives

■ Strongly disagree   ■ Disagree   ■ Neither agree or disagree   ■ Agree   ■ Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

Figure E2. The highest and lowest ranked statements by consus (C) score
Block 2: To what extent do you agree with the following statements, and to what extent do you think there will be positive and/or negative consequences for the work environment?
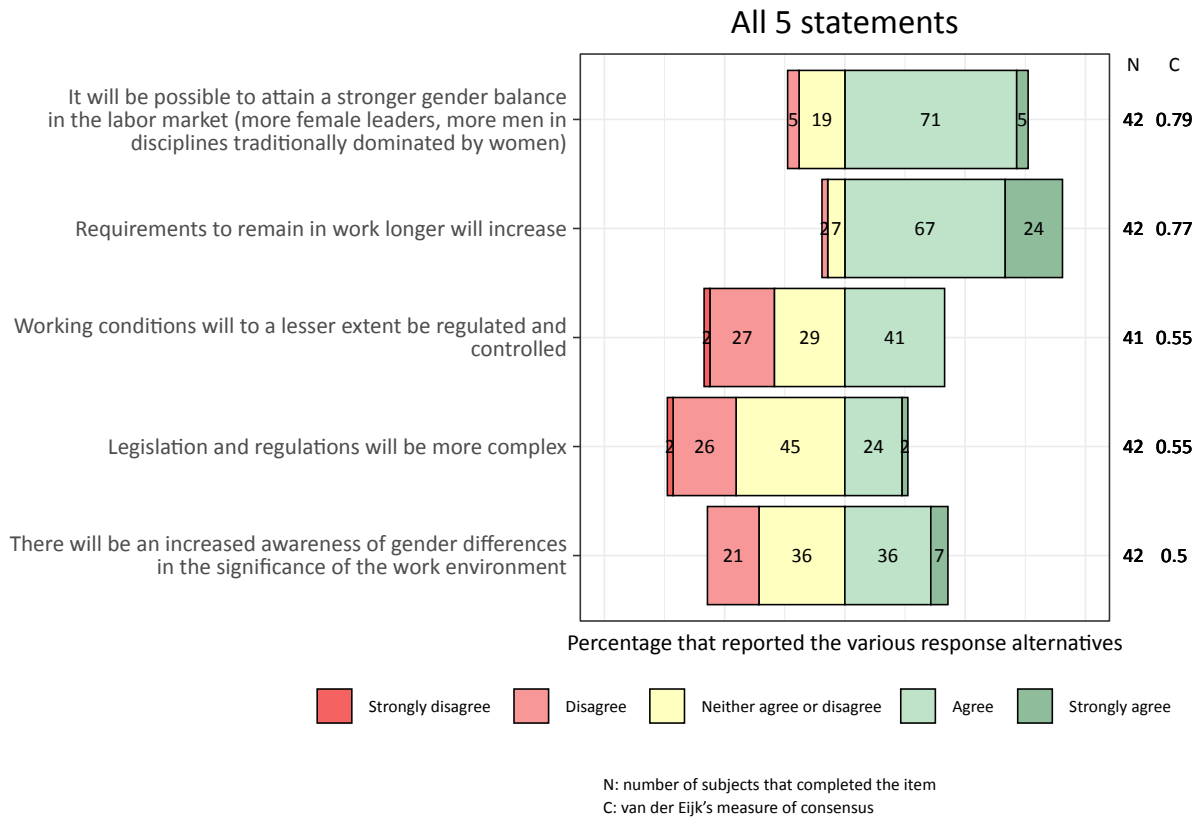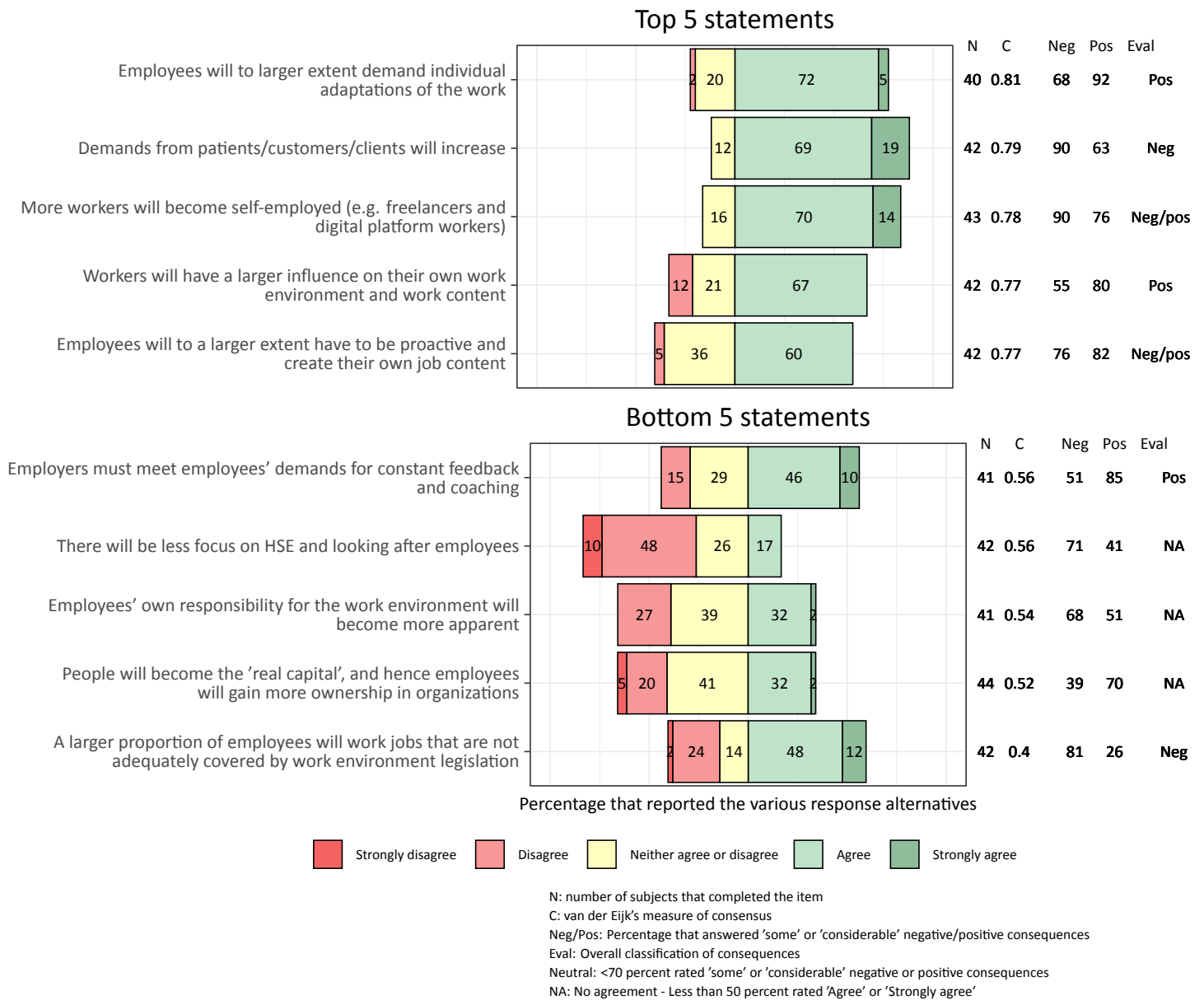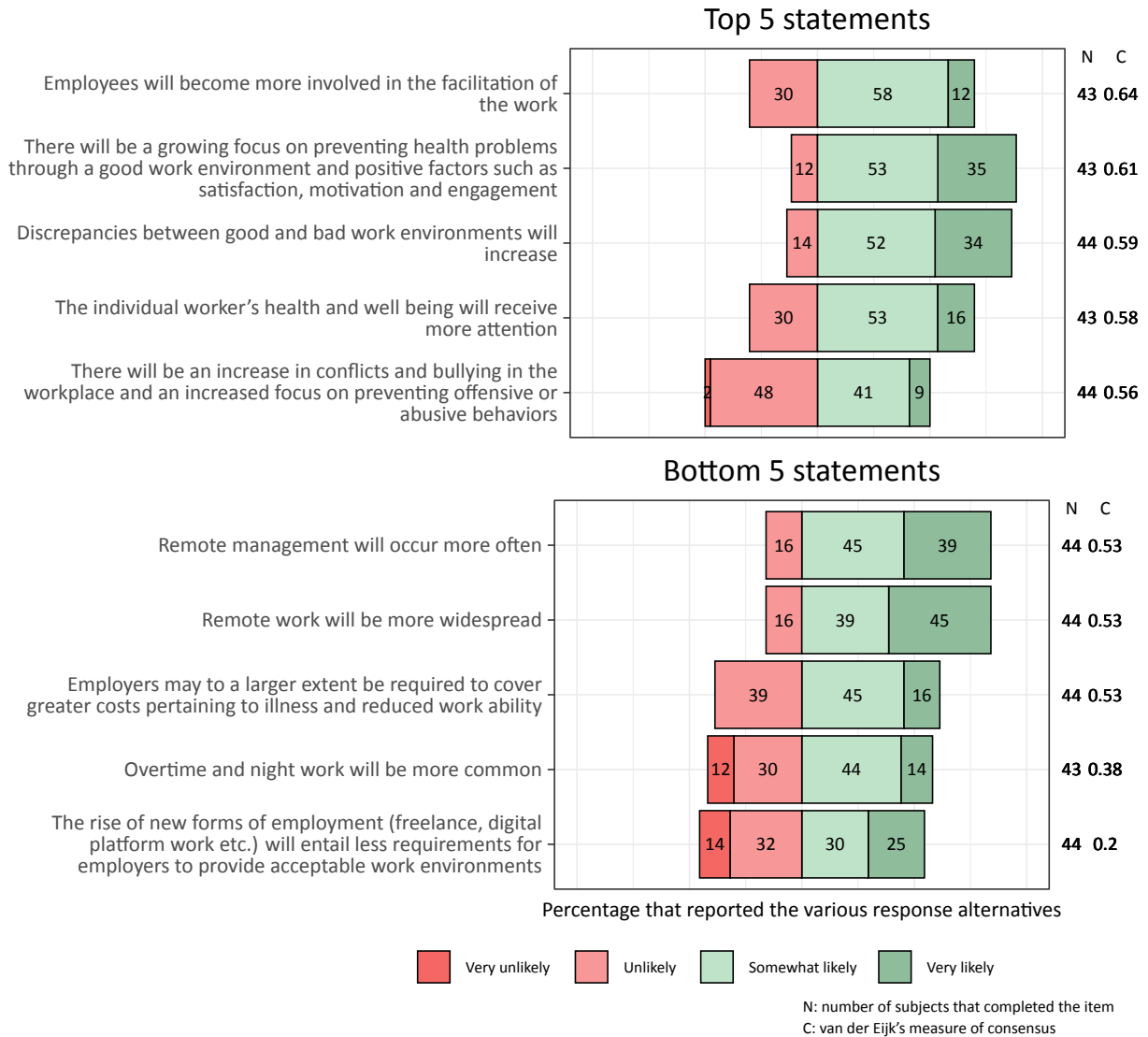

Top 5 statements

Statement	N	C	Neg	Pos	Eval
Workers will experience more competition due to globalization	42	0.86	95	60	Neg
Globalization will increase (e.g. cross-border businesses, offshoring)	42	0.85	80	83	Neg/pos
The workforce will become more diverse, with a more equal distribution of gender, ethnicity, and nationalities	42	0.85	67	88	Pos
Self leadership will be required to a larger extent	41	0.84	95	92	Neg/pos
Digitalization makes work more flexible in time and place	40	0.81	82	88	Neg/pos
Employees will to larger extent demand individual adaptations of the work	40	0.81	68	92	Pos

Bottom 5 statements

Statement	N	C	Neg	Pos	Eval
People will become the 'real capital', and hence employees will gain more ownership in organizations	44	0.52	39	70	NA
There will be an increased awareness of gender differences in the significance of the work environment	42	0.5	28	62	NA
Social skill demands will increase	42	0.48	49	76	Pos
Workers will experience alienation from work as a consequence of automation and robotization	42	0.43	68	35	NA
A larger proportion of employees will work jobs that are not adequately covered by work environment legislation	42	0.4	81	26	Neg

Percentage that reported the various response alternatives
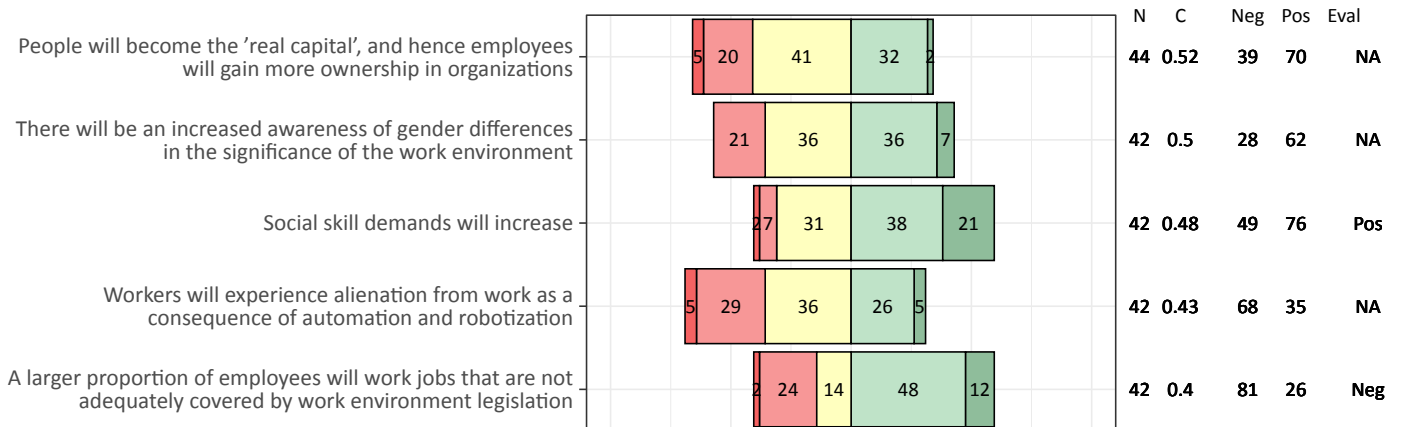
Legend: Strongly disagree · Disagree · Neither agree or disagree · Agree · Strongly agree

N: number of subjects that completed the item
C: van der Eijk's measure of consensus
Neg/Pos: Percentage that answered 'some' or 'considerable' negative/positive consequences
Eval: Overall classification of consequences
Neutral: <70 percent rated 'some' or 'considerable' negative or positive consequences
NA: No agreement - Less than 50 percent rated 'Agree' or 'Strongly agree'

Figure E3. The highest and lowest ranked statements by consus (C) score
Block 3: How likely do you think the trends in the following statements are?

Top 5 statements

Statement	N	C
Workers will to a larger extent have to cooperate with robots	44	0.76
The proportion of older workers will increase	44	0.71
Demands for ethical awareness, sustainability, and environmental awareness will increase across all workplaces	44	0.68
There will be a growing need for more 'customer-sentric' and 'person-focused' organizations	43	0.67
Employees will become more involved in the facilitation of the work	43	0.64

Bottom 5 statements

Statement	N	C
The digital economy will lead to increased socioeconomic differences between groups with different educations and skills (e.g. technology skills)	44	0.52
Time-limited employment and assignments will become more widespread	44	0.5
Workers will to a larger extent be managed and lead by robots	44	0.45
Overtime and night work will be more common	43	0.38
The rise of new forms of employment (freelance, digital platform work etc.) will entail less requirements for employers to provide acceptable work environments	44	0.2

Percentage that reported the various response alternatives

Very unlikely   Unlikely   Somewhat likely   Very likely

N: number of subjects that completed the item
C: van der Eijk's measure of consensus

APPENDIX F - Round 1 Questionnaire

The following questionnaire was distributed in Norwegian and Danish language and translated for this report only:

> *Respond to the following questions, keeping in mind developments and changes that may influence occupational health, work ability and/or well-being at work. Provide a short explanation for each response.*

> *List at least three, but preferably more, of the most important developments in the following areas…*

1. developments in the work situation of workers the next ten years:
2. developments of the work environment of workers the next ten years:
3. new challenges for workers in ten years from now:
4. new opportunities for workers in ten years from now:
5. new challenges for employers in ten years from now:
6. new opportunities for employers in ten years from now:

> *If any, list the most important measures…*

1. employers or work places must take to meet the mentioned challenges:
2. authorities must take to meet the mentioned challenges:
3. the social partners must take to meet the mentioned challenges: