Consequences of the expansion of work from home and digitalisation on teleworkers' work intensification, mental health and well-being

Laetitia Hauret (LISER), Ludivine Martin (LISER, IZA, CREM UMR6211)

Grant agreement no. 101061388
Deliverable: D3.5
Due date: 06.2024

Funded by the European Union

Document control sheet

Project Number:	**101061388**
Project Acronym:	WeLaR
Work-Package:	[3]
Last Version:	[21/06/2024]
Issue Date:	[30/06/2024]

Classification

Draft	
Final	X
Confidential	
Restricted	
Public	X

Legal notice

This project, WeLaR, has received funding under the Horizon Europe programme. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or the European Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

Table of contents

Acknowledgments

The authors would like to thank Zuzanna Kowalik (IBS) and Mikkel Barslund (HIVA, KU Leuven) for their helpful comments on previous versions of this report.

Abstract

This report examines the work intensification (which can manifest as long working hours and work intensity), mental health and well-being of employees, focusing on teleworkers, by analysing mainly data from the European Working Conditions Telephone Survey (EWCTS, 2021). It highlights that, in 2021, teleworkers experienced more work intensification, compared to non-teleworkers and had lower well-being scores, although the rates of emotional exhaustion were similar.

Additionally, the report delves into the impact of digitalisation on teleworkers using econometric analyses of the 2021 EWCTS data, supplemented by external digitalisation data (e.g. EU-KLEMS, European Investment Bank Group Survey on Investment and Investment Finance). The findings indicate that digitalisation is linked to work intensification, well-being, and mental health among teleworkers. However, the nature of this relationship varies based on the specific wave of digitalisation encountered.

The recent digitalisation wave (Advanced Digital Technologies, Artificial Intelligence) has helped limit work intensification (including long hours and high work intensity), in contrast to the third digitalisation wave, which was marked by the advent of Information and Communication Technologies (ICT) and computer software and database (DB), that only affected long working hours. While the 3rd ICT&DB wave did not impact mental health, the automation and new digitalisation waves are associated with decreased emotional exhaustion. Both the 3rd ICT&DB and the new wave adversely affect teleworkers' well-being, with differences observed across gender and age groups.

Keywords: telework, digitalisation, work intensification, mental health, well-being

1. Introduction

Prior to the onset of the COVID-19 crisis, teleworking was underutilised. In 2019, 5.4% of the working population residing in European Union countries engaged in regular teleworking, while 9% did so occasionally (statistics from Eurostat[1]). Employers were reluctant to offer their employees this mode of work organisation, and employees were similarly reluctant to utilise it. For instance, employers were concerned about losing control over their employees' working hours and the potential implications of teleworking in terms of cyber security and data protection. Similarly, employees may have been reluctant to embrace teleworking due to concerns about being stigmatised or that it would hinder their career advancement. The widespread adoption of teleworking as a consequence of the COVID-19 crisis has prompted a re-evaluation of the concept by both employers and employees (Aksoy et al., 2022). In 2022, 10.2% of the working population resident in the countries of the European Union are engaged in regular teleworking, with a further 12.2% engaged in occasional teleworking (Eurostat[2]).

Although telework is purported to be beneficial to employees' well-being and working life-balance, it also entails risks, including the potential for increased work intensification (which can manifest as long working hours and work intensity), particularly in the context of management by objective (Rebelo et al., 2024). There is no consensus in the literature on the link between telework and the number of hours worked (i.e., the extensive aspect of work intensification) (Green & McIntosh, 2001). Some authors indeed, conclude that, on average, employees work the same number of hours while teleworking or on site, while other find a decrease or an increase when at home (Giménez-Nadal & Velilla, 2020; Kifor et al., 2021; Pabilonia & Vernon, 2022). The literature appears to provide a clearer understanding of the link between telework and work intensity (i.e. the intensive aspect of work intensification). Existing evidence indicates that individuals who telework tend to work more intensively due to fewer interruptions or an increase in their teleworking workload (Dimitrova, 2003; Kunze et al., 2020; Tietze & Musson, 2002), employees motivation to thank their employer for the opportunity to work remotely (Broadfoot, 2001; Kelliher & Anderson, 2010) or the normative expectation to be an ideal employee (Broadfoot, 2001; Taskin & Devos, 2005).

Regarding the impact of telework on mental health or well-being, literature has produced, once again, mixed results. Some studies underline that several moderators help to explain this heterogeneity. Ferrara et al. (2022), Lunde et al. (2022), Oakman et al. (2020) meta-analyses highlight that both the work and private spheres influence teleworker's mental health and well-being. For instance, in the work sphere, fewer meetings, better participation in decision-making, and greater autonomy

[1] https://ec.europa.eu/eurostat/databrowser/view/LFSA_EHOMP__custom_6821655/default/table?lang=en.
[2] Ibid.

(Maruyama et al., 2009; Pelly et al., 2022; Rubin et al., 2020; Sardeshmukh et al., 2012; Vander Elst et al., 2017) improve teleworker's mental health and well-being. In the private sphere, a reduced commuting time and a good work-life balance is necessary in promoting positive mental health and well-being (Barrero et al., 2021; Bertoni et al., 2021; Deole et al., 2023). The national contexts, as for example the pandemic control rules, appear also to influence teleworkers' mental health (Bertoni et al., 2021).

To the best of our knowledge, few studies have examined the impact of digitalisation on the relationship between telework and well-being. Some studies have nevertheless demonstrated that digitalisation has an impact on work intensification (González & Mark, 2004; Green, 2004a, 2004b; Mano & Mesch, 2010; Su & Mark, 2008; Wajcman & Rose, 2011), mental health (Abeliansky & Beulmann, 2021; Brown et al., 2014; Lordan & Stringer, 2022) and employee well-being (Gihleb et al., 2020; Gorny & Woodard, 2020; Martin, Hauret, et al., 2022). Nevertheless, the study by Martin et al. (2022) indicates that the use of digital tools during work hours is essential for teleworkers to feel well.

This paper aims to fill the gaps identified in the literature by studying the link between digitalisation and work intensification, mental health and well-being of teleworkers. The contribution of this report is threefold. First, in the specific case of teleworking, we study the impact of digitalisation on work intensification, mental health and well-being. Second, while most studies focus only on the relationship between digitalisation and a specific facet of employee outcomes, our study distinguishes between digitalisation and different facets of employees' outcomes. Third, as teleworkers are not confronted with a single type of digital tool, but rather a variety of them, we calculate the teleworker's digital work environment using a clustering technique.

The present report first draws attention to differences between teleworkers and non-teleworkers. Focusing on the rich data from 2021, we found that teleworkers face more work intensification than other employees. Moreover, there is a lower proportion of teleworkers who have a high well-being score than other employees. Nevertheless, there is no difference in the proportion of those who are emotionally exhausted. Second, the report, in the specific context of teleworking, examines the relationship between digitalisation and work intensification, mental health and well-being. To achieve this, the report employs econometric analyses of the European Working Conditions Telephone Survey (EWCTS) data from 2021, which have been matched with various external data on digitalisation reflecting the different waves of digitalisation faced by teleworkers. The main findings indicate that digitalisation is associated with teleworkers' work intensification, mental health, and well-being. However, the nature of this link depends on the digital work environment in which the teleworker works, in particular, on the digital wave with which he/she is most confronted. Indeed, the new (fourth) wave of digitalisation enable the limitation of work intensification (working long hours and work intensity), in contrast to past (third, characterised by information technologies,

communication technologies and software and database) wave which only limited working long hours. While past 3rd wave of digitalisation are not linked to the mental health of teleworkers, the automation wave and the new wave are negatively linked to the feeling of emotional exhaustion. Both past and new waves of digitalisation are detrimental to the well-being of teleworkers. However, there are differences according to the gender and age of the teleworker.

This report is structured as follows. We present next the data and the methods employed. Then, we present descriptive evidence on work intensification, mental health and well-being. After, we study the link between teleworkers' digital work environment and these outcomes. Finally, we summarize the results and conclude.

2. Data and methods

2.1. Data

2.1.1. Work intensification, mental health and well-being

The data used in this study to report on work intensification, mental health and well-being come mainly from the European Working Conditions Telephone Survey (EWCTS) 2021 conducted by Eurofound. We also use other Eurofound surveys in the descriptive evidence part for comparative purposes: European Working Conditions Survey (EWCS) 2015 and two waves of the COVID surveys (round 2-summer 2020 and round 5-spring 2022). While the EWCS and EWCTS seek to provide a comprehensive overview of work and employment quality in Europe, with a focus on themes such as working time, work organisation and well-being at work, the Eurofound COVID survey measures the impact of the COVID-19 pandemic on people's lives and work.

Given the availability of external data on digitalisation, we are obliged to limit our analyses to employees residing in certain countries and working in certain sectors. Thus, our study covers employees in sectors C, F-N, R-S, residing in the following 17 EU countries: Austria, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Italy, Greece, Latvia, Lithuania, Netherlands, Slovenia, Slovakia, Sweden and Spain.

To assess *work intensification*, we utilise two indicators encompassing the extensive and intensive aspects highlighted in the literature. To account for the extensive component, we employ a dummy variable, which is equal to one when the employee works at least 48 hours a week, and zero otherwise. To account for the intensive aspect of work intensification, we use a binary variable which is equal to one if the employee is confronted with at least one of the following working conditions: a very fast pace of work, tight deadlines, an emotionally disturbing job, and zero otherwise.

To assess *mental health*, due to the lack of accurate data, we use a strain measure based on emotional exhaustion, which is a dimension of burnout, and is manifested by feelings of being emotionally overwhelmed, irritability and fatigue (Brown et al., 2014; Maslach & Jackson, 1981). We create a dummy variable from the question asking employees how often they feel emotionally exhausted by their work. The variable 'emotionally exhausted' by work' is equal to one if the respondents answer 'sometimes', 'always' or 'often', and equal to zero if they answer 'rarely' or 'never'.

Our measure of *well-being* is based on the five items adopted from Topp et al. (2015) and known as the WHO-5 Well-Being Index. The items tap the frequency with which employees felt, for instance, active or vigorous. An employee is considered to have a high level of well-being when the value taken by this indicator is above the median of its distribution and zero otherwise.

We need to note that the measures of mental health and well-being are theoretically related (Bech et al., 2003) and statistically moderately correlated in the overlapping sample of 3,653 employees (p-value=0.30***). Only 25% of the overlapping sample are emotionally exhausted and have a low score of well-being, and 41% are not emotionally exhausted and have a high score of well-being.

2.1.2. Digitalisation measures

In order to ascertain the extent of digitalisation faced by teleworkers, a number of indicators are employed, which are entered by country (or group of countries) and calculated at an occupational and/or sectoral level. These indicators, which permit the differentiation between various waves of digital revolution, are presented in Table 1 below.

Table 1. Definition of digital indicators

Indicator	Definition	Sources	Years	Information level
CT density exposure	Net capital stock of telecommunications equipment / employment	EU-KLEMS	2020	Country & sector
IT density exposure	Net capital stock of computer hardware / employment	EU-KLEMS	2020	Country & sector
DB density exposure	Net capital stock of computer software and database / employment	EU-KLEMS	2020	Country & sector
Automation risk exposure	Standardized Routine Task Intensity	Lewandowski et al. (2022)	2017	Country & Occupation
ADT investments	Advanced Digital Technologies – firms level	EIB	2021	Group of countries & sector
ADT exposure	Advanced Digital Technologies – occupation/sector level	Prytkova et al. (2024)	2012-2021	Sector & Occupation
AI risk exposure	Artificial intelligence risk	Tolan et al. (2021)	2020	Occupation

Computer hardware (IT), telecommunications equipment (CT) and computer software and database (DB) are indicative of the past (third) wave of the digital revolution, which began in the 2000s and continue to this day. During this wave, companies utilised technologies supported by computers and software algorithms. In order to account for the impact of these digital tools, we are utilising the 2020 wave of the EU-KLEMS Growth and Productivity Accounts. These data sets contain indicators on the real net capital stock in (2015 prices) of IT, CT and DB. To calculate the density of each indicators, we use information on employment by industry from the National Account Database of EU-KLEMS. We matched the obtained indicators with the data from EWCTS by country and by NACE (NACE Rev. 2 1-digit for all sector studied except for the manufacturing sector where it is possible to use the 2-digit level).

The third wave of the digital revolution is also marked by robotisation/automation in certain sectors and occupations, which led to a automation of tasks and a routine-replacing technological change (Acemoglu & Autor, 2011; Michaels et al., 2014). To quantify the routine task intensity we used the task content of work, based on the occupational measure provided by Lewandowski et al. (2022). Their task content measure is based on the O*NET and OECD PIAAC database and elaborated on Acemoglu & Autor (2011). Five categories are distinguished:

- Non-routine cognitive analytical tasks covering, for instance, analysing data/information; thinking creatively; interpreting information for others;
- Non-routine interpersonal tasks covering establishing and maintaining personal relationships; guiding, directing and motivating subordinates; coaching/developing others;
- Routine cognitive tasks showing the importance of repeating the same cognitive tasks; the importance of being exact or accurate;
- Routine manual tasks underlining that the pace is determined by the speed of equipment; controlling machines and processes; spending time making repetitive motions
- Non-routine manual tasks covering, for instance, operating vehicles, mechanised devices or equipment; spending time using hands to handle, control or feel objects, tools or controls; manual dexterity; spatial orientation

We measure the relative routine task intensity (RTI) using the following formula proposed by Lewandowski et al. (2022):

$$rti\_all = \ln\left(\frac{r_{cog} + r_{manual}}{2}\right) - \ln\left(\frac{nr_{analytical} + nr_{personal} + nr_{manual}}{3}\right)$$

where $r_{cog}, nr_{analytical}, nr_{personal}$ and r_{manual}, nr_{manual} are the levels of routine cognitive, non-routine cognitive analytical and non-routine cognitive interpersonal tasks, routine manual, non-routine manual tasks, respectively.

The measure we use in the analysis is rti_all_std a standardised measure by applying a z-score z equal to (x-μ)/σ, where x is the raw value, μ is the population mean and σ is the population standard

deviation. The standardised RTI (rti_all_std) indicates the number of standard deviations from the population mean score. By construction, the mean of the standardised RTI in the population studied is 0 and its standard deviation is 1. To analyse the links between RTI and teleworkers' outcomes, we matched this data to the individual EWCTS data at the occupation level ISCO-08 2-digit and countries.

The new (fourth) wave of the digital revolution is characterised by the spread of IT-integrated technologies which facilitate direct and automated communication between different parts of the value chain. Examples of these technologies, which are described as general-purpose technologies, include the Internet of Things, blockchain, or AI-supported data science technologies. To report on these Advanced Digital Technologies (ADT), we use two indicators: ADT investments from firms and ADT exposure at the sector and occupation levels.

The information on ADT investment comes from the European Investment Bank Group Survey on Investment and Investment Finance (EIBIS). Firms are asked to indicate their familiarity with different digital technologies that vary according to their business sector. A firm is considered to be investing in ADT if it has implemented at least one of them. We matched the EIBIS data to the EWCTS data at country groups (Nordic countries, Western countries, Southern countries and Eastern countries), business sectors (Industry; Construction, transport, storage; trade, accommodation and food service activities; and services) and firm sizes (less than 50; 50-249; at least 250 employees).

The data on ADT exposure is derived from the database 'TechXposure' developed by Prytkova et al. (2024), which categorises ADT into nine families based on the correlation between the technologies' co-occurrence in occupations. For each of the nine ADT families studied, we then assigned the average value per occupation for a given NACE. These average values are dichotomized using the median value and sum afterwards. The obtained data was then matched to the EWCTS at the occupational level (ISCO 2-digit) and at the sectoral level (NACE 2-digit).

Finally, to report on artificial intelligence we used data from Tolan et al. (2021). These AI-related metrics reflect the intensity, contemporary to the paper, of research and development in different AI techniques. We matched this data to EWCTS at the occupation level ISCO 2-digit.

To facilitate the interpretations of results obtained later, each digital indicator is dichotomised, with a value of one assigned if the indicator value is at the upper end of the distribution (>75%).

2.1.3. Control variables

In all regressions, we utilise control variables pertaining to socio-demographic characteristics (gender, age, level of education, presence of children in the household), job characteristics

(occupation (low, medium, high skilled), seniority in the company and its square value, type of employment contract, full-time versus part-time work) and firm characteristics (private sector or not, business sector, size) derived from the EWCTS. Additionally, we consider macroeconomic indicators, such as the unemployment rate and GDP growth rate, as well as data on employment protection legislation (EPL) provided by the OECD: share of employees covered by a collective agreement (2018); share of employees who are trade union members (2018); strictness of regulation on the use of fixed-term and temporary work agency contracts (2019); strictness of regulation of collective dismissal (2019); strictness of regulation of individual dismissal of employees on regular/indefinite contracts (2019). Descriptive statistics are provided in Appendix B Table 14.

2.2. Methods

This analysis employs a variety of methods. Primarily, a descriptive analysis is conducted to provide descriptive evidence on work intensification, mental health, and employee well-being over recent years. To this end, data from a number of surveys conducted by Eurofound: EWCS 2015; waves 2 (summer 2020) and 5 (spring 2022) of the COVID surveys; EWTCS 2021 is utilised. Furthermore, the data allows us to examine whether teleworkers differ from other employees in terms of three outcomes that are work intensification, mental health and well-being. Employees are considered as teleworkers is if they telework often or always (telework takes the value 1, and 0 otherwise).

We then examine the relationship between digitalisation and our key variables. We begin by estimating the parameters of Probit regressions of the probability of i) experiencing work intensification (working long hours and work intensity), ii) suffering from mental health issues or iii) having a high level of well-being. We estimate these models using EWCTS 2021 data, the most recent data source for examining work intensification, mental health and well-being in the same year. Given that the study population is comprised exclusively of teleworkers, the potential for sample self-selection bias to influence the interpretation of the results must be acknowledged. Consequently, we employ a Heckprobit model, utilising the indices of job teleworkability and job social interaction provided by EWCTS as instrumental variables in the selection equation.

$$Y_{ijc}^{m} = \alpha_0 + \beta' CT + \gamma' IT + \delta' DB + \theta' ADTinv + \vartheta' ADTexp + \pi' AI + \rho' RTI + \mu' X_{ijc} + \sigma' J_{ijc} + \tau' F_{jc} + \varphi' C_c + \varepsilon_{ijc} \text{ if Z=1}$$

$$Where\ Z_{ijc} = a' X_{ijc} + b' J_{ijc} + c' F_{jc} + d' C_c + e' T_{ijc} + f' S_{ijc} + \omega_{ijc}$$

where Y_{ijc}^{m} refers to dependent variables of a teleworker i in industry j and country c in 2021. α0 is the constant, CT is for telecommunications equipment, IT is for computer hardware, DB is for computer software and database, $ADTinv$ is for ADT investments, $ADTexp$ is for ADT exposure, AI is for AI risk exposure, RTI is for automation risk exposure, X_{ijc} are control variables about employees' characteristics, J_{ijc} about job characteristics, F_{jc} about firm characteristics, C_c about country characteristics and ε_{ijc} the remaining error term. In the selection equation of being a teleworker Z_{ijc},

T_{ijc} is the index of job teleworkability, S_{ijc} the index of job social interaction and $\omega_{ijc}$the remaining error term. Robust standard errors are clustered to correct for the fact that multiple employees work in same country group and the same occupation (ISCO 1-digit) and therefore the observations are not entirely independent.

The analyses conducted indicate a correlation between the selection equation and the outcome variables under investigation for the two aspects of work intensification (working long hours and work intensity). Consequently, we utilise a HeckProbit model for these two outcome variables. Conversely, the selection equation and the mental health and well-being equation are independent, thus necessitating the use of a Probit model for regression of these variables, with the same Y_{ijc}^{m} equation presented above.

We apply these models to all teleworkers and then run regressions by gender and age to analyse deeply the results and identify heterogeneity according to the socio-demographic characteristics of the teleworkers.

Finally, as teleworkers are not confronted with a single type of digital tool, but rather a variety of them, it is crucial to consider the teleworker's digital work environment and control for the complementarity and the substitutability between digital tools inherent in the simultaneous adoption of diverse digital technologies within workplaces. To achieve this, we employ a cluster analysis based on our seven dummy variables on digitalisation. The variables representing employees' digital work environment profiles are grouped using the K-Means algorithm, an unsupervised clustering method. The algorithm partitions a dataset into K clusters, with each observation assigned to the cluster with the nearest centre. The primary objective of the K-Means algorithm is to minimise the sum of squared distances between points and the centres of their respective clusters. While it does not reduce the data's dimensionality, it does organise the data into distinct clusters. The optimal number of clusters is determined using a dendrogram and the 'elbow' method (see Appendix A for details). The dummies relating to the clusters obtained have been introduced into the regressions in place of the dummies relating to the digital variables.

As previously we apply Heckprobit models for the two variables measuring work intensification and probit models for mental health and well-being replacing the digital indicators by the digital profile of teleworkers' work environment:

$$\mathrm{Y_{ijc}^{m}} = \alpha_0 + \beta' \mathrm{DigitalProfile} + \mu' \mathrm{X_{ijc}} + \sigma' \mathrm{J_{ijc}} + \tau' \mathrm{F_{jc}} + \varphi' \mathrm{C_c} + \varepsilon_{\mathrm{ijc}} \text{ if } \mathrm{Z}=1$$

$$\text{Where } \mathrm{Z_{ijc}} = \mathrm{a'X_{ijc}} + \mathrm{b'J_{ijc}} + \mathrm{c'F_{jc}} + \mathrm{d'C_c} + \mathrm{e'T_{ijc}} + \mathrm{f'S_{ijc}} + \omega_{\mathrm{ijc}}$$

Like most existing data used to study teleworkers outcomes, the data are cross-sectional, thus our analyses test the strength of conditional correlations and not causal relationships.

3. Descriptive evidence on work intensification, mental health and well-being

In 2021, the proportion of employees engaged in the extensive aspect of work intensification, i.e. working long hours (defined as at least 48 hours per week) was 11.3%.

With regard to the data employed[3], it appears that, in the recent period, specifically between 2015 and spring 2022, the proportion of employees engaged in long hours of work has increased (Table 2). The greatest increase is observed in Eastern European countries, with an average increase of 6 percentage points. In contrast, the proportion has fallen on average by 1 percentage point in Southern European countries. The highest proportion of employees working long hours was observed in the summer of 2020. At that time, the average proportion of employees working long hours was 15.8%.

Table 2. Share of employees working long hours

	2015	Summer 2020	2021	Spring 2022
Western	6.4%	14.8%	11.3%	10.0%
Northern	7.1%	17.0%	8.2%	8.9%
Southern	12.2%	15.6%	14.5%	10.9%
Eastern	13.5%	22.2%	16.9%	19.4%

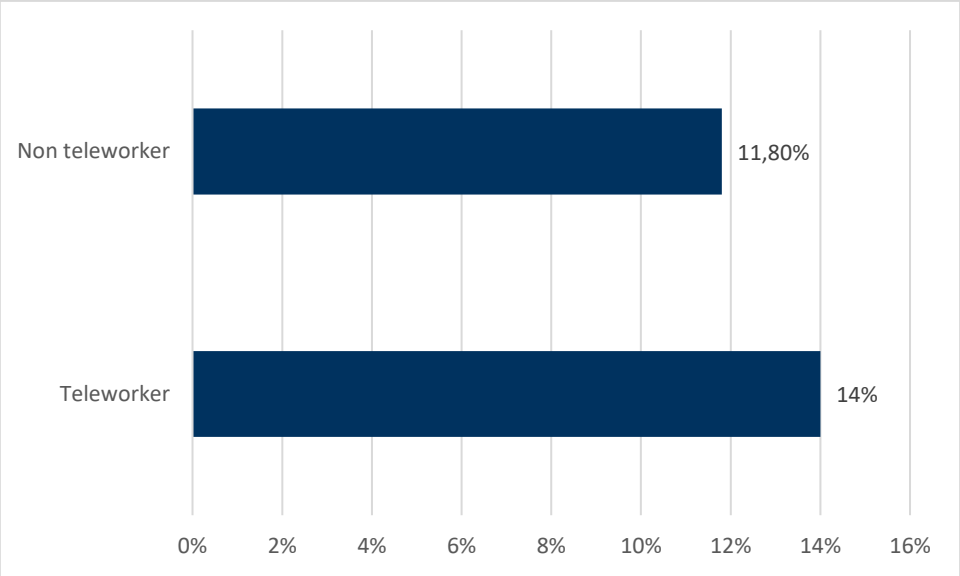
Source: EWC(T)S, Covid surveys, Eurofound, Weighted data.
Note: An employee is considered to be working long hours if he/she works at least 48 hours per week. In 2015 and 2021 (EWC(T)S), the number of hours worked is determined by the question "How many hours do you usually work per week in your main paid job?" In summer 2020 and spring 2022 (Covid surveys), the number of hours worked per week is determined by the question, "Last month, how many hours per week did you work on average?"

The employees who often or always work from home are more likely to engage in extended work hours than their counterparts who do not, regardless of the temporal scope under consideration. In 2021, 14% of employees who often or always telework were found to work long hours, in comparison to 11.8% of other employees (Figure 1).

In 2021, a greater proportion of men than women among teleworkers were engaged in long-hours work. This was the case for 17.4% of men and 9.7% of women, respectively. Teleworkers aged 45 and over also differ from their younger counterparts in that a higher proportion of them work long hours (17.4% compared to 11.1%).[4]

[3] In order to study changes in work intensification, mental health and well-being, we had to use several sources of data. However, the comparability of these sources is questionable, given that they are based on different methodologies. Therefore, results relative to evolution presented in this section should be interpreted with caution.
[4] See Appendix B, Table 13 for detailed figures.

Figure 1. Share of employees working long hours by telework status (2021)



Source: EWCTS, Eurofound; weighted data.
Note: A worker is considered to be a teleworker if he/she engages in telework at least on a regular basis. Working long hours means working at least 48 hours a week.

In 2021, 66.7% of employees studied reported working at a very fast pace, with tight deadlines or in an emotionally disturbing job (work intensity). With regard to the data employed[5], it appears that this proportion has increased, over the recent period. Indeed, in 2015, 63% of employees studied were faced with these working conditions (Table 3). Nevertheless, it is important to note that there are differences between the four groups of countries. While work intensity has risen in Western and Eastern European countries, it has remained stable in Northern European countries and fallen in Southern European countries.

Table 3. Share of employees subject to a very fast pace of work, tight deadlines or an emotionally disturbing job (work intensity)

	2015	2021
Western	61.1%	67.9%
Northern	69.4%	68.4%
Southern	68.1%	64.6%
Eastern	56.9%	63.0%

Source: EWC(T)S, Covid surveys, Eurofound, Weighted data.
Note: The work intensity indicator is composed of three components: being subject to a very fast pace of work, tight deadlines or an emotionally disturbing job. In 2015, we consider that an employee is subject to a very fast

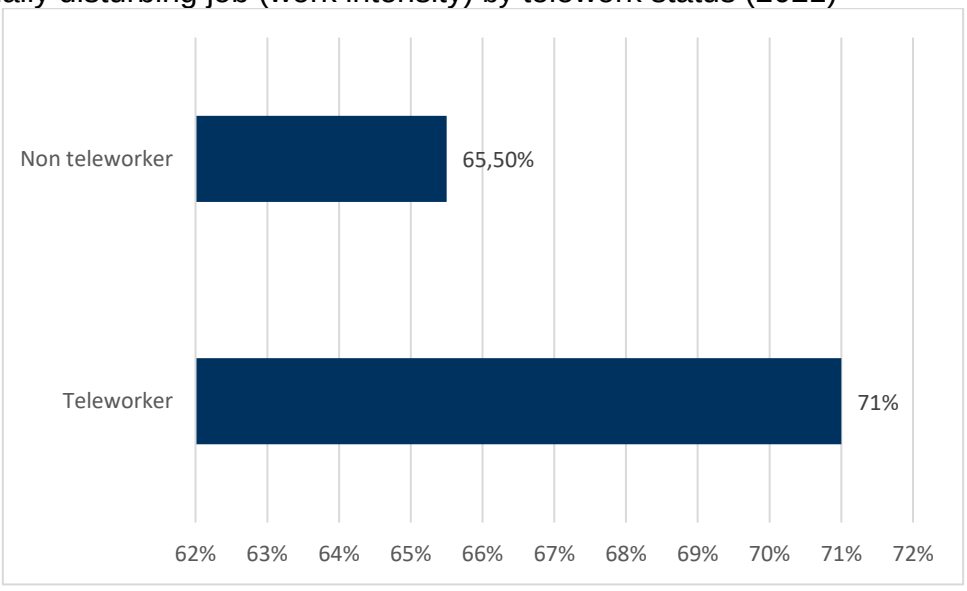
[5] The available data permit the study of changes in the intensive aspect of work intensity between 2015 and 2021 only.

pace of work when he/she answers "all of the time", "almost all of the time", "around ¾ of the time", or "around half of the time" at this question: "How often, does your job involve working at very high speed?". In 2021, we consider that an employee is subject to a very fast pace of work when he/she answers “always” or “often” at this question: “How often, does your job involve working at very high speed”. In 2015, we consider than an employee is subject to tight deadlines when he/she answers "all of the time", "almost all of the time", "around ¾ of the time", or "around half of the time" at this question: "How often, does your job involve working to tight deadlines. In 2021, we consider than an employee is subject to tight deadlines when he/she answers “always” or “often” at this question: “How often, does your job involve working to tight deadlines”. In 2015, we consider than an employee is emotionally disturbing by his job when he/she answers "all of the time", "almost all of the time", "around ¾ of the time", or "around half of the time" at this question: “How often, does your main paid job involve being in situations that are emotionally disturbing for you”. In 2021, we consider than an employee is emotionally disturbing by his job when he/she answers “always” or “often” at this question: “How often does your main paid job involve being in situations that are emotionally disturbing for you?”

In 2015, a comparable proportion of teleworkers and non-teleworkers were affected by the intensive aspect of work intensification. However, in 2021, 71% of teleworkers are affected by this aspect, in comparison to 65.5% of other employees (Figure 2).

Among teleworkers, in 2021, women were more likely than men to be faced with a fast-paced work environment, tight deadlines, or emotionally disturbing job. This was the case for 73.4% of women versus 68.6% of men. Conversely, there is no discernible difference between those aged 45 and above and their younger counterparts.

Figure 2. Share of employees subject to a very fast pace of work, tight deadlines or an emotionally disturbing job (work intensity) by telework status (2021)



Source: EWCTS, Eurofound; weighted data.
Note: A worker is considered to be a teleworker if he/she engages in telework at least on a regular basis. We consider that an employee is subject to a very fast pace of work when he/she answers “always” or “often” at this question: “How often, does your job involve working at very high speed”. We consider than an employee is subject to tight deadlines when he/she answers “always” or “often” at this question: “How often, does your job involve working to tight deadlines”. We consider than an employee is emotionally disturbing by his job when he/she answers “always” or “often” at this question: “How often does your main paid job involve being in situations that are emotionally disturbing for you?”

In 2021, 41% of employees studied feel emotionally exhausted by their work; in summer 2020, this proportion was 60% (Table 4).[6]

Table 4. Share of employees emotionally exhausted by their work

	Summer 2020	2021
Western	56.7%	40.6%
Northern	61.6%	35.3%
Southern	64.9%	42.0%
Eastern	62.8%	47.8%

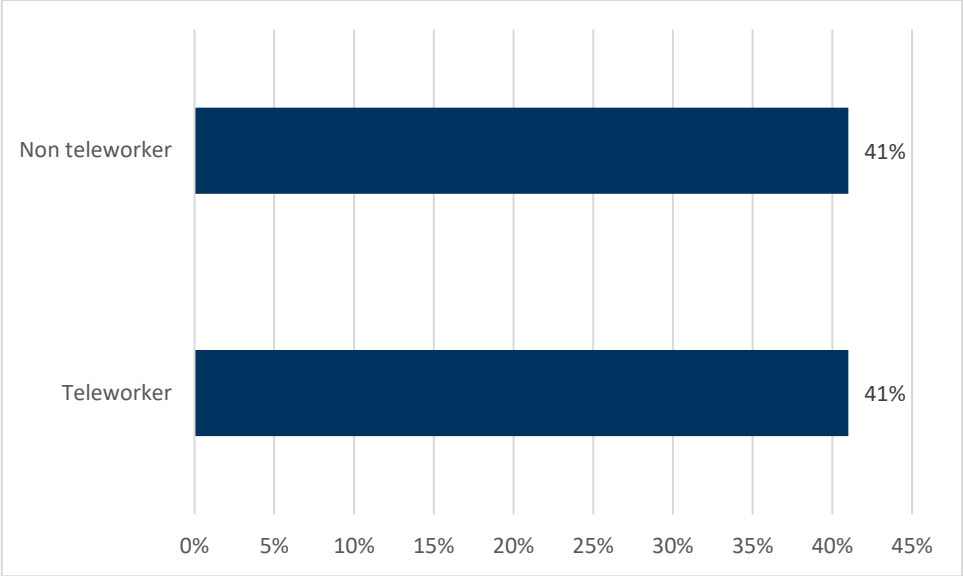
Source: EWC(T)S, Covid surveys, Eurofound; Weighted data
Note: In summer 2020 (Covid surveys), we consider than an employee is emotionally exhausted by his/her work when he/she answers "always", "most of the time" or "sometimes" at this question: "For each of the following statements, please select the response which best describes your current work situation - You feel emotionally drained by work". In 2021 (EWCTS), we consider than an employee is emotionally exhausted by his/her work when he/she answers "always" , "often", or "sometimes" at this question: "The following statements are about how you feel about your job. For each statement, please tell me how often you feel this way - I feel emotionally exhausted by my work".

In 2021, the same proportion of employees who often or always telework are affected by the feeling of being emotionally exhausted by their work as other employees (Figure 3).

There are notable gender and age differences among teleworkers. In 2021, 44.3% of women report feeling emotionally exhausted by their work, compared with 39.3% of men. Furthermore, teleworkers aged 45 and over are also more likely to feel emotionally exhausted than their younger counterparts, with 44.8% of this age group reporting such feelings, compared with 38.8% of those aged 44 and under.

[6] The available data used in this study to observe changes in mental health permit to observe the evolution only over a very short period between the summer of 2020 and 2021.

Figure 3. Share of employees emotionally exhausted by their work, by telework status (2021)



Note: A worker is considered to be a teleworker if he/she engages in telework at least on a regular basis. An employee is emotionally exhausted by his/her work when he/she answers "always" , "often", or "sometimes" at this question: "Please tell me how often you feel this way - I feel emotionally exhausted by my work".

In 2021, 52.2% of employees studied had a high well-being score. The data seems indicate a decline in well-being over the period studied. (Table 5). A smaller proportion of employees across all country groups have a high well-being score in 2021 or in 2022 compared to 2015.

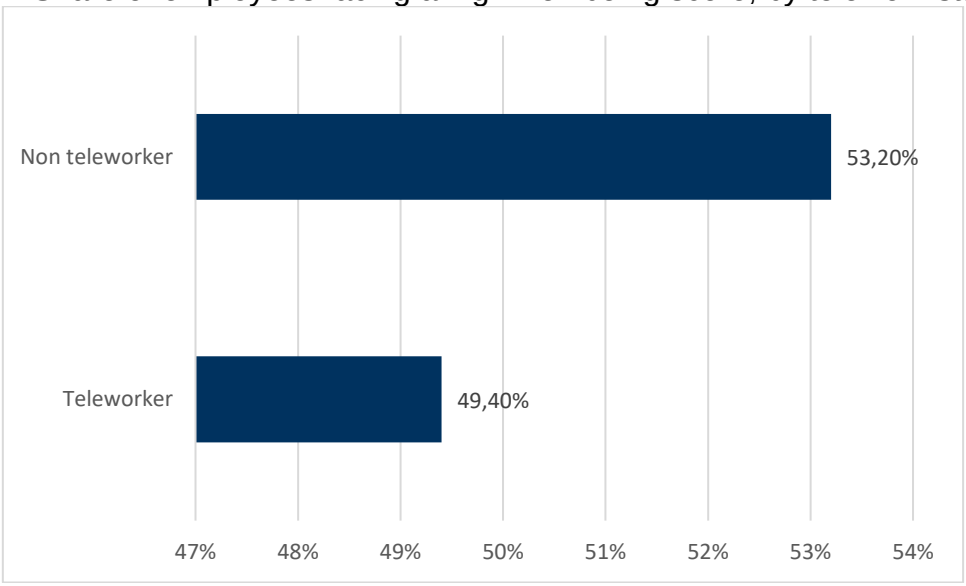
Table 5. Share of employees facing a high well-being score

	2015	Summer 2020	2021	Spring 2022
Western	66.5%	35.1%	52.8%	24.2%
Northern	65.8%	39.4%	56.1%	29.6%
Southern	66.5%	29.6%	51.8%	20.1%
Eastern	60.6%	33.6%	45.6%	25.2%

Source: EWC(T)S, Covid surveys, Eurofound; weighted data.
Note: To assess well-being, we utilise the WHO-5 Well-Being Index (Topp et al., 2015). This indicator is a brief self-report measure of an individual's current mental well-being. An employee is considered to have a high level of well-being when the value taken by this indicator is above the median of its distribution and zero otherwise.

Teleworkers are less likely to have a high level of well-being than non-teleworkers. In 2021, this proportion was 49.4% among people who telework all the time or often, compared with 53.2% among other employees (Figure 4). Among teleworkers, in 2021, men and those aged 45 and over were more likely to have a high well-being score than women and those under 45. Specifically, 54.6% of men had such a score, compared with 42.8% of women. Similarly, 55.3% of those aged 45 and over had a high well-being score, compared with 44.3% of their younger counterparts.

Figure 4. Share of employees facing a high well-being score, by telework status (2021)



Source: EWCTS, Eurofound; weighted data.
Note: A worker is considered to be a teleworker if he/she engages in telework at least on a regular basis. An employee is considered to have a high level of well-being when the value taken by the WHO-5 Well-Being Index is above the median of its distribution and zero otherwise.

4. Econometric analyses of the relationships between digitalisation and teleworkers' work intensification, mental health and well-being

4.1. Relationships between digital indicators and teleworkers' outcomes

In order to investigate the relationships between our seven digital indicators and teleworkers' outcomes, we utilise HeckProbit models for the regressions of the two work intensification variables and Probit models for the regressions of mental health and well-being variables.

The analyses carried out indicate a conditional correlation between digitalisation and work intensification or mental health (Table 6). However, our study do not identify a significant link between our seven digital indicators and high levels of well-being. The results of our analyses highlight the need to look at digital indicators on a case-by-case basis, as the link between digitalisation and our dependent variables varies depending on the type of digitalisation studied.

Teleworkers exposed to AI and automation risk tend to experience lower levels of work intensification, including reduced likelihood of working longer hours (extensive aspect) or working intensity (intensive aspect). At the opposite, teleworkers exposed to DB density exposure have higher level of work intensification regardless of its aspect. The implementation of AI and automation can reduce the workload of employees, relieving them of certain tasks or enabling them to complete certain tasks more quickly (Konle-Seidl & Danesi, 2022; Vuori et al., 2019). This can help to limit work intensification. It should be noted that the relationship between AI and automation and work

intensification may vary depending on the nature of the job and the tasks involved. The positive association between teleworkers exposure to software and databases (DB density) and work intensification can result in an increase in their workload due to the need to handle more and more data collected by their firm on client behaviours for instance. Furthermore, DB density can facilitate more rigorous employee monitoring (Corgnet et al., 2017) and put pressure on teleworkers. Teleworkers exposed to ADT and IT have lower level of single aspect of work intensification suggesting that some digital tools used by teleworkers are beneficial to them, for instance, by saving time to perform certain tasks. In details, teleworkers exposed to ADT have a lower likelihood of working longer hours than those not exposed to ADT, whereas teleworkers exposed to IT are less likely to have a high intensity of work.

Regarding mental health and, more specifically, the likelihood of being emotionally exhausted, the results vary according to the type of digital tools under consideration. While being exposed to IT density, AI risk and automation risk reduce the likelihood of being emotionally exhausted, being exposed to CT density increase this likelihood. It is important to note that DB density, ADT investments or exposure are not significantly linked to the probability of being emotionally exhausted. Other studies, which do not focus on teleworkers, have highlighted dual consequences of CT and IT on workers' outcomes. For instance, focusing on motivation and related outcomes like job autonomy and decision-making, Bloom et al. (2014) or Martin (2017) distinguished IT that facilitate information access inside the company (such as ERP), from CT (such as an intranet) that reduce internal communication costs. Their analyses reveal that IT helps employees to handle and solve more of the problems they face and they are given more discretion and responsibilities by their manager. By contrast, CT favours specialization but decreases task variety and the knowledge content of work, implying that decisions are pushed upward. In relation to mental health, some other analyses underline the potential negative impact of the use of communication tools, particularly in relation to work-life conflict (Diaz et al., 2012; Nöhammer & Stichlberger, 2019). In particular, the study by Dettmers et al. (2016) indicates that mobile communication technologies outside of working hours have a negative effect on daily mood and cortisol levels upon waking. Higher levels of interruptions and multitasking induced by the use of digital tools (Chesley, 2014), as well as a high volume and a high ambiguity of work emails, have been shown to be positively linked to emotional exhaustion (Brown et al., 2014).

The results of our analyses indicate that there is no significant correlation between the seven digital tools under consideration and the probability of achieving a high well-being score. In the existing literature, no consensus exists on the link between digitalisation and well-being. If digitalisation provides employees with resources such as greater flexibility (European Commission, 2016), it can lead to an increase in job demand, including in areas such as monitoring, feelings of job insecurity and isolation (Brougham & Haar, 2018; Schwabe & Castellacci, 2020).

Table 6. Relationships between digital indicators and teleworkers' work intensification, mental health and well-being

	Heckprobit	Heckprobit	Probit	Probit
	Working long hours	**Work intensity**	**Emotionally exhausted**	**High score of well-being**
CT density exposure	0.0497 (0.0315)	0.0154 (0.0196)	0.0640* (0.0330)	-0.0151 (0.0394)
IT density exposure	-0.0583 (0.0555)	-0.0958*** (0.0325)	-0.114*** (0.0361)	0.0148 (0.0332)
DB density exposure	0.0516* (0.0295)	0.0654** (0.0265)	0.0148 (0.0451)	-0.0186 (0.0303)
Automation risk exposure (RTI)	-0.134*** (0.0502)	-0.101** (0.0421)	-0.0927*** (0.0280)	0.0178 (0.0204)
ADT investments	0.0161 (0.0525)	0.0197 (0.0432)	-0.00185 (0.0670)	-0.0761 (0.0528)
ADT exposure	-0.0871** (0.0358)	-0.0294 (0.0258)	-0.0186 (0.0334)	-0.00299 (0.0207)
AI risk exposure	-0.202*** (0.0592)	-0.0844*** (0.0267)	-0.0699*** (0.0249)	0.00733 (0.0285)
Unemployment rate	-0.0339** (0.0146)	0.00464 (0.0166)	0.0840*** (0.0178)	-0.0278 (0.0217)
Yearly GDP growth	0.0164 (0.0450)	-0.0417 (0.0464)	0.0657 (0.0529)	0.0809 (0.0801)
Share of employees covered by a collective agreement	-0.00589*** (0.00164)	-0.00778*** (0.00184)	-0.00130 (0.00182)	0.000388 (0.00113)
Share of employees who are trade union members	0.00811 (0.00500)	0.0145*** (0.00493)	0.00757 (0.00488)	-0.00206 (0.00272)
Strictness of regulation on the use of fixed-term and temporary work agency contracts	0.0270 (0.102)	-0.167*** (0.0549)	0.0302 (0.0884)	-0.144*** (0.0433)
Strictness of regulation of collective dismissal	0.0246 (0.103)	-0.311*** (0.0832)	-0.149 (0.0939)	-0.104 (0.0866)
Strictness of regulation of individual dismissal of employees on regular/indefinite contracts	0.120 (0.0875)	-0.245*** (0.0784)	0.0333 (0.132)	-0.181 (0.112)
Individual characteristics	Yes	Yes	Yes	Yes
Job characteristics	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes
Nb of observations	20,237	20,641		
Nb of teleworkers	5,430	5,528	3,661	7,088
Log likelihood, Iteration 0, Fitting full model	-10614.46	-12010.6	-2484.92	-4912.55
Log likelihood	-10614.25	-12010.59	-2330.32	-4764.58

Source: EWCTS, Eurofound, 2021; external data for digitalisation (see Table 1).

Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations. All results are reported in Supplemental Appendix B Table 15.

In terms of labour market characteristics, the country's unemployment rate is negatively related to working long hours, but positively related to emotional exhaustion. The country's GDP growth is not related to teleworkers' outcomes. Moreover, the analyses indicate a correlation between EPLs and the intensive aspect of work intensification. The more stringent the regulations on the use of fixed-term and temporary work agency contracts, or the more stringent the regulations on individual and collective dismissal of employees, the less likely it is that a teleworker will have to cope with a very

fast pace of work, tight deadlines or an emotionally disturbing job. Contrary to expectations, we find a negative correlation between the probability of a teleworker having a high well-being score and the strictness of regulation on the use of fixed-term and temporary work agency contracts. The study do not identify a significant correlation between EPLs and having a high well-being score.

4.2. Definition of teleworkers' digital work environment profiles

As teleworkers face a combination of exposure to various types of digital tools, rather than just one type, we seek to identify the profiles of the digital environments in which they operate. Four types of digital work environment emerge from the cluster analysis (Table 7).

The first is the minimally digitalised work environment. Teleworkers in this environment are less likely than others to experience high levels of digitalisation, regardless of the type of digitalisation studied. This relatively less digitalised environment affects 42% of teleworkers.

The second type of digital work environment is characterised by the past (third) wave of digitalisation. Teleworkers in this environment are more affected than others by a high density exposure to IT, DB or CT. Investment in ADT is also higher in this environment than in others. 23% of teleworkers work in this environment.

The third work environment is characterised by a high degree of automation combined with low exposure to the CT, IT, DB and AI. They are slightly less exposed to ADT investments and exposure than the average teleworker. In fact, teleworkers in this environment are similar to those in the first environment (less affected by digitalisation), except that they are more likely than the average teleworker to have a high RTI score. 18% of teleworkers work in this environment.

The fourth work environment is characterised by the importance of new (fourth) wave of digitalisation. In this environment, a higher proportion of teleworkers are exposed to a high level of artificial intelligence and a high level of ADT exposure. 17% of teleworkers work in this environment.

Table 7. Four digital work environment profiles

	Less impacted		Past wave		Automation wave		New wave		Whole sample of teleworkers	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
CT density exposure	0.07	0.26	0.79	0.41	0.09	0.29	0.21	0.40	0.26	0.44
IT density exposure	0.02	0.13	0.96	0.20	0.03	0.16	0.13	0.33	0.26	0.44
DB density exposure	0.07	0.26	0.80	0.40	0.04	0.20	0.15	0.36	0.25	0.43
Automation risk exposure (RTI)	0.00	0.00	0.21	0.41	1.00	0.00	0.10	0.29	0.24	0.43
ADT investments	0.17	0.38	0.40	0.49	0.15	0.35	0.22	0.41	0.23	0.42
ADT exposure	0.12	0.32	0.28	0.45	0.16	0.37	0.52	0.50	0.23	0.42
AI risk exposure	0.00	0.00	0.23	0.42	0.02	0.15	1.00	0.00	0.23	0.42
Share	42%		23%		18%		17%		100%	

Source: EWCTS, Eurofound, 2021, external data for digitalisation (see table 1).

4.3. Relationships between digital work environment profiles and teleworkers' outcomes

Analyses indicate associations between the digital work environment profiles and work intensification, mental health and well-being (Table 8).

Table 8. Relationships between digital work environment profiles and teleworkers' work intensification, mental health and well-being

	Heckprobit	Heckprobit	Probit	Probit
	Working long hours	**Work intensity**	**Emotionally exhausted**	**High score of well-being**
Past wave	-0.163** (0.0711)	-0.0565 (0.0740)	-0.116 (0.0925)	-0.127*** (0.0389)
Automation wave	-0.105 (0.0857)	-0.129 (0.0913)	-0.156** (0.0741)	-0.0407 (0.0528)
New wave	-0.646*** (0.0921)	-0.248*** (0.0523)	-0.306*** (0.0643)	-0.0841* (0.0449)
Unemployment rate	-0.0305** (0.0139)	0.0108 (0.0152)	0.0949*** (0.0159)	-0.0323** (0.0133)
Yearly GDP growth	0.0187 (0.0374)	-0.0685* (0.0385)	0.0259 (0.0483)	0.0955** (0.0444)
Share of employees covered by a collective agreement	-0.00647*** (0.00168)	-0.00749*** (0.00180)	-0.00175 (0.00160)	0.000153 (0.00125)
Share of employees who are trade union members	0.00887* (0.00514)	0.0115*** (0.00413)	0.00552 (0.00455)	-0.00171 (0.00311)
Strictness of regulation on the use of fixed-term and temporary work agency contracts	0.0256 (0.0845)	-0.144*** (0.0516)	0.0611 (0.0750)	-0.143*** (0.0399)
Strictness of regulation of collective dismissal	-0.0394 (0.108)	-0.329*** (0.0758)	-0.193** (0.0874)	-0.0904 (0.0597)
Strictness of regulation of individual dismissal of employees on regular/indefinite contracts	0.0617 (0.0723)	-0.280*** (0.0628)	-0.0867 (0.104)	-0.158* (0.0851)
Individuals characteristics	Yes	Yes	Yes	Yes
Job characteristics	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes
Nb of observations	20,237	20,641		
Nb of teleworkers	5,430	5,528	3,661	7,088
Log likelihood, Iteration 0, Fitting full model	-10626.6	-12024.85	-2484.92	-4912.55
Log likelihood	-10625.92	-12024.78	-2335.11	-4766.64

Source: EWCTS, Eurofound, 2021; external data for digitalisation (see Table 1).

Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations. All results are reported in Supplemental Appendix B Table 16.

In comparison to teleworkers in the minimally digitalised environment, teleworkers in environments characterised by either past or new waves of digitalisation are less likely, all other factors being equal, to work long hours. It seems that within the environment marked by the past digitalisation wave, the positive link with DB exposure on having long working hours is countered by the negative link with IT. However, only the environment characterised by the new digitalisation wave (AI & ADT exposure)

is negatively linked to the probability of facing a fast pace of work, tight deadlines, or an emotionally disturbing job. There is no significant difference between the minimally digitalised environment and the one marked by automation. This result may be due to exposure to ADT investments that may compensate the negative link of automation risk shown in the previous analyses on digital indicators.

Teleworkers in work environments with new digital technologies and automation show a lower risk of emotional exhaustion than those working in the minimally digitalised environment, all other factors being equal. On the other hand, the work environment marked by the past 3rd wave of digitalisation does not differ from the environment with little digitalisation in this respect. It seems that in the work environment marked by the past 3rd wave, the improvement of mental health with IT (Martin, Hauret, et al., 2022) is countered by the detrimental role of CT.

Teleworkers in work environments marked by either past or new waves of digitalisation tend to have lower well-being scores compared to those in minimally digitalised work environments. While digitalisation can limit work intensification, it can reduce job resources and have a negative impact on satisfaction. Carlson et al. (2017) demonstrate that technology orientation matters on a related indicator to well-being that is job satisfaction. This analysis shows that while technology-based job autonomy is positively linked to job satisfaction, technology-based job monitoring is negatively linked.

With regard to the labour market characteristics, for Employment Protection Legislation, the links observed are identical to those presented in the previous subsection on the regression of digital indicators. Nevertheless, the country's unemployment rate and country's GDP growth appear to be linked to well-being, and country's GDP growth to work intensity while not significantly related in the regressions of digital indicators.

4.4. Sub-sample results

Previous analyses (see Appendix B, Table 13 and Table 14) highlight some differences between gender and age groups, which prompted us to look more closely at the heterogeneity according to these two socio-demographic characteristics.

4.4.1. Gender differences

There are gender differences in the relationship between working hours and digitalisation (Table 9). For women, being exposed to IT density, ADT and AI lower the probability of working long hours, while being exposed to CT density increases this probability. For men, being exposed to automation and AI lower the probability of having working long hours. Communication technologies have the potential to have a detrimental impact on the intensive aspect of women's work intensification. Women, more than men, are primarily responsible for family life, which encourages them to be

present at home after working hours. However, the ability of employees to work from anywhere and anytime enabled by communications technology (Eurofound & ILO, 2017) makes it easier for women to work outside of working hours. While the probability of women and men being confronted with work intensity is negatively correlated with IT density, AI and automation, for women other digital indicators are important. Thus, exposure to ADT reduces the likelihood of high work intensity, while exposure to DB density increases it.

The probability of being emotionally exhausted by one's work is, for men, uniquely correlated with exposure to AI. Indeed, the higher the exposure to AI, the less emotionally exhausted men are, all other things being equal. For women, AI exposure is not significantly correlated with the probability of being emotionally exhausted. Conversely, CT and DB density are positively correlated with this probability, while IT density, exposure to ADT and automation are negatively correlated. Once more, communication technologies can prompt women to work beyond the typical workday, thereby exacerbating the challenge of reconciling family life and work. This, in turn, can have a detrimental impact on their mental health (Martin, Pénard, et al., 2022). Furthermore, women are proportionally less likely than men to declare to have digital skills (Eurobarometer, 2020), this feeling can give rise to stress when using multiple software or databases (DB density).

While being exposed to automation increases the probability of having a high level of well-being for women, the opposite is observed for men.

Table 9. Relationships between digital indicators and teleworkers' work intensification, mental health and well-being – Gender differences

	Heckprobit	**Heckprobit**	**Heckprobit**	**Heckprobit**	**Probit**	**Probit**	**Probit**	**Probit**
	Working long hours	**Working long hours**	**Work intensity**	**Work intensity**	**Emotionally exhausted**	**Emotionally exhausted**	**High score of well-being**	**High score of well-being**
	Men	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
CT density exposure	-0.0199 (0.0375)	0.190*** (0.0446)	0.0153 (0.0262)	0.00990 (0.0480)	0.0500 (0.0522)	0.104** (0.0452)	-0.0135 (0.0389)	-0.0359 (0.0359)
IT density exposure	-0.0484 (0.0730)	-0.0920* (0.0478)	-0.0990** (0.0404)	-0.098*** (0.0369)	-0.0667 (0.0444)	-0.198*** (0.0767)	0.0221 (0.0265)	0.0184 (0.0286)
DB density exposure	0.0455 (0.0315)	0.0797 (0.0672)	0.0260 (0.0551)	0.125*** (0.0394)	-0.0458 (0.0658)	0.107* (0.0598)	-0.0203 (0.0443)	-0.0293 (0.0628)
Automation risk exposure (RTI)	-0.144*** (0.0559)	-0.112 (0.0733)	-0.0835* (0.0494)	-0.111** (0.0493)	-0.0245 (0.0349)	-0.174*** (0.0622)	-0.0637* (0.0335)	0.138*** (0.0495)
ADT investments	0.0501 (0.0644)	-0.0421 (0.0829)	0.0185 (0.0496)	0.0266 (0.0877)	-0.0212 (0.103)	0.0835 (0.0993)	-0.0759 (0.0577)	-0.0701 (0.0663)
ADT exposure	-0.0474 (0.0391)	-0.162*** (0.0537)	-0.00569 (0.0344)	-0.0695** (0.0341)	0.00194 (0.0390)	-0.0752* (0.0435)	-0.00576 (0.0272)	0.00848 (0.0266)
AI risk exposure	-0.211*** (0.0602)	-0.176* (0.103)	-0.0873* (0.0478)	-0.084*** (0.0261)	-0.154*** (0.0405)	-0.0170 (0.0639)	-0.00323 (0.0273)	0.0259 (0.0270)
Individuals characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Job characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labour market	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

characteristics								
Nb observations	11,814	8,423	12,048	8,593				
Nb teleworkers	2,479	2,952	2,526	3,003	1,999	1,662	3,810	3,278
Log likelihood, Iteration 0, Fitting full model	-6328.67	-4193.77	-6975.08	-4950.54	-1375.47	-1104.83	-2739.67	-2124.13
Log likelihood	-6327.91	-4193.48	-6975.08	-4950.50	-1273.99	-996.46	-2675.94	-2032.71

Source: EWCTS, Eurofound, 2021, external data for digitalisation (see Table 1).

Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations. All results are reported in Supplemental Appendix B Table 17.

Regarding the digital work environment profiles, there are also differences according to gender (Table 10). For males, in comparison to teleworkers in the minimally digitalised environment, teleworkers working in an environment characterised by the 3rd (ICT&DB) digital wave and the new digital wave are less likely to work long hours, all other factors being equal.

For females, only teleworkers working in an environment characterised by the new digital wave are less likely to work long hours compared to teleworkers in the minimally digitalised environment. It can be observed that regardless of gender, teleworkers who are employed in an environment that is characterised by the new digital wave are less likely to work at a fast pace, face tight deadlines, or have an emotionally disturbing job than those who are employed in the minimally digitalised environment. The same result is obtained for the probability of being emotionally exhausted.

In terms of well-being, the digital work environment is found to be uniquely correlated with men's well-being. It can be observed that men who work in a digital work environment characterised by the past digital wave are, in all other respects being equal, less likely to have a high well-being score than those who work in the minimally digitalised environment.

Table 10. Relationships between digital work environment profiles and teleworkers' work intensification, mental health and well-being – Gender differences

	Heckprobit	**Heckprobit**	**Heckprobit**	**Heckprobit**	**Probit**	**Probit**	**Probit**	**Probit**
	Working long hours	**Working long hours**	**Work intensity**	**Work intensity**	**Emotionally exhausted**	**Emotionally exhausted**	**High score of well-being**	**High score of well-being**
	Men	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
Past wave	-0.279*** (0.0789)	0.0512 (0.0898)	-0.0371 (0.0831)	-0.105 (0.156)	-0.164 (0.150)	-0.0323 (0.157)	-0.117* (0.0616)	-0.115 (0.0722)
Automation wave	-0.133 (0.100)	0.00525 (0.130)	-0.0322 (0.127)	-0.238 (0.150)	-0.106 (0.0988)	-0.195 (0.163)	-0.150 (0.0995)	0.130 (0.0892)
New wave	-0.669*** (0.0894)	-0.541** (0.260)	-0.203*** (0.0661)	-0.339*** (0.0576)	-0.342*** (0.0631)	-0.244* (0.131)	-0.0821 (0.0555)	-0.0719 (0.172)
Individuals	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

characteristics								
Job characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labour market characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nb observations	11,814	8,423	12,048	8,593				
Nb teleworkers	2,479	2,952	2,526	3,003	1,999	1,662	3,810	3,278
Log likelihood, Iteration 0, Fitting full model	-6326.7	-4237.05	-6981.84	-4959.41	-1375.47	-1104.83	-2739.67	-2124.13
Log likelihood	-6326.7	-4210.73	-6981.73	-4959.39	-1277.09	-1015.03	-2678.71	-2040.52

Source: EWCTS, Eurofound, 2021, external data for digitalisation (see Table 1).

Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations. All results are reported in Supplemental Appendix B Table 18.

4.4.2. Age differences

The relationship between digitalisation and work intensification also varies according to age (Table 11). First, apart from being exposed to AI, which reduces the probability of working long hours in both the under 45 and the older age group, the technologies that are linked to hours worked in these two age groups are not the same. Teleworkers under 45 are more likely to work long hours with CT density and less likely with ADT investment and automation. In contrast, for those aged 45 and over, this probability decreases with ADT exposure. Second, for those aged 45 and over, the probability of having a very fast pace of work, tight deadlines or an emotionally disturbing job is not linked to the digital technologies studied, in contrast to their younger counterparts. For those under 45, being exposed to IT density, AI and automation reduce the probability of suffering from work intensity, while being exposed to DB density increases it.

With regard to mental health, being exposed to AI reduces the risk of emotional exhaustion in both the under 45 and the older age group. While CT density (positive link) and automation (negative link) also play a role for the under 45, DB density does so for those aged 45 and over (positive link). Older individuals often possess fewer digital skills than their younger counterparts (Cotten, 2021; Francis et al., 2019). This can result in increased stress when they are required to utilise notably software and databases (DB density). Furthermore, for those under the age of 45, the use of technology in their work can impede their ability to achieve a healthy work-life balance, which in turn can have a detrimental effect on their mental health.

The probability of having a high level of well-being is not linked, all other things being equal, to the technologies studied in the older age group. For those under 45, this probability is negatively related to CT density and ADT investment.

Table 11. Relationships between digital indicators and teleworkers' work intensification, mental health and well-being – Age differences

	Heckprobit	Heckprobit	Heckprobit	Heckprobit	Probit	Probit	Probit	Probit
	Working long hours	Working long hours	Work intensity	Work intensity	Emotionally exhausted	Emotionally exhausted	High score of well-being	High score of well-being
	Less than 45	45 and more	Less than 45	45 and more	Less than 45	45 and more	Less than 45	45 and more
CT density exposure	0.102** (0.0414)	0.00447 (0.0405)	0.0428 (0.0325)	-0.0342 (0.0409)	0.0787* (0.0470)	0.0360 (0.0663)	-0.0502* (0.0264)	0.0435 (0.0504)
IT density exposure	-0.0266 (0.0507)	-0.0577 (0.0628)	-0.0890** (0.0430)	-0.0862 (0.0645)	-0.139 (0.0860)	-0.0729 (0.0691)	0.0633 (0.0407)	-0.0520 (0.0435)
DB density exposure	0.0241 (0.0380)	0.0761 (0.0617)	0.0669* (0.0377)	0.0823 (0.0696)	-0.0659 (0.0582)	0.122*** (0.0371)	-0.0322 (0.0598)	-0.00931 (0.0495)
Automation risk exposure (RTI)	-0.171** (0.0676)	-0.107 (0.0712)	-0.221*** (0.0485)	0.0234 (0.0549)	-0.165*** (0.0542)	-0.0202 (0.0387)	0.0146 (0.0329)	0.0305 (0.0486)
ADT investments	-0.0828** (0.0410)	0.0772 (0.0720)	0.000898 (0.0599)	0.0461 (0.0583)	0.0893 (0.0862)	-0.0737 (0.0961)	-0.0996* (0.0551)	-0.0424 (0.0821)
ADT exposure	-0.0610 (0.0379)	-0.106** (0.0524)	-0.0410 (0.0264)	-0.0288 (0.0443)	0.00737 (0.0383)	-0.0325 (0.0544)	-0.0342 (0.0241)	0.0387 (0.0472)
AI risk exposure	-0.218*** (0.0822)	-0.190*** (0.0532)	-0.0908** (0.0436)	-0.0676 (0.0452)	-0.0636*** (0.0234)	-0.0903** (0.0439)	-0.0223 (0.0357)	0.0480 (0.0373)
Individuals characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Job characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labour market characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nb observations	12,182	8,055	12,397	8,244				
Nb teleworkers	3,654	1,777	3,707	1,822	2,182	1,479	4,270	2,818
Log likelihood, Iteration 0, Fitting full model	-5582.18	-4945.22	-6433.17	-5490.65	-1335.17	-1143.07	-2618.99	-2251.02
Log likelihood	-5582.18	-4938.91	-6432.81	-5490.64	-1216.57	-1075.8	-2530.17	-2179.70

Source: EWCTS, Eurofound, 2021, external data for digitalisation (see Table 1).

Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations. All results are reported in Supplemental Appendix B Table 19.

The digital work environment profiles also play out differently at different ages (Table 12). For teleworkers aged 45 and above, those working in an environment characterised by the past 3rd digital or the new digital waves are less likely to work long hours than those in the minimally digitalised environment. Conversely, for those below the age of 45, only those working in an environment characterised by the new digital wave are less likely to work long hours than those in the minimally digitalised environment. Teleworkers who work in an environment marked by the new digital wave, whatever the age group studied, are also less likely to work at a fast pace, face tight deadlines, or have an emotionally disturbing job than those who are employed in the minimally digitalised

environment. Teleworkers who work in an environment characterised by automation are also less likely to work at a fast pace, face tight deadlines, or have an emotionally disturbing job than those who are employed in the minimally digitalised environment, but this link is only significant for those under the age of 45.

Teleworkers under 45 who work in a digitalised environment, whatever the wave, are less likely to be emotionally exhausted by their work than those who work in the minimally digitalised environment. For those who are older, only those who work in an environment marked by the new digital wave stand out favourably.

Furthermore, for older teleworkers, those working in the environment characterised by the past 3rd wave of digitalisation are more likely to be emotionally exhausted by their work, and they are less likely to have a high score of well-being. For their younger counterparts, teleworkers working in the new digital wave environment are less likely to have a high well-being score than those working in the minimally digital environment.

Table 12. Relationships between digital work environment profiles and teleworkers' work intensification, mental health and well-being – Age differences

	Heckprobit	**Heckprobit**	**Heckprobit**	**Heckprobit**	**Probit**	**Probit**	**Probit**	**Probit**
	Working long hours	**Working long hours**	**Work intensity**	**Work intensity**	**Emotionally exhausted**	**Emotionally exhausted**	**High score of well-being**	**High score of well-being**
	Less than 45	**45 and more**	**Less than 45**	**45 and more**	**Less than 45**	**45 and more**	**Less than 45**	**45 and more**
Past wave	-0.0792 (0.114)	-0.232** (0.101)	0.00949 (0.0627)	-0.150 (0.138)	-0.455*** (0.133)	0.224* (0.120)	-0.109 (0.0766)	-0.155** (0.0644)
Automation wave	-0.201 (0.160)	-0.0633 (0.107)	-0.266** (0.132)	-0.0270 (0.0825)	-0.377* (0.204)	0.0255 (0.0978)	-0.0354 (0.0772)	-0.0114 (0.101)
New wave	-0.407*** (0.0823)	-0.952*** (0.108)	-0.200** (0.0891)	-0.326*** (0.0749)	-0.326*** (0.0800)	-0.297** (0.122)	-0.193** (0.0922)	0.0660 (0.0845)
Individuals characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Job characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labour market characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nb observations	12,182	8,055	12,397	8,244				
Nb teleworkers	3,654	1,777	3,707	1,822	2,182	1,479	4,270	2,818
Log likelihood, Iteration 0, Fitting full model	-5602.38	-4929.77	-6456.45	-5491.33	-1335.17	-1143.07	-2618.99	-2251.02
Log likelihood	-5601.72	-4929.76	-6456.44	-5491.15	-1220.99	-1074.10	-2535.44	-2182.52

Source: EWCTS, Eurofound, 2021, external data for digitalisation (see Table 1).

Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations. All results are reported in Supplemental Appendix B Table 20.

5. Summary and concluding remarks

In the 17 European countries studied, teleworkers were found to experience a higher work intensity than non-teleworkers. In 2021, a greater proportion of teleworkers than non-teleworkers were found to work long hours and to be subject to a very fast pace of work, tight deadlines or an emotionally disturbing job. At the same time, teleworkers were found to be less likely to have a high well-being score. This finding prompts us to expand our knowledge of teleworkers. In particular, this report examines how teleworkers experience digitalisation in terms of work intensification, mental health and well-being.

To this end, we analyse econometrically data from the EWCTS survey of 2021, which we have matched to various external data sources at a sectoral or occupational level by country (or group of countries), to provide an account of digitalisation exposure faced by teleworkers. Our objective is not to focus on a single technology, but rather to examine several technologies linked to the third and fourth waves of the digital revolution. This approach allows us to assess the potential for heterogeneity in results based on the digitalisation under consideration. Furthermore, given that teleworkers operate in an environment comprising multiple digital tools rather than a single one, we have endeavoured to encompass the teleworker's digital work environment profiles.

Our findings indicate that digitalisation is associated with work intensification, mental health and well-being among those who work remotely. However, the links vary according to the digital tool under consideration. While AI and automation appear to be favourable to employees in terms of work intensification and mental health, exposure to software and database (DB) and communication technology (CT) is positively linked to work intensification (intensive aspect i.e. work intensity) and to being emotionally exhausted, respectively.

Our analysis further contributes to the literature by providing an assessment of the role in terms of the teleworker's digital work environment profiles, which allow to capture the complementarity and dynamic interaction inherent in the simultaneous adoption of different digital tools in workplaces. Our findings indicate that teleworkers operate in four types of digital environments. The first type of environment, which represents the largest proportion of teleworkers (42%), is less affected by digitalisation than the others, regardless of the digitalisation wave under consideration. The second and third environments are more significantly impacted by the third digital revolution than the others. This is either due to the importance of IT, CT and DB or the risk of automation. The fourth environment is distinguished by the prevalence of technologies associated with the fourth digital revolution.

The digital work environment is not necessarily detrimental to mental health and well-being, nor does it necessarily increase work intensification. Our findings indicate that the digital work environment most conducive to reducing work intensification and improving mental health is that

characterised by the new fourth digital revolution. However, as with the IT, CT and DB environment, this environment is negatively linked to well-being.

Differences emerge when the heterogeneity between gender and age groups is analysed in more detail. We can see that the digital work environment characterised by the past digital wave of IT, CT and DB decreases men's well-being, compared to the minimally digitalized environment , while this relationship does not exist for women. This negative relationship is also found in the older age group, but not in the younger age group.

It should be noted that our study is subject to a number of limitations that need to be addressed in future research. First, we do not have information on the actual use of digital tools by teleworkers. Therefore, we have used indicators constructed at sectoral or occupational level and country level. It would be interesting to know whether our conclusions remain valid when using information on actual use. Second, our study is based solely on cross-sectional data, while having longitudinal data would be beneficial to analyse causal effects between digitalisation and teleworkers' outcomes. Third, in a post COVID-19 context that is characterised by the emergence of hybrid work, with more workers having access to telework compared to before 2020 (Bloom et al., 2022), a follow-up analysis needs to be carried out to examine whether the results found in 2021 stands nowadays. Fourth, it would be beneficial to conduct further analyses to identify the mechanisms by which the digital work environment affects the well-being of teleworkers. Potential areas for investigation include autonomy, fear of losing job, tasks evolution, and other relevant factors.

References

Abeliansky, A. L., & Beulmann, M. (2021). Are they coming for us? Industrial robots and the mental health of workers. *Center for European Governance and Economic Development Research, Discussion Paper No. 379*.

Acemoglu, D., & Autor, D. H. (2011). Skills, tasks and technologies: Implications for employment and earnings. In *Handbook of Labor Economics* (Vol. 4B, pp. 1043–1171).

Aksoy, C. G., Barrero, J. M., Bloom, N., Davis, S. J., Dolls, M., & Zarate, P. (2022). Working from home around the world. *NBER Working Paper 30446*. http://www.nber.org/papers/w30446

Barrero, J. M., Bloom, N., & Davis, S. J. (2021). Why working from home will stick. *NBER Working Paper 28731*. http://www.nber.org/papers/w28731

Bech, P., Olsen, L. R., Kjoller, M., & Rasmussen, N. K. (2003). Measuring well‐being rather than the absence of distress symptoms: A comparison of the SF‐36 Mental Health subscale and the WHO‐Five well‐being scale. *International Journal of Methods in Psychiatric Research*, *12*(2), 85–91. https://doi.org/10.1002/mpr.145

Bertoni, M., Cavapozzi, D., Pasini, G., & Pavese, C. (2021). Remote working and mental health during the first wave of Covid-19 pandemic. *IZA Discussion Paper No 14773*.

Bloom, N., Garicano, L., Sadun, R., & Van Reenen, J. (2014). The distinct effects of information technology and communication technology on firm organization. *Management Science*, *60*(12), 2859–2885. https://doi.org/10.1287/mnsc.2014.2013

Bloom, N., Han, R., & Liang, J. (2022). *How hybrid working from home works out* (w30292; p. w30292). National Bureau of Economic Research. https://doi.org/10.3386/w30292

Broadfoot, K. J. (2001). When the cat's away, Do the mice play? Control/autonomy in the virtual workplace. *Management Communication Quarterly*, *15*(1), 110–114. https://doi.org/10.1177/0893318901151006

Brougham, D., & Haar, J. (2018). Smart technology, Artificial intelligence, Robotics, and Algorithms (STARA): Employees' perceptions of our future workplace. *Journal of Management and Organization*, *24*(2), 239–257. https://doi.org/10.1017/jmo.2016.55

Brown, R., Duck, J., & Jimmieson, N. (2014). E-mail in the workplace: The role of stress appraisals and normative response pressure in the relationship between e-mail stressors and employee strain. *International Journal of Stress Management*, *21*(4), 325–347.

Carlson, J. R., Carlson, D. S., Zivnuska, S., Harris, R. B., & Harris, K. J. (2017). Applying the job demands resources model to understand technology as a predictor of turnover intentions. *Computers in Human Behavior*, *77*, 317–325. https://doi.org/10.1016/j.chb.2017.09.009

Chesley, N. (2014). Information and communication technology use, work intensification and employee strain and distress. *Work, Employment and Society*, *28*(4), 589–610. https://doi.org/10.1177/0950017013500112

Corgnet, B., Martin, L., Ndodjang, P., & Sutan, A. (2017). IT monitoring: A real effort experiment. *Revue Economique*, *68*(5), 843–857. https://doi.org/10.3917/reco.pr3.0090

Cotten, S. R. (2021). Technologies and aging: Understanding use, impacts, and future needs. In D. Carr & K. F. Ferraro (Eds.), *Handbook of Aging and the Social Sciences* (pp. 373–392). Academic Press. https://doi.org/10.1016/B978-0-12-815970-5.00023-1

Deole, S. S., Deter, M., & Huang, Y. (2023). Home sweet home: Working from home and employee performance during the COVID-19 pandemic in the UK. *Labour Economics*, *80*, 102295. https://doi.org/10.1016/j.labeco.2022.102295

Dettmers, J., Vahle-Hinz, T., Bamberg, E., Friedrich, N., & Keller, M. (2016). Extended work availability and its relation with start-of-day mood and cortisol. *Journal of Occupational Health Psychology*, *21*(1), 105–118. https://doi.org/10.1037/a0039602

Diaz, I., Chiaburu, D. S., Zimmerman, R. D., & Boswell, W. R. (2012). Communication technology: Pros and cons of constant connection to work. *Journal of Vocational Behavior*, *80*(2), 500–508. https://doi.org/10.1016/j.jvb.2011.08.007

Dimitrova, D. (2003). Controlling teleworkers: Supervision and flexibility revisited. *New Technology, Work and Employment*, *18*(3), 181–195. https://doi.org/10.1111/1468-005X.00120

Eurobarometer. (2020). Attitudes towards the impact of digitalisation on daily lives. *Special Eurobarometer 503, European Commission Report*, 168.

Eurofound & ILO. (2017). *Working anytime, anywhere: The effects on the world of work*. Publications Office of the European Union, Luxembourg, and the International Labour Office.

European Commission. (2016). The impact of ICT on job quality: Evidence from 12 job profiles. *Intermediate Report from the Study "ICT for Work: Digital Skills in the Workplace – SMART 2014/0048,"* 1–98.

Ferrara, B., Pansini, M., De Vincenzi, C., Buonomo, I., & Benevene, P. (2022). Investigating the role of remote working on employees' performance and well-being: An evidence-based systematic review. *International Journal of Environmental Research and Public Health*, *19*(19). https://doi.org/10.3390/ijerph191912373

Francis, J., Ball, C., Kadylak, T., & Cotten, S. R. (2019). Aging in the digital age: Conceptualizing technology adoption and digital inequalities. In B. B. Neves & F. Vetere (Eds.), *Ageing and Digital Technology* (pp. 35–49). Springer Singapore. https://doi.org/10.1007/978-981-13-3693-5_3

Gihleb, R., Giuntella, O., Stella, L., & Wang, T. (2020). Industrial robots, workers' safety, and health. *IZA Discussion Paper No 13672*.

Giménez-Nadal, J. I., & Velilla, J. (2020). *Home-based work, time endowments, and subjective well-being: Gender differences in the United Kingdom*. *104937*.

González, V. M., & Mark, G. (2004). "Constant, constant, multi-tasking craziness": Managing multiple working spheres. *Conference on Human Factors in Computing Systems - Proceedings*, *6*(1), 113–120.

Gorny, P. M., & Woodard, R. C. (2020). Don't fear the robots: Automatability and job satisfaction. *MPRA Paper No. 103424*. https://mpra.ub.uni-muenchen.de/103424/

Green, F. (2004a). Why has work effort become more intense? *Industrial Relations: A Journal of Economy and Society*, *43*(4), 709–741. https://doi.org/10.1111/j.0019-8676.2004.00359.x

Green, F. (2004b). Work intensification, discretion, and the decline in well-being at work. *Eastern Economic Journal*, *30*(4), 615–625.

Green, F., & McIntosh, S. (2001). The intensification of work in Europe. *Labour Economics*, *8*(2), 291–308. https://doi.org/10.1016/S0927-5371(01)00027-6

Kelliher, C., & Anderson, D. (2010). Doing more with less? Flexible working practices and the intensification of work. *Human Relations*, *63*(1), 83–106. https://doi.org/10.1177/0018726709349199

Kifor, C. V., Nicolaescu, S. S., Florea, A., Savescu, R. F., Receu, I., Tirlea, A. V., & Danut, R. E. (2021). Workforce analytics in teleworking. *IEEE Access*, *9*, 156451–156464. https://doi.org/10.1109/ACCESS.2021.3129248

Konle-Seidl, R., & Danesi, S. (2022). Digitalisation and changes in the world of work—Literature review. *Policy Department for Economic, Scientific and Quality of Life Policies Directorate-General for Internal Policies, PE 733.986*, *September*.

Kunze, F., Hampel, K., & Zimmermann, S. (2020). Working from home in the Coronavirus crisis: Towards a transformation of work environments? *Berlin: Das Progressive Zentrum*.

Lewandowski, P., Park, A., Hardy, W., & Yang, D. (2022). Technology, skills, and globalisation: Explaining international differences in routine and nonroutine work using survey data. *World Bank Economic Review*.

Lordan, G., & Stringer, E. (2022). People versus machines: The impact of being in an automatable job on Australian worker's mental health and life satisfaction. *Economics and Human Biology*, *46*, 101144. https://doi.org/10.1016/j.ehb.2022.101144

Lunde, L. K., Fløvik, L., Christensen, J. O., Johannessen, H. A., Finne, L. B., Jørgensen, I. L., Mohr, B., & Vleeshouwers, J. (2022). The relationship between telework from home and employee health: A systematic review. *BMC Public Health*, *22*(1), 1–14. https://doi.org/10.1186/s12889-021-12481-2

Mano, R. S., & Mesch, G. S. (2010). E-mail characteristics, work performance and distress. *Computers in Human Behavior*, *26*(1), 61–69. https://doi.org/10.1016/j.chb.2009.08.005

Martin, L. (2017). Do innovative work practices and use of information and communication technologies motivate employees? *Industrial Relations*, *56*(2), 263–292. https://doi.org/10.1111/irel.12173

Martin, L., Hauret, L., & Fuhrer, C. (2022). Digitally transformed home office impacts on job satisfaction, job stress and job productivity. COVID-19 findings. *PLoS ONE*, *17*(3), e0265131–e0265131. https://doi.org/10.1371/journal.pone.0265131

Martin, L., Pénard, T., & Poussing, N. (2022). Are employees happier when staying connected with their companies outside working hours? *Social Science Computer Review*, *40*(4), 1035–1053. https://doi.org/10.1177/08944393211061273

Maruyama, T., Hopkinson, P. G., & James, P. W. (2009). A multivariate analysis of work-life balance outcomes from a large-scale telework programme. *New Technology, Work and Employment*, *24*(1), 76–88. https://doi.org/10.1111/j.1468-005X.2008.00219.x

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99–113. https://doi.org/10.1002/job.4030020205

Michaels, G., Natraj, A., & Van Reenen, J. (2014). Has ICT polarized skill demand? Evidence from eleven countries over twenty-five years. *The Review of Economics and Statistics*, *96*(1), 60–77. https://doi.org/10.1162/REST_a_00366

Nöhammer, E., & Stichlberger, S. (2019). Digitalization, innovative work behavior and extended availability. *Journal of Business Economics*, *89*(8–9), 1191–1214. https://doi.org/10.1007/s11573-019-00953-2

Oakman, J., Kinsman, N., Stuckey, R., Graham, M., & Weale, V. (2020). A rapid review of mental and physical health effects of working at home: How do we optimise health? *BMC Public Health*, *20*(1), 1–13. https://doi.org/10.1186/s12889-020-09875-z

Pabilonia, S. W., & Vernon, V. (2022). Telework, wages, and time use in the United States. *Review of Economics of the Household*, *20*(3), 687–734. https://doi.org/10.1007/s11150-022-09601-1

Pelly, D., Daly, M., Delaney, L., & Doyle, O. (2022). Worker stress, burnout, and wellbeing Before and during the COVID-19 restrictions in the United Kingdom. *Frontiers in Psychology*, *13*(April), 1–13. https://doi.org/10.3389/fpsyg.2022.823080

Prytkova, E., Petit, F., Li, D., Chaturvedi, S., & Ciarli, T. (2024). The employment impact of emerging digital technologies. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4739904

Rebelo, G., Almeida, A., & Pedra, J. (2024). Telework and work intensity: Insights from an exploratory study in Portugal during the COVID-19 pandemic. *Administrative Sciences*, *14*(1), 14. https://doi.org/10.3390/admsci14010014

Rubin, O., Nikolaeva, A., Nello-Deakin, S., & te Brömmelstroet, M. (2020). What can we learn from the COVID-19 pandemic about how people experience working from home and commuting? *Centre for Urban Studies, University of Amsterdam*. https://urbanstudies.uva.nl/content/blog-series/covid-19-pandemic-working-from-home-and-commuting.html

Sardeshmukh, S. R., Sharma, D., & Golden, T. D. (2012). Impact of telework on exhaustion and job engagement: A job demands and job resources model. *New Technology, Work and Employment*, *27*(3), 193–207. https://doi.org/10.1111/j.1468-005X.2012.00284.x

Schwabe, H., & Castellacci, F. (2020). Automation, workers' skills and job satisfaction. *PLoS ONE*, *15*(11), 1–26. https://doi.org/10.1371/journal.pone.0242929

Su, N. M., & Mark, G. (2008). Communication chains and multitasking. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 83–92. https://doi.org/10.1145/1357054.1357069

Taskin, L., & Devos, V. (2005). Paradoxes from the individualization of human resource management: The case of telework. *Journal of Business Ethics*, *62*(1), 13–24. https://doi.org/10.1007/s10551-005-8710-0

Tietze, S., & Musson, G. (2002). When 'work' meets 'home': Temporal flexibility as lived experience. *Time & Society*, *11*(2–3), 315–334. https://doi.org/10.1177/0961463X02011002008

Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 well-being index: A systematic review of the literature. *Psychotherapy and Psychosomatics*, *84*(3), 167–176. https://doi.org/10.1159/000376585

Vander Elst, T., Verhoogen, R., Sercu, M., Van den Broeck, A., Baillien, E., & Godderis, L. (2017). Not extent of telecommuting, but job characteristics as proximal predictors of work-related well-being. *Journal of Occupational & Environmental Medicine*, *59*(10), e180–e186. https://doi.org/10.1097/JOM.0000000000001132

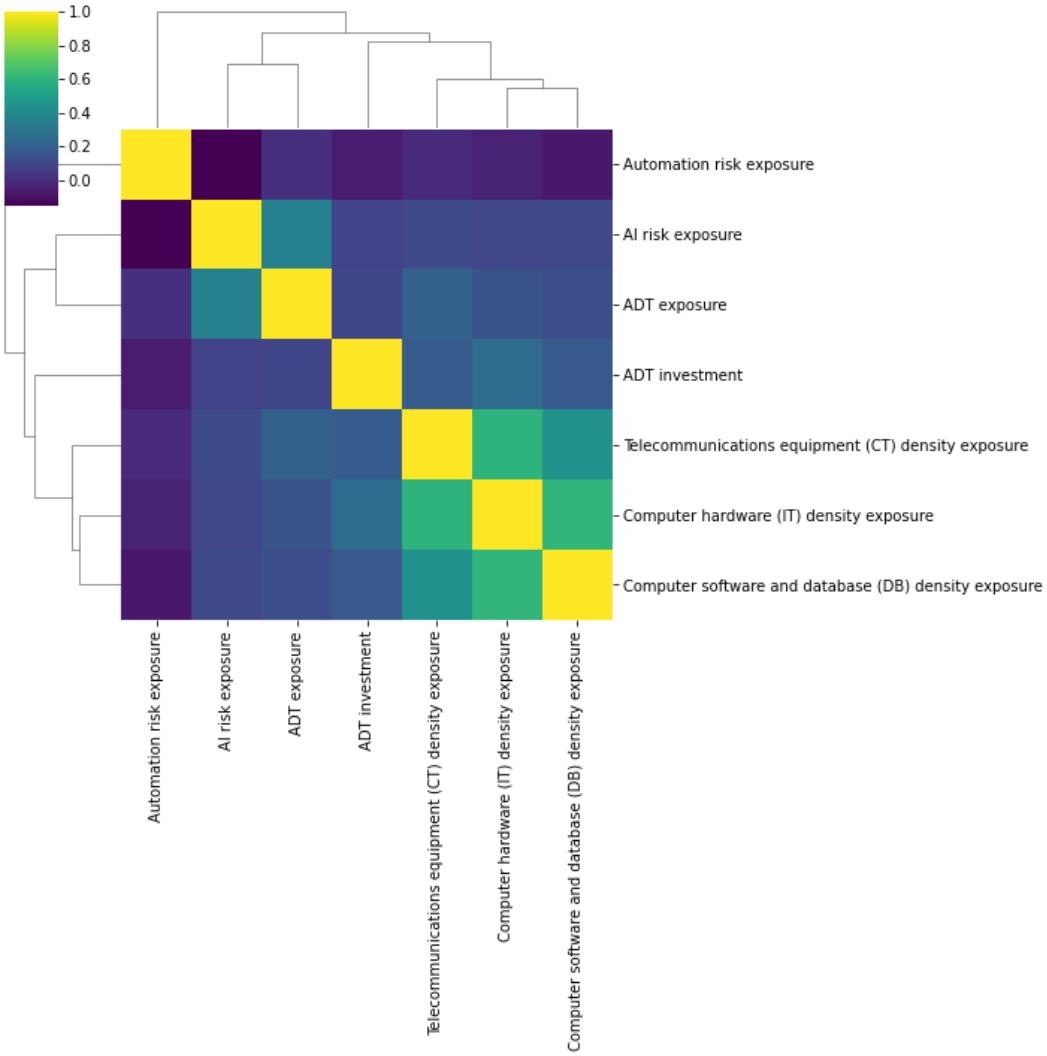
Vuori, V., Helander, N., & Okkonen, J. (2019). Digitalization in knowledge work: The dream of enhanced performance. *Cognition, Technology & Work*, *21*(2), 237–252. https://doi.org/10.1007/s10111-018-0501-3

Wajcman, J., & Rose, E. (2011). Constant connectivity: Rethinking interruptions at work. *Organization Studies*, *32*(7), 941–961.

Appendix

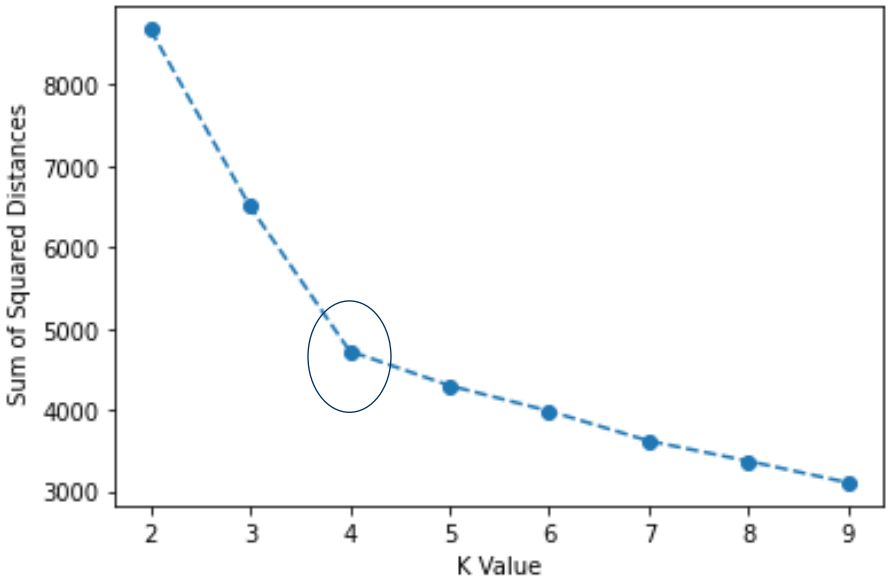
Appendix A

Figure 5. Correlation matrix and dendrogram



Source: EWCTS, Eurofound, 2021; external data for digitalisation (see table 1).

Figure 6. Sum of squared distances



Source: EWCTS, Eurofound, 2021; external data for digitalisation (see table 1).

Appendix B

Table 13. Work intensification, mental-health and well-being of teleworkers, according to gender and age groups

	Women	Men	Under 45	45 and over
Working long hours	9.7%	17.4%***	11.1%	17.4%***
Working at a very fast pace, with tight deadlines or in an emotionally disturbing job (work intensity)	73.4%	68.6%***	71.41%	69.8%
Feeling of being emotionally exhausted by work	44.3%	39.3%***	38.8%	44.8%***
Facing a high well-being score	42.8%	54.6%***	44.3%	55.3%***

Source: EWCTS, Eurofound, 2021; weighted data
Note: t-test between gender and age * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 14. Descriptive statistics

	Whole sample		Men		Women		Less than 45		45 and more	
Variable	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Individual characteristics										
Man	0.57	(0.50)	-	-	-	-	0.55	(0.50)	0.59	(0.49)
15-34 years	0.24	(0.42)	0.23	(0.42)	0.25	(0.43)	-	-	-	-
35-44 years	0.27	(0.45)	0.26	(0.44)	0.29	(0.45)	-	-	-	-
Primary and lower secondary	0.03	(0.18)	0.04	(0.20)	0.02	(0.15)	0.03	(0.16)	0.04	(0.20)
Upper and post-secondary	0.30	(0.46)	0.31	(0.46)	0.30	(0.46)	0.27	(0.45)	0.34	(0.47)
Child(ren)	0.39	(0.49)	0.39	(0.49)	0.39	(0.49)	0.45	(0.50)	0.33	(0.47)
Job characteristics										
Medium skilled occupation	0.23	(0.42)	0.15	(0.36)	0.33	(0.47)	0.24	(0.43)	0.22	(0.41)
Low skilled occupation	0.09	(0.29)	0.13	(0.34)	0.04	(0.20)	0.09	(0.29)	0.10	(0.30)
Tenure	11.27	(9.84)	11.28	(9.89)	11.26	(9.77)	6.57	(5.50)	16.18	(10.91)
Tenure squared	223.75	(342.90)	224.98	(348.43)	222.13	(335.55)	73.37	(117.66)	380.81	(421.51)

Open-ended contract	0.93	(0.26)	0.93	(0.25)	0.92	(0.27)	0.90	(0.30)	0.95	(0.21)
Part time	0.16	(0.36)	0.06	(0.24)	0.28	(0.45)	0.17	(0.37)	0.15	(0.35)
Firms characteristics										
Not private sector	0.22	(0.41)	0.20	(0.40)	0.25	(0.43)	0.19	(0.39)	0.25	(0.43)
Industry	0.21	(0.41)	0.25	(0.43)	0.17	(0.38)	0.19	(0.39)	0.24	(0.43)
Construction, transport, storage	0.10	(0.30)	0.13	(0.34)	0.06	(0.23)	0.09	(0.28)	0.11	(0.31)
Trade, accommodation and food service activities	0.16	(0.36)	0.16	(0.37)	0.15	(0.36)	0.17	(0.38)	0.14	(0.35)
Services	0.47	(0.50)	0.42	(0.49)	0.53	(0.50)	0.49	(0.50)	0.44	(0.50)
1-49 employees	0.15	(0.35)	0.14	(0.35)	0.16	(0.36)	0.15	(0.36)	0.14	(0.35)
50-249 employees	0.49	(0.50)	0.49	(0.50)	0.50	(0.50)	0.52	(0.50)	0.47	(0.50)
Labour market characteristics										
Nordic countries	0.08	(0.27)	0.08	(0.28)	0.08	(0.27)	0.08	(0.27)	0.08	(0.27)
Eastern countries	0.06	(0.23)	0.06	(0.23)	0.06	(0.23)	0.07	(0.26)	0.04	(0.20)
Southern countries	0.18	(0.39)	0.18	(0.38)	0.20	(0.40)	0.19	(0.39)	0.18	(0.39)
Unemployment rate	6.69	(3.64)	6.55	(3.57)	6.89	(3.73)	6.78	(3.74)	6.61	(3.54)
Yearly GDP growth	1.52	(0.66)	1.52	(0.65)	1.53	(0.67)	1.56	(0.69)	1.49	(0.63)
Share of employees covered by a collective agreement	73.27	(22.83)	73.06	(22.29)	73.56	(23.52)	72.50	(23.37)	74.08	(22.23)
Share of employees who are trade union members	21.86	(15.33)	21.94	(15.37)	21.76	(15.27)	21.66	(15.27)	22.07	(15.39)
Strictness of regulation on the use of fixed-term and temporary work agency contracts	1.92	(0.77)	1.89	(0.76)	1.96	(0.78)	1.91	(0.76)	1.94	(0.78)
Strictness of regulation of collective dismissal	3.29	(0.51)	3.29	(0.51)	3.29	(0.51)	3.28	(0.52)	3.30	(0.50)
Strictness of regulation of individual dismissal of employees on regular/indefinite contracts	2.56	(0.41)	2.58	(0.43)	2.54	(0.39)	2.56	(0.42)	2.57	(0.41)
Nb of teleworkers	7,088		3,810		3,278		4,270		2,818	3,810

Source: EWCTS, Eurofound, 2021
Note: Weighted statistics. Sample used in the well-being regressions. Standard deviations are shown in parentheses.

Table 15. Relationships between digital indicators and teleworkers' work intensification, mental health and well-being (full results of Table 6)

	Heckprobit		Heckprobit		Probit	Probit
	Working long hours	Selection equation	Work intensity	Selection equation	Emotionally exhausted	High score of well-being
CT density exposure	0.0497		0.0154		0.0640*	-0.0151
	(0.0315)		(0.0196)		(0.0330)	(0.0394)
IT density exposure	-0.0583		-0.0958***		-0.114***	0.0148
	(0.0555)		(0.0325)		(0.0361)	(0.0332)
DB density exposure	0.0516*		0.0654**		0.0148	-0.0186
	(0.0295)		(0.0265)		(0.0451)	(0.0303)
ADT investments	0.0161		0.0197		-0.00185	-0.0761
	(0.0525)		(0.0432)		(0.0670)	(0.0528)
ADT exposure	-0.0871**		-0.0294		-0.0186	-0.00299
	(0.0358)		(0.0258)		(0.0334)	(0.0207)
AI risk exposure	-0.202***		-0.0844***		-0.0699***	0.00733
	(0.0592)		(0.0267)		(0.0249)	(0.0285)
Automation risk exposure (RTI)	-0.134***		-0.101**		-0.0927***	0.0178
	(0.0502)		(0.0421)		(0.0280)	(0.0204)
Man	0.215***	0.0237	-0.225***	0.0280	-0.172**	0.262***
	(0.0721)	(0.0305)	(0.0499)	(0.0308)	(0.0766)	(0.0445)
15-34 years	-0.348**	-0.0710	0.172	-0.0720	-0.124*	-0.282***
	(0.143)	(0.0594)	(0.108)	(0.0558)	(0.0733)	(0.0415)
35-44 years	-0.201***	-0.0362	0.0982	-0.0336	0.0655	-0.313***
	(0.0664)	(0.0438)	(0.0975)	(0.0402)	(0.0873)	(0.0782)
Primary and lower secondary	0.0197	-0.670***	0.104	-0.671***	-0.327*	-0.119*
	(0.223)	(0.0734)	(0.155)	(0.0708)	(0.184)	(0.0683)
Upper and post-secondary	0.0334	-0.487***	0.0197	-0.486***	0.0193	0.0558*
	(0.105)	(0.0240)	(0.0935)	(0.0258)	(0.0808)	(0.0302)
Child(ren)	-0.0187	0.117***	0.0772	0.109***	-0.0636	-0.0301
	(0.0767)	(0.0306)	(0.0493)	(0.0286)	(0.0668)	(0.0481)
Medium skilled occupation	-0.191	-0.373***	0.0429	-0.383***	0.0912	-0.0653
	(0.150)	(0.0691)	(0.103)	(0.0678)	(0.0840)	(0.0748)
Low skilled occupation	-0.0827	-0.529***	-0.0246	-0.526***	-0.0283	-0.132*
	(0.188)	(0.132)	(0.160)	(0.135)	(0.0974)	(0.0795)
Tenure	0.00313	-0.00278	0.0179*	-0.00221	-0.00122	-0.0126*
	(0.00862)	(0.00469)	(0.0105)	(0.00466)	(0.00926)	(0.00688)
Tenure squared	-0.000191	2.12e-05	-0.000322	5.19e-06	0.000282	0.000326**
	(0.000263)	(0.000115)	(0.000310)	(0.000113)	(0.000323)	(0.000132)
Open-ended contract	-0.137	0.0440	0.0330	0.0347	0.154**	0.00253
	(0.107)	(0.0656)	(0.143)	(0.0642)	(0.0778)	(0.0677)
Part time	-1.068***	0.00926	-0.264***	0.00569	-0.0841	-0.0339
	(0.166)	(0.0651)	(0.0487)	(0.0648)	(0.103)	(0.0696)
Not private sector	-0.191**	0.00592	-0.172***	0.00752	-0.100	0.0332

	(0.0816)	(0.0541)	(0.0541)	(0.0546)	(0.0621)	(0.0407)
Industry	-0.0856	-0.0558	0.0814	-0.0494	0.0341	0.250
	(0.124)	(0.0988)	(0.134)	(0.0964)	(0.229)	(0.200)
Construction, transport, storage	-0.0269	-0.0548	0.0645	-0.0498	0.0171	0.231
	(0.160)	(0.0719)	(0.121)	(0.0703)	(0.320)	(0.198)
Trade, accommodation and food service activities	0.0645	-0.172**	0.0542	-0.160**	0.0253	0.163
	(0.137)	(0.0773)	(0.150)	(0.0796)	(0.218)	(0.138)
Services	-0.0752	0.286***	0.176*	0.288***	0.0618	0.249*
	(0.117)	(0.0924)	(0.104)	(0.0890)	(0.192)	(0.132)
1-49 employees	-0.0690	-0.598***	-0.187*	-0.588***	-0.104	0.0716
	(0.170)	(0.0969)	(0.104)	(0.0970)	(0.157)	(0.0453)
50-249 employees	-0.0238	-0.398***	0.0752	-0.395***	0.0354	-0.0269
	(0.104)	(0.0600)	(0.0745)	(0.0604)	(0.119)	(0.0729)
Nordic countries	-0.483	-0.0991	-1.194***	-0.119	-0.601*	-0.0133
	(0.330)	(0.200)	(0.343)	(0.202)	(0.352)	(0.327)
Eastern countries	-0.0424	-0.299***	-0.442***	-0.311***	0.238	-0.428**
	(0.140)	(0.0798)	(0.109)	(0.0826)	(0.149)	(0.194)
Southern countries	0.484**	-0.0245	-0.128	-0.0380	-0.696***	0.203
	(0.190)	(0.152)	(0.229)	(0.150)	(0.217)	(0.155)
Unemployment rate	-0.0339**	-0.0149	0.00464	-0.0143	0.0840***	-0.0278
	(0.0146)	(0.0120)	(0.0166)	(0.0117)	(0.0178)	(0.0217)
Yearly GDP growth	0.0164	0.0101	-0.0417	0.00861	0.0657	0.0809
	(0.0450)	(0.0461)	(0.0464)	(0.0454)	(0.0529)	(0.0801)
Share of employees covered by a collective agreement	-0.00589***	-0.00233*	-0.00778***	-0.00243**	-0.00130	0.000388
	(0.00164)	(0.00124)	(0.00184)	(0.00123)	(0.00182)	(0.00113)
Share of employees who are trade union members	0.00811	0.00338	0.0145***	0.00365	0.00757	-0.00206
	(0.00500)	(0.00339)	(0.00493)	(0.00337)	(0.00488)	(0.00272)
Strictness of regulation on the use of fixed-term and temporary work agency contracts	0.0270	-0.124**	-0.167***	-0.121**	0.0302	-0.144***
	(0.102)	(0.0569)	(0.0549)	(0.0556)	(0.0884)	(0.0433)
Strictness of regulation of collective dismissal	0.0246	-0.00639	-0.311***	-0.00838	-0.149	-0.104
	(0.103)	(0.0709)	(0.0832)	(0.0712)	(0.0939)	(0.0866)
Strictness of regulation of individual dismissal of employees on regular/indefinite contracts	0.120	0.0932	-0.245***	0.0936	0.0333	-0.181
	(0.0875)	(0.0973)	(0.0784)	(0.0977)	(0.132)	(0.112)
Indice of job teleworkability		0.746***		0.753***		
		(0.0540)		(0.0546)		
Indice of job social interaction		-0.00225		-0.00209		
		(0.00183)		(0.00190)		
Constant	0.312	0.216	3.364***	0.207	0.0631	1.224**
	(0.732)	(0.522)	(0.481)	(0.518)	(0.694)	(0.536)
Nb of observations	20,237		20,641			
Nb of teleworkers	5,430		5,528		3,661	7,088
Log likelihood, Iteration 0, Fitting full model	-10614.46		-12010.6		-2484.92	-4912.55

Log likelihood	-10614.25		-12010.59		-2330.3242	-4764.5783

Source: EWCTS, Eurofound, 2021; external data for digitalisation (see table 1).
Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations.

Table 16. Relationships between digital work environment profiles and teleworkers' work intensification, mental health and well-being (full results of Table 8)

	Heckprobit		Heckprobit		Probit	Probit
	Working long hours	**Selection equation**	**Work intensity**	**Selection equation**	**Emotionally exhausted**	**High score of well-being**
Past wave	-0.163**		-0.0565		-0.116	-0.127***
	(0.0711)		(0.0740)		(0.0925)	(0.0389)
Automation wave	-0.105		-0.129		-0.156**	-0.0407
	(0.0857)		(0.0913)		(0.0741)	(0.0528)
New wave	-0.646***		-0.248***		-0.306***	-0.0841*
	(0.0921)		(0.0523)		(0.0643)	(0.0449)
Man	0.229***	0.0224	-0.211***	0.0278	-0.144**	0.266***
	(0.0766)	(0.0315)	(0.0468)	(0.0312)	(0.0719)	(0.0844)
15-34 years	-0.372***	-0.0712	0.152	-0.0732	-0.128*	-0.280***
	(0.129)	(0.0589)	(0.103)	(0.0553)	(0.0763)	(0.0578)
35-44 years	-0.207***	-0.0358	0.0858	-0.0349	0.0584	-0.307***
	(0.0662)	(0.0436)	(0.0965)	(0.0404)	(0.0951)	(0.0468)
Primary and lower secondary	-0.198 (0.207)	-0.671*** (0.0732)	-0.0339 (0.164)	-0.672*** (0.0702)	-0.356* (0.187)	-0.117 (0.112)
Upper and post-secondary	-0.137* (0.0808)	-0.488*** (0.0240)	-0.0855 (0.102)	-0.488*** (0.0258)	-0.0153 (0.0772)	0.0648* (0.0371)
Child(ren)	-0.00125	0.116***	0.0900*	0.109***	-0.0723	-0.0315
	(0.0732)	(0.0307)	(0.0496)	(0.0285)	(0.0651)	(0.0465)
Medium skilled occupation	-0.486*** (0.0981)	-0.375*** (0.0693)	-0.146 (0.0980)	-0.385*** (0.0681)	-0.0202 (0.0701)	-0.0262 (0.0762)
Low skilled occupation	-0.305** (0.144)	-0.533*** (0.133)	-0.185 (0.176)	-0.531*** (0.135)	-0.0243 (0.0972)	-0.108** (0.0500)
Tenure	0.000731	-0.00282	0.0157	-0.00220	-0.00297	-0.0117
	(0.00902)	(0.00473)	(0.0107)	(0.00464)	(0.00917)	(0.0107)
Tenure squared	-0.000145	2.15e-05	-0.000289	4.10e-06	0.000316	0.000305
	(0.000265)	(0.000116)	(0.000319)	(0.000113)	(0.000328)	(0.000395)
Open-ended contract	-0.124	0.0462	0.0452	0.0334	0.156*	0.00102
	(0.105)	(0.0657)	(0.135)	(0.0645)	(0.0832)	(0.129)
Part time	-1.035***	0.00731	-0.253***	0.00631	-0.0785	-0.0328
	(0.154)	(0.0646)	(0.0467)	(0.0649)	(0.102)	(0.0843)
Not private sector	-0.189**	0.00669	-0.166***	0.00656	-0.0947*	0.0282
	(0.0866)	(0.0537)	(0.0545)	(0.0544)	(0.0549)	(0.0726)
Industry	-0.0914	-0.0579	0.104	-0.0508	0.100	0.291*
	(0.100)	(0.0993)	(0.132)	(0.0965)	(0.176)	(0.174)
Construction, transport, storage	-0.0458 (0.132)	-0.0590 (0.0719)	0.0477 (0.0932)	-0.0521 (0.0705)	0.0714 (0.225)	0.364** (0.149)

Trade, accommodation and food service activities	-0.0176 (0.126)	-0.174** (0.0774)	0.0206 (0.108)	-0.161** (0.0799)	0.0415 (0.164)	0.276 (0.182)
Services	0.0122	0.283***	0.200**	0.286***	0.0370	0.277*
	(0.0943)	(0.0922)	(0.0888)	(0.0891)	(0.167)	(0.153)
1-49 employees	-0.235	-0.597***	-0.294***	-0.587***	-0.0981	0.133*
	(0.160)	(0.0972)	(0.0872)	(0.0968)	(0.127)	(0.0782)
50-249 employees	-0.140	-0.397***	0.00835	-0.394***	0.0424	0.0182
	(0.0860)	(0.0605)	(0.0789)	(0.0604)	(0.110)	(0.0524)
Nordic countries	-0.564	-0.104	-1.149***	-0.116	-0.671**	-0.0129
	(0.347)	(0.199)	(0.298)	(0.202)	(0.317)	(0.218)
Eastern countries	-0.144	-0.300***	-0.504***	-0.312***	0.194	-0.429***
	(0.144)	(0.0796)	(0.101)	(0.0821)	(0.126)	(0.102)
Southern countries	0.338	-0.0247	-0.258	-0.0356	-0.880***	0.189*
	(0.242)	(0.152)	(0.209)	(0.150)	(0.153)	(0.108)
Unemployment rate	-0.0305**	-0.0148	0.0108	-0.0145	0.0949***	-0.0323**
	(0.0139)	(0.0120)	(0.0152)	(0.0117)	(0.0159)	(0.0133)
Yearly GDP growth	0.0187	0.00954	-0.0685*	0.00863	0.0259	0.0955**
	(0.0374)	(0.0460)	(0.0385)	(0.0454)	(0.0483)	(0.0444)
Share of employees covered by a collective agreement	-0.00647*** (0.00168)	-0.00232* (0.00124)	-0.00749*** (0.00180)	-0.00242** (0.00123)	-0.00175 (0.00160)	0.000153 (0.00125)
Share of employees who are trade union members	0.00887* (0.00514)	0.00339 (0.00337)	0.0115*** (0.00413)	0.00357 (0.00337)	0.00552 (0.00455)	-0.00171 (0.00311)
Strictness of regulation on the use of fixed-term and temporary work agency contracts	0.0256 (0.0845)	-0.125** (0.0568)	-0.144*** (0.0516)	-0.121** (0.0557)	0.0611 (0.0750)	-0.143*** (0.0399)
Strictness of regulation of collective dismissal	-0.0394 (0.108)	-0.00616 (0.0705)	-0.329*** (0.0758)	-0.00680 (0.0711)	-0.193** (0.0874)	-0.0904 (0.0597)
Strictness of regulation of individual dismissal of employees on regular/indefinite contracts	0.0617 (0.0723)	0.0915 (0.0970)	-0.280*** (0.0628)	0.0928 (0.0974)	-0.0867 (0.104)	-0.158* (0.0851)
Indice of job teleworkability		0.745*** (0.0549)		0.751*** (0.0551)		
Indice of job social		-0.00242		-0.00223		

interaction		(0.00187)		(0.00191)		
Constant	-0.181	0.233	3.041***	0.220	0.152	0.870*
	(0.548)	(0.517)	(0.426)	(0.518)	(0.496)	(0.455)
Nb of observations	20,237		20,641			
Nb of teleworkers	5,430		5,528		3,661	7,088
Log likelihood, Iteration 0, Fitting full model	-10626.6		-12024.85		-2484.92	-4912.55
Log likelihood	-10625.92		-12024.78		-2335.11	-4766.64

Source: EWCTS, Eurofound, 2021; external data for digitalisation (see table 1).
Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations.

Table 17. Relationships between digital indicators and teleworkers' work intensification, mental health and well-being – Gender differences (full results of Table 9)

	Heckprobit	Heckprobit	Heckprobit	Heckprobit	Heckprobit	Heckprobit	Heckprobit	Heckprobit	Probit	Probit	Probit	Probit
	Working long hours	Selection equation	Working long hours	Selection equation	Work intensity	Selection equation	Work intensity	Selection equation	Emotionally exhausted	Emotionally exhausted	High score of well-being	High score of well-being
	Men	Men	Women	Women	Men	Men	Women	Women	Men	Women	Men	Women
CT density exposure	-0.0199		0.190***		0.0153		0.00990		0.0500	0.104**	-0.0135	-0.0359
	(0.0375)		(0.0446)		(0.0262)		(0.0480)		(0.0522)	(0.0452)	(0.0389)	(0.0359)
IT density exposure	-0.0484		-0.0920*		-0.0990**		-0.0983***		-0.0667	-0.198***	0.0221	0.0184
	(0.0730)		(0.0478)		(0.0404)		(0.0369)		(0.0444)	(0.0767)	(0.0265)	(0.0286)
DB density exposure	0.0455		0.0797		0.0260		0.125***		-0.0458	0.107*	-0.0203	-0.0293
	(0.0315)		(0.0672)		(0.0551)		(0.0394)		(0.0658)	(0.0598)	(0.0443)	(0.0628)
ADT investments	0.0501		-0.0421		0.0185		0.0266		-0.0212	0.0835	-0.0759	-0.0701
	(0.0644)		(0.0829)		(0.0496)		(0.0877)		(0.103)	(0.0993)	(0.0577)	(0.0663)
ADT exposure	-0.0474		-0.162***		-0.00569		-0.0695**		0.00194	-0.0752*	-0.00576	0.00848
	(0.0391)		(0.0537)		(0.0344)		(0.0341)		(0.0390)	(0.0435)	(0.0272)	(0.0266)
AI risk exposure	-0.211***		-0.176*		-0.0873*		-0.0843***		-0.154***	-0.0170	-0.00323	0.0259
	(0.0602)		(0.103)		(0.0478)		(0.0261)		(0.0405)	(0.0639)	(0.0273)	(0.0270)
Automation risk exposure (RTI)	-0.144***		-0.112		-0.0835*		-0.111**		-0.0245	-0.174***	-0.0637*	0.138***
	(0.0559)		(0.0733)		(0.0494)		(0.0493)		(0.0349)	(0.0622)	(0.0335)	(0.0495)
15-34 years	-0.390***	-0.0882	-0.282*	-0.0735	0.256	-0.0969*	0.0685	-0.0622	-0.0913	-0.227**	-0.188**	-0.438***
	(0.137)	(0.0633)	(0.164)	(0.0898)	(0.157)	(0.0564)	(0.0872)	(0.0882)	(0.0822)	(0.106)	(0.0823)	(0.0740)
35-44 years	-0.232***	-0.0649	-0.0474	0.00374	0.0719	-0.0689	0.132	0.0170	0.0295	0.0468	-0.264***	-0.385***
	(0.0780)	(0.0578)	(0.0560)	(0.0448)	(0.0910)	(0.0537)	(0.126)	(0.0454)	(0.0624)	(0.189)	(0.0539)	(0.0714)
Primary and lower secondary	0.139	-0.591***	-0.340	-0.800***	-0.0960	-0.594***	0.401	-0.796***	-1.126***	0.692**	-0.245*	0.0393
	(0.217)	(0.0824)	(0.471)	(0.228)	(0.194)	(0.0770)	(0.261)	(0.227)	(0.315)	(0.329)	(0.144)	(0.206)
Upper and post-secondary	0.115	-0.479***	-0.140	-0.489***	-0.0839	-0.482***	0.131	-0.483***	0.0720	-0.0582	0.0147	0.0842
	(0.0937)	(0.0394)	(0.147)	(0.0479)	(0.112)	(0.0403)	(0.124)	(0.0498)	(0.0881)	(0.135)	(0.0477)	(0.0742)

Child(ren)	0.0533	0.147***	-0.213*	0.0789	0.137*	0.135***	0.0187	0.0728	-0.176**	0.0919	0.0380	-0.101
	(0.0987)	(0.0337)	(0.119)	(0.0499)	(0.0712)	(0.0337)	(0.0665)	(0.0476)	(0.0749)	(0.0959)	(0.0619)	(0.0614)
Medium skilled occupation	-0.0435	-0.414***	-0.474**	-0.331***	0.00151	-0.421***	0.0703	-0.341***	-0.242**	0.414***	0.0509	-0.302**
	(0.157)	(0.0621)	(0.217)	(0.0870)	(0.0975)	(0.0613)	(0.167)	(0.0852)	(0.101)	(0.148)	(0.0816)	(0.118)
Low skilled occupation	0.0467	-0.580***	-0.677	-0.455***	0.0132	-0.577***	-0.146	-0.441***	-0.149	-0.00161	0.146*	-0.875***
	(0.182)	(0.139)	(0.443)	(0.159)	(0.133)	(0.142)	(0.334)	(0.159)	(0.130)	(0.161)	(0.0842)	(0.146)
Tenure	-0.00140	0.00143	0.0161	-0.00888	0.0312**	0.00182	-0.00278	-0.00794	0.0130	-0.0102	-0.0262**	0.00277
	(0.00790)	(0.00607)	(0.0180)	(0.00737)	(0.0124)	(0.00624)	(0.0158)	(0.00773)	(0.0143)	(0.00892)	(0.0119)	(0.0122)
Tenure squared	6.17e-06	-7.44e-05	-0.000750*	0.000152	-0.000740**	-9.40e-05	0.000341	0.000140	-0.000133	0.000545	0.000842**	-0.000336
	(0.000288)	(0.000153)	(0.000409)	(0.000189)	(0.000346)	(0.000152)	(0.000483)	(0.000206)	(0.000357)	(0.000371)	(0.000398)	(0.000475)
Open-ended contract	-0.240*	0.0530	0.0285	0.0525	0.0736	0.0407	0.0181	0.0420	0.258**	0.0186	-0.150	0.0919
	(0.138)	(0.0762)	(0.211)	(0.0957)	(0.124)	(0.0758)	(0.223)	(0.0939)	(0.100)	(0.148)	(0.173)	(0.165)
Part time	-0.673***	0.0526	-1.354***	0.0328	-0.162	0.0344	-0.321***	0.0371	-0.0203	-0.193	-0.0245	-0.0355
	(0.220)	(0.0951)	(0.204)	(0.0668)	(0.0990)	(0.0944)	(0.0575)	(0.0695)	(0.168)	(0.126)	(0.117)	(0.122)
Not private sector	-0.194**	0.0399	-0.177**	-0.0242	-0.257***	0.0502	-0.0575	-0.0382	-0.173*	-0.0173	0.0418	0.0436
	(0.0950)	(0.0725)	(0.0830)	(0.0566)	(0.0880)	(0.0721)	(0.0507)	(0.0542)	(0.0928)	(0.0715)	(0.0770)	(0.107)
Industry	0.00171	0.106	-0.348*	-0.168	0.0660	0.109	0.0569	-0.166	0.301	0.0320	0.116	0.345
	(0.220)	(0.182)	(0.182)	(0.115)	(0.155)	(0.184)	(0.165)	(0.112)	(0.317)	(0.256)	(0.254)	(0.266)
Construction, transport, storage	0.0502	0.162	-0.264	-0.352**	-0.0367	0.167	0.245	-0.361**	0.231	0.112	0.0601	0.224
	(0.282)	(0.157)	(0.209)	(0.145)	(0.174)	(0.158)	(0.177)	(0.141)	(0.423)	(0.299)	(0.264)	(0.201)
Trade, accommodation and food service activities	0.222	0.0301	-0.434**	-0.374***	-0.0712	0.0424	0.235	-0.367***	0.273	0.0786	9.48e-05	0.293
	(0.276)	(0.164)	(0.185)	(0.103)	(0.136)	(0.169)	(0.233)	(0.0998)	(0.349)	(0.181)	(0.237)	(0.274)
Services	0.00811	0.471***	-0.261**	0.128	0.154	0.467***	0.198*	0.129	0.496*	-0.149	0.131	0.286*
	(0.213)	(0.158)	(0.110)	(0.113)	(0.139)	(0.161)	(0.110)	(0.112)	(0.292)	(0.244)	(0.256)	(0.173)
1-49 employees	0.0476	-0.417***	-0.508**	-0.867***	-0.237**	-0.404***	-0.0856	-0.862***	-0.0671	-0.0763	0.0949	0.0587
	(0.143)	(0.0899)	(0.257)	(0.101)	(0.111)	(0.0944)	(0.155)	(0.101)	(0.160)	(0.214)	(0.0909)	(0.126)
50-249 employees	0.00352	-0.292***	-0.166	-0.568***	0.0239	-0.285***	0.171**	-0.569***	-0.0150	0.0924	-0.0110	-0.0385
	(0.0945)	(0.0587)	(0.189)	(0.0786)	(0.0867)	(0.0602)	(0.0851)	(0.0799)	(0.123)	(0.142)	(0.0645)	(0.109)
Nordic countries	-0.318	0.159	-1.101*	-0.491	-1.286***	0.143	-0.992**	-0.527	-0.766*	-0.630	0.207	-0.232
	(0.371)	(0.193)	(0.590)	(0.369)	(0.316)	(0.189)	(0.490)	(0.368)	(0.436)	(0.467)	(0.294)	(0.307)
Eastern countries	-0.0328	-0.341***	0.0331	-0.228**	-0.384***	-0.334***	-0.535***	-0.253**	0.197	0.308	-0.366***	-0.479***
	(0.183)	(0.0819)	(0.163)	(0.106)	(0.118)	(0.0871)	(0.167)	(0.105)	(0.157)	(0.249)	(0.119)	(0.147)
Southern countries	0.317	0.0827	0.616**	-0.172	-0.0843	0.0715	-0.0683	-0.201	-0.830***	-0.695*	0.438***	-0.0283
	(0.275)	(0.167)	(0.267)	(0.189)	(0.217)	(0.162)	(0.297)	(0.181)	(0.279)	(0.372)	(0.165)	(0.181)
Unemployment rate	-0.0270	-0.0319**	-0.0301	0.00803	-0.0103	-0.0305**	0.0129	0.00900	0.0955***	0.0775***	-0.0393**	-0.0224
	(0.0208)	(0.0133)	(0.0233)	(0.0158)	(0.0186)	(0.0128)	(0.0208)	(0.0151)	(0.0247)	(0.0299)	(0.0170)	(0.0172)
Yearly GDP growth	0.0241	0.0333	-0.0579	-0.0219	-0.0104	0.0232	-0.0734	-0.0174	0.0889	0.0280	0.0738	0.0912
	(0.0579)	(0.0479)	(0.110)	(0.0560)	(0.0643)	(0.0465)	(0.0580)	(0.0570)	(0.0570)	(0.0910)	(0.0457)	(0.0642)
Share of employees covered by a collective agreement	-0.00769***	-0.00202	-0.00397*	-0.00250	-0.00735***	-0.00206*	-0.00759**	-0.00264	-0.00231	-0.000388	0.00364*	-0.00286
	(0.00238)	(0.00124)	(0.00215)	(0.00230)	(0.00176)	(0.00120)	(0.00302)	(0.00225)	(0.00222)	(0.00246)	(0.00194)	(0.00185)
	0.00982	-0.00186	0.0115	0.0107*	0.0183***	-0.00150	0.00718	0.0110*	0.0133**	0.00291	-0.00734	0.00409

Share of employees who are trade union members	(0.00619)	(0.00342)	(0.00893)	(0.00631)	(0.00479)	(0.00333)	(0.00654)	(0.00634)	(0.00597)	(0.00770)	(0.00460)	(0.00440)
Strictness of regulation on the use of fixed-term and temporary work agency contracts	0.131	-0.165**	-0.139	-0.0722	-0.161**	-0.162**	-0.193**	-0.0709	0.106	-0.0439	-0.192***	-0.0863
	(0.115)	(0.0677)	(0.105)	(0.0666)	(0.0646)	(0.0654)	(0.0844)	(0.0671)	(0.0995)	(0.178)	(0.0641)	(0.0851)
Strictness of regulation of collective dismissal	0.0361	0.00788	-0.0304	-0.0278	-0.366***	0.00969	-0.214*	-0.0364	-0.157	-0.149	-0.0335	-0.203**
	(0.135)	(0.0639)	(0.131)	(0.107)	(0.0767)	(0.0624)	(0.128)	(0.108)	(0.109)	(0.135)	(0.0736)	(0.0973)
Strictness of regulation of individual dismissal of employees on regular/indefinite contracts	0.187	0.0324	0.0389	0.164	-0.217**	0.0380	-0.301**	0.152	0.124	-0.0919	-0.159	-0.215*
	(0.132)	(0.102)	(0.168)	(0.119)	(0.1000)	(0.102)	(0.140)	(0.120)	(0.131)	(0.155)	(0.108)	(0.122)
Indice of job teleworkability		0.751***		0.741***		0.750***		0.763***				
		(0.0675)		(0.0617)		(0.0689)		(0.0590)				
Indice of job social interaction		-0.00186		-0.00242		-0.00159		-0.00213				
		(0.00212)		(0.00282)		(0.00217)		(0.00290)				
Constant	0.194	0.248	0.750	0.131	3.132***	0.229	3.376***	0.154	-0.738	0.543	1.593***	1.337*
	(0.936)	(0.481)	(0.672)	(0.746)	(0.571)	(0.476)	(0.679)	(0.758)	(0.809)	(1.025)	(0.588)	(0.779)
Nb observations	11,814	11,814	8,423	8,423	12,048	12,048	8,593	8,593				
Nb teleworkers	2,479		2,952		2,526		3,003		1,999	1,662	3,810	3,278
Log likelihood, Iteration 0, Fitting full model	-6328.6728		-4193.7377		-6975.0764		-4950.5358		-1375.4679	-1104.8314	-2739.6712	-2124.1296
Log pseudolikelihood	-6327.906		-4193.476		-6975.076		-4950.502		-1273.9921	-996.4598	-2675.9424	-2032.7113

Source: EWCTS, Eurofound, 2021; external data for digitalisation (see table 1).
Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations.

Table 18. Relationships between digital work environment profiles and teleworkers' work intensification, mental health and well-being – Gender differences (full results of Table 10)

	Heckprobit Working long hours	Heckprobit Selection equation	Heckprobit Working long hours	Heckprobit Selection equation	Heckprobit Work intensity	Heckprobit Selection equation	Heckprobit Work intensity	Heckprobit Selection equation	Probit Emotionally exhausted	Probit Emotionally exhausted	Probit High score of well-being	Probit High score of well-being
	Men		Women		Men		Women		Men	Women	Men	Women
Past wave	-0.279***		0.0512		-0.0371		-0.105		-0.164	-0.0323	-0.117*	-0.115
	(0.0789)		(0.0898)		(0.0831)		(0.156)		(0.150)	(0.157)	(0.0616)	(0.0722)
Automation wave	-0.133		0.00525		-0.0322		-0.238		-0.106	-0.195	-0.150	0.130
	(0.100)		(0.130)		(0.127)		(0.150)		(0.0988)	(0.163)	(0.0995)	(0.0892)
New wave	-0.669***		-0.541**		-0.203***		-0.339***		-0.342***	-0.244*	-0.0821	-0.0719
	(0.0894)		(0.260)		(0.0661)		(0.0576)		(0.0631)	(0.131)	(0.0555)	(0.172)
15-34 years	-0.419***	-0.0880	-0.306**	-0.0760	0.235	-0.0976*	0.0388	-0.0642	-0.0939	-0.270**	-0.193**	-0.427***
	(0.134)	(0.0633)	(0.153)	(0.0891)	(0.156)	(0.0560)	(0.0765)	(0.0882)	(0.0904)	(0.108)	(0.0809)	(0.0723)
35-44 years	-0.245***	-0.0645	-0.0537	0.000633	0.0624	-0.0697	0.129	0.0149	0.0266	0.0450	-0.268***	-0.378***
	(0.0757)	(0.0577)	(0.0615)	(0.0447)	(0.0863)	(0.0539)	(0.130)	(0.0451)	(0.0712)	(0.191)	(0.0532)	(0.0662)
Primary and lower secondary	-0.0403	-0.592***	-0.692**	-0.804***	-0.195	-0.596***	0.158	-0.797***	-1.077***	0.549	-0.251*	-0.00278
	(0.237)	(0.0823)	(0.306)	(0.227)	(0.206)	(0.0771)	(0.271)	(0.227)	(0.297)	(0.359)	(0.141)	(0.169)
Upper and post-secondary	-0.0495	-0.481***	-0.283***	-0.493***	-0.177	-0.482***	0.00505	-0.485***	0.0728	-0.121	0.0108	0.115*
	(0.108)	(0.0394)	(0.0611)	(0.0467)	(0.115)	(0.0404)	(0.122)	(0.0500)	(0.0851)	(0.120)	(0.0476)	(0.0641)
Child(ren)	0.0703	0.146***	-0.155	0.0793	0.143**	0.135***	0.0342	0.0728	-0.193***	0.0762	0.0338	-0.105*
	(0.0951)	(0.0339)	(0.107)	(0.0491)	(0.0703)	(0.0337)	(0.0702)	(0.0473)	(0.0700)	(0.0970)	(0.0586)	(0.0585)
Medium skilled occupation	-0.330***	-0.413***	-0.724***	-0.338***	-0.180**	-0.421***	-0.115	-0.345***	-0.199**	0.149	0.0108	-0.129*
	(0.113)	(0.0616)	(0.109)	(0.0876)	(0.0806)	(0.0612)	(0.157)	(0.0866)	(0.0780)	(0.147)	(0.0861)	(0.0724)
Low skilled occupation	-0.156	-0.581***	-0.907***	-0.484***	-0.128	-0.579***	-0.348	-0.454***	0.0291	-0.156	0.131	-0.750***
	(0.194)	(0.140)	(0.237)	(0.171)	(0.178)	(0.142)	(0.311)	(0.163)	(0.125)	(0.192)	(0.0974)	(0.126)
Tenure	-0.00110	0.00155	0.00768	-0.00976	0.0309**	0.00176	-0.00750	-0.00778	0.0126	-0.0188*	-0.0260**	0.00622
	(0.00844)	(0.00604)	(0.0140)	(0.00763)	(0.0127)	(0.00623)	(0.0157)	(0.00756)	(0.0136)	(0.0107)	(0.0109)	(0.0123)
Tenure squared	-2.94e-05	-7.76e-05	-0.000491	0.000170	-0.000758**	-9.29e-05	0.000431	0.000133	-0.000141	0.000707	0.000824**	-0.000407
	(0.000288)	(0.000154)	(0.000319)	(0.000194)	(0.000362)	(0.000153)	(0.000464)	(0.000199)	(0.000346)	(0.000437)	(0.000365)	(0.000476)
Open-ended contract	-0.213	0.0551	0.0360	0.0559	0.0939	0.0398	0.0207	0.0387	0.251**	-0.00445	-0.138	0.0983
	(0.142)	(0.0766)	(0.173)	(0.0950)	(0.117)	(0.0757)	(0.214)	(0.0954)	(0.110)	(0.172)	(0.174)	(0.166)
Part time	-0.651***	0.0510	-1.223***	0.0324	-0.138	0.0336	-0.312***	0.0400	-0.00468	-0.192*	-0.0214	-0.0303
	(0.207)	(0.0950)	(0.150)	(0.0664)	(0.0934)	(0.0940)	(0.0518)	(0.0690)	(0.167)	(0.108)	(0.114)	(0.119)
Not private sector	-0.208**	0.0401	-0.137	-0.0235	-0.245***	0.0484	-0.0628	-0.0365	-0.162*	-0.00494	0.0387	0.0337
	(0.106)	(0.0722)	(0.0842)	(0.0564)	(0.0832)	(0.0725)	(0.0545)	(0.0540)	(0.0827)	(0.0726)	(0.0825)	(0.103)
Industry	-0.0750	0.104	-0.162	-0.168	0.0679	0.109	0.130	-0.169	0.263	0.179	0.176	0.366
	(0.243)	(0.182)	(0.147)	(0.114)	(0.170)	(0.184)	(0.152)	(0.112)	(0.278)	(0.245)	(0.259)	(0.236)
Construction, transport, storage	-0.0302	0.159	-0.232	-0.359**	-0.0391	0.165	0.186	-0.363***	0.261	0.0770	0.215	0.349***
	(0.269)	(0.156)	(0.147)	(0.141)	(0.171)	(0.157)	(0.150)	(0.140)	(0.279)	(0.294)	(0.319)	(0.120)
Trade, accommodation and food service activities	0.123	0.0291	-0.450***	-0.373***	-0.0827	0.0424	0.155	-0.368***	0.282	-0.0129	0.135	0.387*
	(0.271)	(0.163)	(0.0925)	(0.100)	(0.142)	(0.169)	(0.138)	(0.101)	(0.292)	(0.177)	(0.291)	(0.226)

Services	0.0605	0.468***	-0.0884	0.126	0.136	0.466***	0.298***	0.128	0.401	-0.136	0.166	0.309*
	(0.238)	(0.157)	(0.100)	(0.110)	(0.167)	(0.161)	(0.0971)	(0.112)	(0.289)	(0.221)	(0.265)	(0.163)
1-49 employees	-0.129	-0.415***	-0.560***	-0.870***	-0.301***	-0.403***	-0.275*	-0.863***	-0.0183	-0.118	0.166**	0.101
	(0.155)	(0.0889)	(0.177)	(0.101)	(0.0858)	(0.0934)	(0.160)	(0.101)	(0.128)	(0.204)	(0.0816)	(0.123)
50-249 employees	-0.127*	-0.290***	-0.233*	-0.571***	-0.0164	-0.284***	0.0458	-0.570***	0.0161	0.0371	0.0423	-0.00856
	(0.0726)	(0.0585)	(0.123)	(0.0790)	(0.0880)	(0.0600)	(0.0947)	(0.0794)	(0.109)	(0.126)	(0.0465)	(0.102)
Nordic countries	-0.121	0.154	-1.477***	-0.494	-1.242***	0.143	-0.948**	-0.514	-0.893**	-0.671	0.144	-0.148
	(0.362)	(0.193)	(0.557)	(0.369)	(0.317)	(0.189)	(0.398)	(0.369)	(0.364)	(0.415)	(0.283)	(0.331)
Eastern countries	-0.107	-0.340***	-0.130	-0.232**	-0.438***	-0.335***	-0.615***	-0.254**	0.176	0.224	-0.357***	-0.474***
	(0.184)	(0.0814)	(0.181)	(0.108)	(0.113)	(0.0865)	(0.165)	(0.105)	(0.151)	(0.191)	(0.119)	(0.143)
Southern countries	0.328	0.0813	0.114	-0.165	-0.223	0.0728	-0.228	-0.196	-0.965***	-0.993***	0.417***	-0.0283
	(0.298)	(0.168)	(0.206)	(0.188)	(0.209)	(0.162)	(0.274)	(0.182)	(0.209)	(0.298)	(0.147)	(0.189)
Unemployment rate	-0.0368**	-0.0317**	-0.00362	0.00796	-0.00230	-0.0306**	0.0197	0.00848	0.102***	0.0998***	-0.0429***	-0.0282
	(0.0185)	(0.0134)	(0.0207)	(0.0158)	(0.0168)	(0.0128)	(0.0208)	(0.0152)	(0.0230)	(0.0275)	(0.0164)	(0.0184)
Yearly GDP growth	0.0338	0.0320	-0.0485	-0.0201	-0.0514	0.0229	-0.0817*	-0.0161	0.0522	-0.0151	0.0799*	0.112*
	(0.0418)	(0.0475)	(0.0580)	(0.0554)	(0.0529)	(0.0465)	(0.0468)	(0.0569)	(0.0544)	(0.0777)	(0.0460)	(0.0666)
Share of employees covered by a collective agreement	-0.00795***	-0.00200	-0.00425***	-0.00247	-0.00762***	-0.00205*	-0.00671**	-0.00266	-0.00343	0.000482	0.00348*	-0.00320**
	(0.00231)	(0.00124)	(0.00164)	(0.00228)	(0.00169)	(0.00120)	(0.00272)	(0.00225)	(0.00232)	(0.00224)	(0.00201)	(0.00141)
Share of employees who are trade union members	0.00595	-0.00184	0.0180**	0.0106*	0.0144***	-0.00155	0.00616	0.0109*	0.0129***	0.000462	-0.00700	0.00383
	(0.00627)	(0.00341)	(0.00769)	(0.00626)	(0.00452)	(0.00333)	(0.00549)	(0.00636)	(0.00494)	(0.00720)	(0.00448)	(0.00357)
Strictness of regulation on the use of fixed-term and temporary work agency contracts	0.118	-0.166**	-0.0937	-0.0740	-0.142***	-0.163**	-0.151*	-0.0679	0.106	0.0221	-0.200***	-0.0775
	(0.0901)	(0.0674)	(0.102)	(0.0658)	(0.0549)	(0.0653)	(0.0778)	(0.0669)	(0.0898)	(0.141)	(0.0633)	(0.0778)
Strictness of regulation of collective dismissal	0.0325	0.00839	-0.193	-0.0267	-0.371***	0.0101	-0.253**	-0.0317	-0.189*	-0.248**	-0.0315	-0.159*
	(0.126)	(0.0633)	(0.119)	(0.107)	(0.0746)	(0.0626)	(0.106)	(0.108)	(0.105)	(0.126)	(0.0718)	(0.0919)
Strictness of regulation of individual dismissal of employees on regular/indefinite contracts	0.152	0.0294	-0.0346	0.166	-0.280***	0.0361	-0.267**	0.154	0.0165	-0.209	-0.162*	-0.166
	(0.0972)	(0.100)	(0.161)	(0.120)	(0.0866)	(0.102)	(0.106)	(0.119)	(0.0879)	(0.169)	(0.0869)	(0.105)
Indice of job teleworkability		0.751***		0.725***		0.750***		0.755***				
		(0.0677)		(0.0659)		(0.0688)		(0.0619)				
Indice of job social interaction		-0.00199		-0.00302		-0.00169		-0.00244				
		(0.00226)		(0.00271)		(0.00218)		(0.00296)				
Constant	-0.371	0.261	0.343	0.179	2.864***	0.243	2.867***	0.160	-0.800	0.975	1.193**	1.017
	(0.678)	(0.469)	(0.715)	(0.737)	(0.429)	(0.477)	(0.567)	(0.757)	(0.622)	(0.613)	(0.548)	(0.678)

Nb observations	11,814	11,814	8,423	8,423	12,048	12,048	8,593	8,593				
Nb teleworkers	2,479		2,952		2,526		3,003		1,999	1,662	3,810	3,278
Log likelihood, Iteration 0, Fitting full model	-6326.707		-4237.0531		-6981.8428		-4959.4051		-1375.4679	-1104.8314	-2739.6712	-2124.13
Log pseudolikelihood	-6326.698		-4210.728		-6981.734		-4959.387		-1277.0947	-1015.0311	-2678.7088	-2040.519

Source: EWCTS, Eurofound, 2021; external data for digitalisation (see table 1).
Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations.

Table 19. Relationships between digital indicators and teleworkers' work intensification, mental health and well-being – Age differences (full results of Table 11)

	Heckprobit	**Heckprobit**	**Heckprobit**	**Heckprobit**	**Heckprobit**	**Heckprobit**	**Heckprobit**	**Heckprobit**	**Probit**	**Probit**	**Probit**	**Probit**
	Working long hours	**Selection equation**	**Working long hours**	**Selection equation**	**Work intensity**	**Selection equation**	**Work intensity**	**Selection equation**	**Emotionally exhausted**	**Emotionally exhausted**	**High score of well-being**	**High score of well-being**
	Less than 45	**Less than 45**	**45 and more**	**45 and more**	**Less than 45**	**Less than 45**	**45 and more**	**45 and more**	**Less than 45**	**45 and more**	**Less than 45**	**45 and more**
CT density exposure	0.102**		0.00447		0.0428		-0.0342		0.0787*	0.0360	-0.0502*	0.0435
	(0.0414)		(0.0405)		(0.0325)		(0.0409)		(0.0470)	(0.0663)	(0.0264)	(0.0504)
IT density exposure	-0.0266		-0.0577		-0.0890**		-0.0862		-0.139	-0.0729	0.0633	-0.0520
	(0.0507)		(0.0628)		(0.0430)		(0.0645)		(0.0860)	(0.0691)	(0.0407)	(0.0435)
DB density exposure	0.0241		0.0761		0.0669*		0.0823		-0.0659	0.122***	-0.0322	-0.00931
	(0.0380)		(0.0617)		(0.0377)		(0.0696)		(0.0582)	(0.0371)	(0.0598)	(0.0495)
ADT investments	-0.0828**		0.0772		0.000898		0.0461		0.0893	-0.0737	-0.0996*	-0.0424
	(0.0410)		(0.0720)		(0.0599)		(0.0583)		(0.0862)	(0.0961)	(0.0551)	(0.0821)
ADT exposure	-0.0610		-0.106**		-0.0410		-0.0288		0.00737	-0.0325	-0.0342	0.0387
	(0.0379)		(0.0524)		(0.0264)		(0.0443)		(0.0383)	(0.0544)	(0.0241)	(0.0472)
AI risk exposure	-0.218***		-0.190***		-0.0908**		-0.0676		-0.0636***	-0.0903**	-0.0223	0.0480
	(0.0822)		(0.0532)		(0.0436)		(0.0452)		(0.0234)	(0.0439)	(0.0357)	(0.0373)
Automation risk exposure (RTI)	-0.171**		-0.107		-0.221***		0.0234		-0.165***	-0.0202	0.0146	0.0305
	(0.0676)		(0.0712)		(0.0485)		(0.0549)		(0.0542)	(0.0387)	(0.0329)	(0.0486)
Man	0.138	0.0200	0.260**	0.0125	-0.229***	0.0204	-0.228**	0.0246	-0.207**	-0.134	0.328***	0.253***
	(0.0894)	(0.0353)	(0.123)	(0.0569)	(0.0583)	(0.0352)	(0.0930)	(0.0594)	(0.0821)	(0.136)	(0.0841)	(0.0916)
Primary and lower secondary	-0.500	-0.731***	0.480**	-0.616***	0.248	-0.740***	0.0198	-0.612***	-0.252	-0.477	-0.0446	-0.165
	(0.337)	(0.0850)	(0.196)	(0.0936)	(0.213)	(0.0820)	(0.244)	(0.0888)	(0.399)	(0.390)	(0.153)	(0.228)
Upper and post-secondary	-0.153	-0.508***	0.189**	-0.451***	0.211*	-0.506***	-0.143	-0.454***	-0.0371	0.0137	0.00301	0.122
	(0.112)	(0.0497)	(0.0941)	(0.0350)	(0.117)	(0.0514)	(0.142)	(0.0352)	(0.104)	(0.150)	(0.0632)	(0.0938)
Child(ren)	-0.138	0.0489	0.0594	0.226***	0.0229	0.0502	0.116*	0.207***	-0.0258	-0.0595	0.0787**	-0.167**
	(0.0924)	(0.0572)	(0.0918)	(0.0649)	(0.0689)	(0.0589)	(0.0668)	(0.0620)	(0.0664)	(0.113)	(0.0369)	(0.0783)
Medium skilled occupation	-0.383**	-0.375***	-0.0144	-0.381***	0.255***	-0.386***	-0.130	-0.385***	0.101	0.143	-0.0306	-0.112
	(0.165)	(0.0555)	(0.162)	(0.0974)	(0.0948)	(0.0572)	(0.197)	(0.0979)	(0.156)	(0.101)	(0.128)	(0.130)
	0.0926	-0.483***	-0.215	-0.587***	0.419*	-0.488***	-0.471	-0.560***	-0.0523	0.0279	-0.197	-0.0735

Low skilled occupation	(0.157)	(0.129)	(0.262)	(0.152)	(0.225)	(0.130)	(0.309)	(0.171)	(0.174)	(0.178)	(0.189)	(0.151)
Tenure	0.0276	0.0113	-0.0122	-0.00286	0.0344**	0.0113	0.0159	-0.00170	0.0176	-0.0111	0.00784	-0.0154
	(0.0169)	(0.0123)	(0.00930)	(0.00558)	(0.0167)	(0.0120)	(0.0133)	(0.00618)	(0.0332)	(0.0116)	(0.0227)	(0.0187)
Tenure squared	-0.000388	-0.000678	0.000172	3.55e-05	-0.00115	-0.000679	-0.000269	3.80e-06	0.000183	0.000431	-0.000761	0.000391
	(0.000915)	(0.000467)	(0.000266)	(0.000124)	(0.000777)	(0.000468)	(0.000367)	(0.000136)	(0.00180)	(0.000361)	(0.00112)	(0.000575)
Open-ended contract	-0.172	0.105	-0.0220	-0.103	-0.0466	0.0914	0.114	-0.0974	0.199**	0.0768	-0.0432	-0.00838
	(0.115)	(0.0665)	(0.160)	(0.110)	(0.166)	(0.0661)	(0.231)	(0.106)	(0.0846)	(0.239)	(0.126)	(0.318)
Part time	-1.007***	0.0732	-1.079***	-0.0762	-0.356***	0.0705	-0.182**	-0.0811	-0.0459	-0.0999	-0.100	0.0130
	(0.208)	(0.0757)	(0.225)	(0.0862)	(0.124)	(0.0751)	(0.0810)	(0.0864)	(0.121)	(0.148)	(0.0942)	(0.131)
Not private sector	-0.0770	-0.0562	-0.271**	0.0861	-0.212**	-0.0512	-0.0931*	0.0828	-0.149*	-0.00294	-0.0242	0.0823
	(0.0647)	(0.0518)	(0.127)	(0.0824)	(0.106)	(0.0507)	(0.0549)	(0.0838)	(0.0809)	(0.0683)	(0.110)	(0.0877)
Industry	-0.246*	-0.258**	0.00545	0.126	-0.0178	-0.222**	0.259	0.0993	0.185	-0.00496	0.583	-0.0375
	(0.138)	(0.107)	(0.175)	(0.126)	(0.186)	(0.102)	(0.207)	(0.126)	(0.249)	(0.274)	(0.357)	(0.267)
Construction, transport, storage	-0.111	-0.255**	0.0317	0.122	0.118	-0.225**	0.114	0.101	0.283	-0.227	0.580*	-0.0455
	(0.232)	(0.118)	(0.230)	(0.0783)	(0.181)	(0.114)	(0.197)	(0.0833)	(0.315)	(0.399)	(0.341)	(0.252)
Trade, accommodation and food service activities	-0.0321	-0.342***	0.106	-0.00706	0.0997	-0.312***	0.0932	-0.0131	0.195	-0.0651	0.319	0.105
	(0.155)	(0.0951)	(0.180)	(0.0947)	(0.155)	(0.0883)	(0.249)	(0.104)	(0.221)	(0.297)	(0.369)	(0.235)
Services	-0.00402	0.121	-0.204*	0.430***	0.0964	0.142	0.293**	0.415***	0.122	-0.0207	0.499	0.0680
	(0.150)	(0.132)	(0.120)	(0.0968)	(0.182)	(0.129)	(0.141)	(0.0955)	(0.306)	(0.203)	(0.313)	(0.191)
1-49 employees	-0.201	-0.614***	0.125	-0.578***	-0.0725	-0.597***	-0.269	-0.576***	0.171	-0.324	-0.0564	0.233
	(0.147)	(0.110)	(0.227)	(0.115)	(0.133)	(0.109)	(0.240)	(0.119)	(0.176)	(0.251)	(0.124)	(0.142)
50-249 employees	-0.160	-0.415***	0.147	-0.374***	0.166	-0.406***	0.0219	-0.378***	0.154	-0.00877	-0.0924	0.0390
	(0.0970)	(0.0562)	(0.120)	(0.0833)	(0.112)	(0.0564)	(0.171)	(0.0859)	(0.110)	(0.199)	(0.112)	(0.0545)
Nordic countries	0.221	-0.147	-1.413***	-0.0358	-0.500	-0.166	-2.087***	-0.0723	-0.658	-0.473	-0.333	0.387
	(0.460)	(0.248)	(0.393)	(0.251)	(0.451)	(0.252)	(0.521)	(0.243)	(0.429)	(0.460)	(0.320)	(0.298)
Eastern countries	-0.0174	-0.170**	-0.0183	-0.532***	-0.511***	-0.178**	-0.285	-0.547***	0.323**	0.0964	-0.422***	-0.570***
	(0.135)	(0.0770)	(0.247)	(0.113)	(0.116)	(0.0824)	(0.247)	(0.111)	(0.156)	(0.262)	(0.110)	(0.194)
Southern countries	0.748***	0.0388	-0.0498	-0.0995	0.137	0.0271	-0.662**	-0.117	-0.734**	-0.691**	0.0186	0.540***
	(0.195)	(0.166)	(0.234)	(0.203)	(0.225)	(0.165)	(0.315)	(0.200)	(0.290)	(0.275)	(0.134)	(0.197)
Unemployment rate	-0.0335**	-0.0255*	-0.0168	-0.00622	-0.00259	-0.0244*	0.0341	-0.00591	0.0935***	0.0734***	-0.0160	-0.0553**
	(0.0166)	(0.0146)	(0.0225)	(0.0148)	(0.0150)	(0.0141)	(0.0258)	(0.0144)	(0.0223)	(0.0228)	(0.0157)	(0.0219)
Yearly GDP growth	0.0836	-0.0162	-0.115	0.0571	0.0208	-0.0180	-0.162*	0.0575	0.152**	-0.0388	0.0177	0.190**
	(0.0658)	(0.0533)	(0.0831)	(0.0533)	(0.0451)	(0.0509)	(0.0959)	(0.0517)	(0.0772)	(0.0847)	(0.0549)	(0.0859)
Share of employees covered by a collective agreement	-0.00453**	-0.00266**	-0.00845***	-0.00219	-0.00702***	-0.00270**	-0.00869***	-0.00239	0.00320	-0.00800***	-0.00153	0.00317**
	(0.00187)	(0.00134)	(0.00206)	(0.00185)	(0.00198)	(0.00133)	(0.00251)	(0.00182)	(0.00205)	(0.00274)	(0.00223)	(0.00161)
Share of employees who are trade union members	-0.000250	0.00162	0.0194***	0.00578	0.00659	0.00178	0.0250***	0.00642	0.0114*	0.00211	0.00172	-0.00781
	(0.00631)	(0.00430)	(0.00546)	(0.00467)	(0.00609)	(0.00424)	(0.00739)	(0.00456)	(0.00687)	(0.00739)	(0.00470)	(0.00520)

Strictness of regulation on the use of fixed-term and temporary work agency contracts	-0.0142	-0.171***	0.0952	-0.0598	-0.107	-0.171***	-0.214**	-0.0549	-0.0483	0.186**	-0.0834	-0.213***
	(0.106)	(0.0613)	(0.115)	(0.0659)	(0.0906)	(0.0604)	(0.0833)	(0.0644)	(0.119)	(0.0858)	(0.0678)	(0.0808)
Strictness of regulation of collective dismissal	0.140	-0.0311	-0.157	0.0255	-0.133	-0.0326	-0.517***	0.0183	-0.195	-0.0798	-0.177*	-0.0346
	(0.130)	(0.0877)	(0.126)	(0.0717)	(0.0984)	(0.0880)	(0.137)	(0.0706)	(0.121)	(0.111)	(0.0932)	(0.0969)
Strictness of regulation of individual dismissal of employees on regular/indefinite contracts	0.173	-0.0370	0.00801	0.265**	-0.0713	-0.0362	-0.432**	0.265**	0.206	-0.174	-0.254*	-0.113
	(0.114)	(0.0971)	(0.120)	(0.114)	(0.104)	(0.0979)	(0.193)	(0.111)	(0.154)	(0.135)	(0.130)	(0.123)
Indice of job teleworkability		0.820***		0.662***		0.827***		0.674***				
		(0.0518)		(0.0731)		(0.0513)		(0.0774)				
Indice of job social interaction		-0.00304		-0.00174		-0.00279		-0.00131				
		(0.00198)		(0.00245)		(0.00200)		(0.00275)				
Constant	-0.340	0.939*	1.121	-0.657	2.717***	0.905*	4.030***	-0.662	-0.965	0.953	1.357	0.631
	(0.850)	(0.534)	(0.866)	(0.562)	(0.743)	(0.533)	(0.798)	(0.554)	(0.739)	(0.943)	(0.863)	(0.897)
Nb observations	12,182	12,182	8,055	8,055	12,397	12,397	8,244	8,244				
Nb teleworkers	3,654		1,777		3,707		1,822		2,182	1,479	4,270	2,818
Log likelihood, Iteration 0, Fitting full model	-5582.1824		-4945.2195		-6433.1672		-5490.6538		-1335.1721	-1143.0726	-2618.9914	-2251.0204
Log pseudolikelihood	-5582.182		-4938.914		-6432.814		-5490.638		-1216.5737	-1075.7988	-2530.1729	-2179.7027

Source: EWCTS, Eurofound, 2021; external data for digitalisation (see table 1).
Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations.

Table 20. Relationships between digital work environment profiles and teleworkers' work intensification, mental health and well-being – Age differences (full results of Table 12)

	Heckprobit Working long hours	Heckprobit Selection equation	Heckprobit Working long hours	Heckprobit Selection equation	Heckprobit Work intensity	Heckprobit Selection equation	Heckprobit Work intensity	Heckprobit Selection equation	Probit Emotionally exhausted	Probit Emotionally exhausted	Probit High score of well-being	Probit High score of well-being
	Less than 45	Less than 45	45 and more	45 and more	Less than 45	Less than 45	45 and more	45 and more	Less than 45	45 and more	Less than 45	45 and more
Past wave	-0.0792		-0.232**		0.00949		-0.150		-0.455***	0.224*	-0.109	-0.155**
	(0.114)		(0.101)		(0.0627)		(0.138)		(0.133)	(0.120)	(0.0766)	(0.0644)
Automation wave	-0.201		-0.0633		-0.266**		-0.0270		-0.377*	0.0255	-0.0354	-0.0114
	(0.160)		(0.107)		(0.132)		(0.0825)		(0.204)	(0.0978)	(0.0772)	(0.101)
New wave	-0.407***		-0.952***		-0.200**		-0.326***		-0.326***	-0.297**	-0.193**	0.0660
	(0.0823)		(0.108)		(0.0891)		(0.0749)		(0.0800)	(0.122)	(0.0922)	(0.0845)
Man	0.125	0.0192	0.303**	0.0103	-0.237***	0.0194	-0.209**	0.0247	-0.170**	-0.112	0.331***	0.248**
	(0.0877)	(0.0355)	(0.122)	(0.0581)	(0.0501)	(0.0355)	(0.0859)	(0.0594)	(0.0830)	(0.140)	(0.0836)	(0.101)
Primary and lower secondary	-0.631**	-0.732***	0.203	-0.617***	0.0774	-0.741***	-0.0658	-0.614***	-0.291	-0.568	-0.0207	-0.172
	(0.285)	(0.0852)	(0.240)	(0.0930)	(0.260)	(0.0817)	(0.224)	(0.0884)	(0.419)	(0.377)	(0.144)	(0.222)
Upper and post-secondary	-0.267***	-0.510***	-0.0270	-0.454***	0.0492	-0.506***	-0.192	-0.455***	-0.0460	-0.0102	-0.00429	0.134
	(0.0791)	(0.0500)	(0.122)	(0.0336)	(0.162)	(0.0511)	(0.127)	(0.0350)	(0.108)	(0.120)	(0.0602)	(0.0856)
Child(ren)	-0.119	0.0480	0.152	0.225***	0.0291	0.0510	0.145**	0.207***	-0.0451	-0.0621	0.0778**	-0.163**
	(0.0821)	(0.0576)	(0.0971)	(0.0661)	(0.0625)	(0.0584)	(0.0576)	(0.0622)	(0.0645)	(0.103)	(0.0340)	(0.0741)
Medium skilled occupation	-0.573***	-0.376***	-0.402***	-0.380***	-0.0855	-0.390***	-0.150	-0.384***	0.00346	0.0479	-0.0172	-0.0435
	(0.133)	(0.0554)	(0.118)	(0.0989)	(0.154)	(0.0603)	(0.154)	(0.0981)	(0.143)	(0.0836)	(0.0950)	(0.0930)
Low skilled occupation	-0.0146	-0.490***	-0.582***	-0.586***	0.122	-0.501***	-0.472*	-0.555***	-0.0746	0.0696	-0.148	-0.0853
	(0.207)	(0.130)	(0.207)	(0.159)	(0.340)	(0.139)	(0.269)	(0.171)	(0.211)	(0.181)	(0.168)	(0.137)
Tenure	0.0286*	0.0110	-0.0122	-0.00294	0.0320*	0.0111	0.0155	-0.00166	0.0178	-0.00974	0.0117	-0.0157
	(0.0153)	(0.0126)	(0.0111)	(0.00555)	(0.0167)	(0.0120)	(0.0130)	(0.00617)	(0.0325)	(0.00969)	(0.0228)	(0.0194)
Tenure squared	-0.000631	-0.000659	0.000171	3.68e-05	-0.00121	-0.000672	-0.000264	2.56e-06	6.37e-05	0.000416	-0.000946	0.000415
	(0.000813)	(0.000478)	(0.000312)	(0.000123)	(0.000824)	(0.000467)	(0.000356)	(0.000136)	(0.00178)	(0.000333)	(0.00112)	(0.000592)
Open-ended contract	-0.134	0.106	-0.0682	-0.0964	-0.000373	0.0895	0.0817	-0.0981	0.202**	0.0788	-0.0442	-0.000102
	(0.116)	(0.0666)	(0.167)	(0.110)	(0.162)	(0.0653)	(0.223)	(0.107)	(0.0966)	(0.246)	(0.124)	(0.321)
Part time	-0.915***	0.0716	-1.196***	-0.0790	-0.315***	0.0711	-0.190**	-0.0801	-0.0260	-0.123	-0.0916	0.0176
	(0.174)	(0.0754)	(0.207)	(0.0850)	(0.111)	(0.0757)	(0.0882)	(0.0868)	(0.120)	(0.141)	(0.0927)	(0.137)
Not private sector	-0.0627	-0.0557	-0.299**	0.0858	-0.202*	-0.0527	-0.101*	0.0822	-0.143**	-0.0107	-0.0137	0.0626
	(0.0712)	(0.0519)	(0.128)	(0.0825)	(0.107)	(0.0506)	(0.0571)	(0.0837)	(0.0674)	(0.0616)	(0.109)	(0.0884)
Industry	-0.192	-0.260**	-0.0525	0.120	-0.00945	-0.227**	0.257	0.100	0.134	0.146	0.635**	0.0197
	(0.134)	(0.107)	(0.159)	(0.127)	(0.230)	(0.104)	(0.213)	(0.126)	(0.264)	(0.260)	(0.311)	(0.222)
Construction, transport, storage	0.0305	-0.258**	-0.116	0.115	0.124	-0.231**	0.0355	0.102	0.210	-0.0808	0.771**	0.0179
	(0.205)	(0.118)	(0.165)	(0.0778)	(0.206)	(0.117)	(0.116)	(0.0836)	(0.316)	(0.273)	(0.318)	(0.160)
Trade, accommodation and food service activities	0.0212	-0.343***	-0.0558	-0.00956	0.0591	-0.315***	0.0264	-0.0133	0.0591	0.0793	0.482	0.168
	(0.151)	(0.0956)	(0.169)	(0.0950)	(0.168)	(0.0891)	(0.196)	(0.104)	(0.244)	(0.217)	(0.341)	(0.190)
Services	0.0530	0.119	-0.0880	0.424***	0.112	0.135	0.311**	0.416***	0.0412	0.0400	0.530*	0.106

	(0.130)	(0.132)	(0.125)	(0.0962)	(0.185)	(0.131)	(0.157)	(0.0960)	(0.305)	(0.212)	(0.279)	(0.175)
1-49 employees	-0.213	-0.613***	-0.178	-0.576***	-0.211	-0.596***	-0.384**	-0.575***	0.0692	-0.233	0.0348	0.248*
	(0.197)	(0.111)	(0.218)	(0.116)	(0.178)	(0.108)	(0.182)	(0.119)	(0.144)	(0.174)	(0.122)	(0.128)
50-249 employees	-0.159	-0.415***	-0.0728	-0.373***	0.0941	-0.406***	-0.0604	-0.377***	0.0901	0.0625	-0.0284	0.0482
	(0.108)	(0.0563)	(0.102)	(0.0845)	(0.143)	(0.0558)	(0.123)	(0.0859)	(0.111)	(0.165)	(0.0986)	(0.0667)
Nordic countries	-0.0899	-0.149	-1.393***	-0.0440	-0.634	-0.159	-1.820***	-0.0721	-0.518	-0.722*	-0.363	0.480**
	(0.425)	(0.247)	(0.412)	(0.249)	(0.452)	(0.252)	(0.406)	(0.243)	(0.368)	(0.394)	(0.355)	(0.221)
Eastern countries	-0.101	-0.169**	-0.233	-0.537***	-0.602***	-0.181**	-0.335	-0.546***	0.304***	0.0575	-0.427***	-0.533***
	(0.154)	(0.0766)	(0.233)	(0.113)	(0.121)	(0.0821)	(0.239)	(0.110)	(0.118)	(0.261)	(0.115)	(0.170)
Southern countries	0.586***	0.0393	-0.171	-0.0974	0.0272	0.0297	-0.712***	-0.115	-0.756***	-0.995***	0.0393	0.483***
	(0.227)	(0.166)	(0.312)	(0.204)	(0.245)	(0.164)	(0.232)	(0.199)	(0.200)	(0.221)	(0.118)	(0.147)
Unemployment rate	-0.0331*	-0.0254*	-0.0163	-0.00632	0.000829	-0.0246*	0.0354*	-0.00618	0.0933***	0.0924***	-0.0230	-0.0561***
	(0.0185)	(0.0145)	(0.0233)	(0.0147)	(0.0166)	(0.0141)	(0.0206)	(0.0144)	(0.0198)	(0.0223)	(0.0174)	(0.0181)
Yearly GDP growth	0.0909	-0.0177	-0.102	0.0588	-0.0113	-0.0180	-0.159**	0.0575	0.114*	-0.0697	0.0355	0.198**
	(0.0657)	(0.0532)	(0.0747)	(0.0531)	(0.0386)	(0.0510)	(0.0658)	(0.0516)	(0.0666)	(0.0738)	(0.0600)	(0.0771)
Share of employees covered by a collective agreement	-0.00491***	-0.00265**	-0.00992***	-0.00215	-0.00688***	-0.00270**	-0.00796***	-0.00239	0.00199	-0.00674***	-0.00203	0.00301**
	(0.00162)	(0.00133)	(0.00236)	(0.00186)	(0.00186)	(0.00133)	(0.00220)	(0.00181)	(0.00171)	(0.00244)	(0.00182)	(0.00141)
Share of employees who are trade union members	0.00218	0.00158	0.0216***	0.00583	0.00380	0.00164	0.0214***	0.00639	0.00854	0.00147	0.00284	-0.00892**
	(0.00575)	(0.00428)	(0.00566)	(0.00467)	(0.00506)	(0.00425)	(0.00629)	(0.00456)	(0.00626)	(0.00665)	(0.00415)	(0.00408)
Strictness of regulation on the use of fixed-term and temporary work agency contracts	-0.0599	-0.171***	0.136	-0.0618	-0.135*	-0.170***	-0.169**	-0.0554	-0.0169	0.211***	-0.0889	-0.193**
	(0.0879)	(0.0615)	(0.107)	(0.0652)	(0.0812)	(0.0606)	(0.0672)	(0.0642)	(0.0967)	(0.0786)	(0.0802)	(0.0771)
Strictness of regulation of collective dismissal	0.0352	-0.0302	-0.186	0.0243	-0.191**	-0.0296	-0.495***	0.0188	-0.210**	-0.148	-0.153*	-0.0208
	(0.143)	(0.0869)	(0.119)	(0.0716)	(0.0903)	(0.0880)	(0.126)	(0.0705)	(0.106)	(0.104)	(0.0877)	(0.0790)
Strictness of regulation of individual dismissal of employees on regular/indefinite contracts	0.0195	-0.0401	0.0946	0.267**	-0.192***	-0.0344	-0.363**	0.263**	0.0391	-0.213**	-0.190	-0.155
	(0.117)	(0.0976)	(0.102)	(0.114)	(0.0681)	(0.0980)	(0.159)	(0.110)	(0.101)	(0.106)	(0.138)	(0.0979)
Indice of job teleworkability		0.817***		0.662***		0.823***		0.675***				
		(0.0530)		(0.0755)		(0.0526)		(0.0768)				
Indice of job social interaction		-0.00329		-0.00185		-0.00317		-0.00114				
		(0.00202)		(0.00260)		(0.00235)		(0.00273)				
Constant	-0.713	0.965*	0.310	-0.653	2.582***	0.923*	3.625***	-0.666	-0.598	0.661	0.633	0.767
	(0.869)	(0.534)	(0.750)	(0.557)	(0.660)	(0.540)	(0.775)	(0.554)	(0.568)	(0.726)	(0.948)	(0.781)
Nb observations	12,182	12,182	8,055	8,055	12,397	12,397	8,244	8,244				

Nb teleworkers	3,654		1,777		3,707		1,822		2,182	1,479	4,270	2,818
Log likelihood, Iteration 0, Fitting full model	-5602.3826		-4929.7674		-6456.4461		-5491.3288		-1335.1721	-1143.0726	-2618.9914	-2251.0204
Log pseudolikelihood	-5601.717		-4929.759		-6456.443		-5491.151		-1220.9894	-1074.1025	-2535.4395	-2182.5168

Source: EWCTS, Eurofound, 2021; external data for digitalisation (see table 1).
Note: Beta coefficients * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors adjusted for 28 clusters (working in same country group and the same ISCO 1-digit) in parentheses. Weighted estimations.

List of Tables

List of Figures

WeLaR is Horizon Europe research project examining the impact of digitalisation, globalisation, climate change and demographic shifts on labour markets and welfare states in Europe. It aims to improve the understanding of the individual and combined effects of these trends and to develop policy proposals fostering economic growth that is distributed fairly across society and generates opportunities for all.

www.projectwelar.eu

twitter@ProjectWeLaR

linkedin.com/company/ProjectWeLaR

WeLaR Partners:

ALDGATE STRATEGY GROUP

University of Belgrade Faculty of Economics and Business

KU LEUVEN HIVA RESEARCH INSTITUTE FOR WORK AND SOCIETY

ibs institute for structural research

LISER LUXEMBOURG INSTITUTE OF SOCIO-ECONOMIC RESEARCH

Ose European Social Observatory

unipg UNIVERSITÀ DEGLI STUDI DI PERUGIA

50 1972 2022 wiim

ZEW

ZSI