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# **ACHIEVING EFFECTIVE HYBRID WORKING: HYBRID WORKPLACE ELEMENTS FOR WHITE COLLAR WORKERS IN LATVIA AND THEIR RELATIONSHIPS WITH EMPLOYEE PRODUCTIVITY AND WELL-BEING DURING COVID-19 PANDEMIC**

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**Achieving effective hybrid working: hybrid workplace  
elements for white collar workers in Latvia and their  
relationships with employee productivity and well-being  
during COVID-19 pandemic**

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## **Abstract**

There are different benefits and challenges related to hybrid working which affect performance and well-being of employees, work setup elements can be implemented to decrease the effect of hybrid work challenges and maximize the effect of benefits on employee performance and well-being. There is limited quantitative data about relationships of hybrid work elements with outcomes therefore we explored the relationship between hybrid workplace elements (managerial and organization support, trust, monitoring, results based performance management, remote work frequency, work interaction frequency, informal interaction frequency, communication change to more written, communication/collaboration quality, home ergonomics, company activities to improve employees well-being) and hybrid work outcomes – self-reported workers productivity and well-being. We analyzed data from 289 surveys of white collar workers in Latvia, in a time period during March 2021, COVID -19 pandemic distancing.

Key findings were that elements correlated positively with productivity were: remote work frequency up to 5 days per week, results based performance management, communication quality, more frequent meetings than in office, more qualitative meetings (always with agenda, meeting notes, follow up), meetings with manager more than 3 times per week, meetings with team work related 2-3 times per week. Well-being was correlated positively with following elements: home ergonomics training, psychological professional support, engagement in sports activities. Factor correlated negatively with well-being was feeling pressure to always respond to different requests from managers, clients or team members; social isolation; difficulties to use technologies. Important significant individual element correlating with productivity and well-being was discipline. Results from our study show that hybrid work elements such as results based performance management instead of extensive monitoring of workers can be harnessed to improve workers productivity and that the communication and collaboration quality and discipline are an important hybrid work element which influences both productivity and well-being.

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## 1. Introduction

In the organizational context managers tend to apply several techniques to ensure that they are successfully being able to bring productive operations and a suitable work environment. Previously, prior to the COVID-19 pandemic, employees chose working from home only 1-2 days per month in majority of cases (Lippe et al, 2020) and large quantitative studies were done in circumstances when frequent telework was not highly prevalent. However, at present where the entire work set up has changed this model is not suitable during COVID-19 pandemic (Wang et al, 2020). Hence, it becomes very critical to come up with findings of the techniques, the application of which would help in increasing the overall workforce productivity and ensure employee well-being during remote working in the long term, which can be used in future for hybrid workplace model setup. Workforce productivity and well-being are two main work outcomes studied to evaluate remote work setup because in the light of the global economic slowdown it is important to understand what possibilities and limitations to sectoral reallocation are and how adaptation of digital technologies could help boost workforce productivity in remote work. It can be foreseen that productivity will go on rising as companies will be better prepared and equipped, better remote-working practices will be in place and more efficient tools and digital solutions will be available (OECD, 2020).

There are different benefits and challenges related to hybrid working which affect performance and well-being of employees, for example, more flexibility and autonomy when and where to work is considered as a main benefit and challenged communication as the most significant challenge. Different work setup elements can be implemented to decrease the effect of hybrid work challenges and maximize the effect of benefits on employee performance and well-being. According to Wharton University of Pennsylvania (2020), trust and control are the two solutions to a successful employer-employee relationship in the workplace context. When these two concepts are applied critically, it leads to better goal achievement and better productivity and well-being. In circumstances when many workers work remotely it is a challenge for managers to trust that employees are really working, therefore there can be willingness to use different monitoring techniques (such as checking out via digital tools, requesting to daily report to manager, daily calls etc.), but the impact of those practices on employees productivity in remote work is not largely studied. Manager and organization support is a hybrid work element which potentially can increase productivity (Aboelmaged & Subbaugh, 2020, Lippe et al, 2020, ILO, 2020) but there is limited research data on the effect of managerial support and trust on workers productivity in hybrid work setup, where important factor affecting workers productivity are individual characteristics as self-discipline and procrastination (Wang et al, 2020), therefore we would like to explore the relationship between managerial control (monitoring), trust and task based performance management with work productivity and

procrastination. One of the biggest challenges of hybrid work is how to ensure optimal communication, current data are lacking insight on optimal frequency of remote working in hybrid workplaces as well as optimal setup and frequency of meetings and other communication to ensure effective information sharing and different forms of support to workers, therefore we examine how mentioned elements relate with workers productivity and well-being.

Alarming data are emerging on working from home during COVID-19 pandemic impact on workers well-being. Working hours flexibility may lead to longer working hours, more intensified work related to a better environment and better focus time is related to higher rates of burnout. Work home interferences are rising work-life conflict risk which affects employee well-being negatively (ILO, 2020). Through this study, authors have aimed to identify the best way to uplift the well-being of the employees in the work from home context by understanding the right combination of control, trust and other activities to improve workers well-being which by acting as elements of the workplace set up would bring the best results and at the same time allow the employees to engage in higher productivity.

Objective of the study is to answer the research question: **what is the relationship between hybrid work setup elements and employee productivity and well-being during COVID-19 pandemic?** Therefore we examined relationships between different hybrid workplace elements (managerial and organization support, trust, monitoring, results based performance management, remote work frequency, work interaction frequency, informal interaction frequency, company activities to increase employer well-being and workers performance (productivity) and well-being through changes of remote work challenges and benefits. In next sections we will introduce available research data on hybrid work, its employee and individual benefits and challenges as well as factors which we identified as hybrid workspace elements, which can mitigate hybrid work challenges and maximize benefits impact on work productivity and well-being of white collar workers. Empirical research part is based on a quantitative data set which we obtained by employee surveys in 6 companies employing white collar workers in Latvia. In the results and discussion section we will describe most important hybrid working elements related to management style, communication, working days split, positive and negative relationships with productivity and well-being and state main conclusions for the hybrid work setup design.

## 2. Literature review

### 2.1. Working arrangement definitions and approaches

Working from home is a working arrangement in which an employee fulfills his/her job responsibilities while remaining at home, using information and communication technology (Eurofound, 2017). There are other terms which are used in context of alternative working arrangements, including, teleworking, telecommuting and remote working. According to the International labor organization (ILO, 2020) those terms are usually used interchangeably to refer to a new model of working outside the office. Definition of telework in the European Framework Agreement is kept deliberately broad. Article 2 of the European Framework Agreement on Telework of 2002 (hereafter the European Framework Agreement) defines that: “Telework is a form of organizing and/or performing work, using information technology, in the context of an employment contract/relationship, where work, which could also be performed at the employer’s premises, is carried out away from those premises on a regular basis” (European Framework Agreement on Telework, 2002, p. 15).

The concept of *hybrid work* (Xie et al, 2019) can be identified to be an amalgamation of several types of doing work. According to this aspect, hybrid work can be stated as two aspects consisting of working partly from the office along with working from home or other locations (Lees, 2020). Hybrid work sometimes is referred to as a future model of working from home after COVID-19 pandemic restrictions (Hilberath et al, 2020, Ro et al, 2020). This form of doing work is gaining rapid attention because it provides flexibility in the working process. This brings to the true meaning of the concept of hybrid work which is a mix of traditional as well as modern work (Hilberath et al, 2020). Binding factor between teleworking or remote working and hybrid working is telework or remote work frequency – how much time a worker is working in an office and in other places e.g. home.

### 2.2. Workforce productivity and well-being as important work outcomes

Workforce productivity and well-being are two main work outcomes studied to evaluate remote work setup, because there are employer concerns about not being able to control workers and ensure their performance when they are out of sign and historically limited data on how homeworking could influence job outcomes. According to PwC’s US Remote Work Survey employers consider the main role of the office to be for increasing workers productivity (PwC’s US Remote Work Survey, 2020). This is a belief that may change in the future based on experience during COVID-19 pandemic restrictions, which is showing promising data about being able to maintain productivity at the same level or even increase it while working from home (PwC’s US Remote Work Survey, 2020, Wang et al, 2020, Ford et al, 2020). Well-being is an important outcome of hybrid work because there are data

showing threats to employees well-being related to remote working, for example - as a result of more intensified working there can be greater risk of burnout and social isolation may lead to decrease of motivation and mental health issues which may negatively influence workers ability to perform.

Since the jobs which can be done from home are a significant part of economics it is important to understand how the new work conditions influence job outcomes. Increase in productivity in this segment may partially offset economic decline related to COVID-19 pandemic limitations and therefore it would be very important to understand what is required to maximize workforce productivity of white-collar workers.

### 2.3. Individual and organization performance in hybrid working before and after COVID-19 pandemic

In general it is observed that workforce productivity during COVID-19 pandemic period **tends not to change or increase** and it is related to flexibility of working time and reduced commuting time, increase in productivity may be associated with decline in well-being and higher risk of burnout (Dahik et al, 2020, Ford et al, Forsgren, 2020, Susilo, 2020, Wang et al, 2020).

There is group of studies also demonstrating **decreased workforce productivity** in hybrid working during COVID-19 pandemic (Bao et al, 2020, Ralph et al, 2020) and main challenges associated with decreased workers productivity were more difficulties to collaborate on big projects, disaster preparedness, fear related to the pandemic and home office ergonomics.

In a large quantitative study before COVID-19 pandemics it was shown that telework is affecting employee task related productivity in a negative way, negative effect increases by the telework frequency (Lippe et al, 2020) and it also negatively affects the team performance rated by managers. Limitation of the study is that it was conducted in 2015, when frequent teleworking was rare and was limited to maximum 1 day per week and companies have not adapted to support those who work from home. Currently we have the possibility to explore situations when many organizations are working in a telework setup and have adapted many strategies to make it more successful.

Mentioned research is done mainly in the IT industry probably because it is easier to measure workers productivity there. There is limited data about worker productivity during COVID-19 pandemic in other industries therefore we aim to include it in our study both organizations from IT and other industries to gain additional data about workers productivity among different industries occupying white collar workers.

Existing knowledge on working remotely or teleworking may need to be tested and revised during COVID-19 situation, because it is mainly studied in circumstances when it was relatively infrequent and was considered only by some individuals, not whole organization employees or in the



conditions when there were social distancing measures implemented and companies were forced to change to working from office to working remotely without possibility of adaptation. There might be differences in individual and collective outcomes between those who work remotely infrequently and those who work extensively and for longer time (Bailey and Kurland, 2002, Wang et al, 2020). Also study results previously may be biased because individuals who choose to telework may report better productivity and satisfaction and tend not to raise difficulties, therefore previously shown benefits of remote working may be true only for those who are interested in being able to engage in remote working (Kaduk et al, 2019). It would be important to assess workers productivity and well-being in the current setting, when everyone is forced to work remotely together with other family members, children, no social activities and limited communication.

#### 2.4. Hybrid work benefits and challenges from employee perspective

We identified telework or remote work implications on employees (please see Table 1) and organization (please see Table 2) before and during COVID-19 pandemic.

Individual hybrid work benefits	Individual hybrid work challenges
<ol style="list-style-type: none"> <li>1. Work autonomy</li> <li>2. Better focus time, better work environment, increase in job and life satisfaction, increased motivation</li> <li>3. Increased productivity</li> <li>4. Reduction of commuting time, more time for work, additionally reduced travel leads to reduction in carbon emissions</li> <li>5. Reduced personal costs (such as gas expenses and parking),</li> <li>6. Improved work-life balance.</li> </ol>	<ol style="list-style-type: none"> <li>1. Professional and social isolation</li> <li>2. Boundarylessness and multitasking risk on well-being</li> <li>3. Less effective communication and collaboration</li> <li>4. Discipline and procrastination</li> <li>5. Poor ergonomics</li> <li>6. Technostress, technical issues in remote work</li> <li>7. Additional employee costs</li> <li>8. Work-home interruptions</li> </ol>

Table 1. Summary of individual challenges and benefits of hybrid work.

Benefits for employees related to working from home or other places than office (Eurofound, 2017, ILO2,2020, Ford et al, 2020).

**Work autonomy.** In general working time flexibility and autonomy is reported as a remote work benefit which allows employees to work on time when they are most productive (Wang et al, 2020) and is appreciated as an important hybrid work benefit by employees along with saved travel time (Moretti et al, 2020).

**Better work environment, better focus time, increased motivation** are mentioned as main remote work benefits before COVID-19 pandemic (Linden et al, 2018). During COVID-19 pandemic when large groups of workers moved to remote working some elements were mentioned as a challenge by some and were reported as a benefit for others. For example, ability to focus, when it

was reported as a challenge it led to decrease of productivity and when it was reported as benefit, it led to increase in productivity (Ford et al, 2020). Increased autonomy, for example, can increase motivation for some, but reduce motivation for others. Some may appreciate the working environment from home - having natural light and more comfort at home and others may miss the office environment with a cafeteria. Some may feel that there are too many meetings while working from home, but others may appreciate that meetings are shorter. Many appreciate having more time (due to no commute) and being able to use that extra time with family or do personal chores, but others also may find it difficult to disconnect from work, work too many hours and may not have healthy habits due to lack of routine. Therefore, it is important to understand the individual needs to better plan future work setup., e.g., how much office space would be needed.

There are as well possible teleworking employee challenges described (Eurofound, 2017, Linden et al, 2018, Ford et al, 2020, Xie et al, 2018, Wang et al, 2020, ILO 2020):

**Social isolation.** During COVID-19 pandemic social isolation is requested to decrease spread of virus, but in such circumstances when individuals are in long term separated from their usual work environment, colleagues and social environment (Dwivedi et al, 2020, Zhou et al, 2020), multiple negative consequences may appear: reduced commitment to work, feeling of anxiety and depression, feeling of being left out of the decision making, a decline in team synergy and trust and decline in employee productivity. Social isolation while working at home may lead to decreased job satisfaction (Lengen et al, 2020, Palumbo, 2020). Social isolation is depressing and may result in severe issues related to mental health of human beings. Engagement in work positively affects well-being and decreases the negative effect of working from home on health and well-being (Palumbo, 2020).

**Well-being and occupation safety at home.** Well-being needs to be prioritized in remote work (ILO,2020) and in hybrid work as well. Specific attention needs to be on preventing loneliness and feeling of social isolation, work-life balance. Managing balance between work and personal life is one of core challenges both for individuals and organizations since changes in work life balance in favor of work may lead to higher burnout ratios and decreased employee engagement and productivity (Gigauri, 2020). COVID-19 social limitations impact on work-life balance and well-being of employees is negative early research into the health impacts of lockdown including findings of fatigue, musculoskeletal conditions, poor work life balance, reduced exercise and increased alcohol consumption, increased sleepiness and depression, hormonal imbalances, increased frequency of pain in different anatomical locations. In relation to mental health, employees were reporting reduced motivation, loss of purpose and motivation, anxiety and isolation (Coronavirus (COVID-19): Mental health support for employees, 2020, Majumdar et al, 2020).

**Boundarylessness and the right to disconnect.** Modern technologies give the opportunity to partially solve social isolation, but increased use of technology supported communication may raise some negative consequences on well-being as: more interruptions during non-work time and blurring of home-work boundaries (Dwivedi et al, 2020, Ford et al, 2020, Gigauri, 2020). There can occur different conflicts between work and home and home and work which can affect motivation to work which is associated with performance (Bhattacharya et al, 2020). There can be undesirable effects of remote work when virtual work does not meet individual and/or task requirements, for example there can be increased work-family conflicts, if there are high job demands and limited autonomy for remote workers during home days (Ford et al, 2020). Some people are more welcome to constantly being available with the help of technologies, but others may try to maintain these boundaries and introduce strategies for managing their technology use. The effect of stress related to pressure always being responsible during remote working on well-being has not been extensively studied, our data bring additional information for understanding how significant is the relationship between pressure “to always be on” with workers well-being in hybrid work setup.

**Techno stress and its impact on well-being.** The pandemic has enhanced the usage of technology and digital tools with the requirement for a complete set of frameworks for individuals to operate in a distant environment (Teleworking during the COVID-19 pandemic and beyond, 2020). It is shown that technical issues during remote work can interfere with workers productivity and it is important to ensure technical support from organizations for technical issues during remote working (Bentley, 2015, ILO, 2020).

**Less effective communication.** Communication is stated as a hybrid work key element which needs to be adapted compared to work only in office (ILO, 2020). There are challenges related to communication between workers in different locations as there is less awareness of colleagues’ work, lack of information, decreased motivation, social isolation, lack of routine, procrastination. It was believed that the only difference is the location which is one of the key variables of hybrid work which allows feasibility in regards to doing work (Lees, 2020), but there are some specific aspects of what working from home is bringing to hybrid working, for example, challenged communication (Moretti, 2020). Effective communication and collaboration are crucial for the innovation process, which is shown to be suffering in hybrid work circumstances, despite the increase of workers productivity (Dribin, 2020) and therefore setting up effective communication and coordination may also require extra attention and different strategies in hybrid work.

Individual factor is the worker's **self-discipline**. It is shown that virtual work characteristics are linked to workers performance and well-being (Wang et al, 2020). Self-discipline is a significant modulator to those relationships. Procrastination as a part of self-discipline is not widely studied in remote working contexts, because of the voluntary nature of remote work before COVID-19

pandemic. It is an important concern to employers and may affect organization productivity. Our work brings additional new data on relationship of different hybrid workplace elements and discipline, procrastination and on relationship of discipline and procrastination on workers productivity and well-being

**Increased personal costs** related with home office setup, increased electricity consumption and other costs, therefore cost reduction for individuals in COVID-19 homeworking is not always observed and it is recommended for employers to provide employees equipment to make the experience better for everyone: monitors, more powerful laptops, noise cancelling headsets and cameras (Ford et al, 2020, ILO2,2020).

**Work – home interruptions.** For some people there are more distractions at home and harder to focus on work mostly related to presence of children at home, interruptions were mentioned among some of the most important disadvantages of remote working (Bhattacharya et al, 2020, Ford et al, 2020, Moretti et al, 2020).

There were interesting results about childcare - employees with children, who had no difficulties handling children, less frequently reported a drop in productivity compared to employees without children. However, employees who reported problems handling children, also reported a drop in productivity. Employees with children also reported less frequently lack of motivation (Ford et al, 2020).

Therefore, there should be office space available in hybrid work setup for those workers who have more distractions at home and would like to work more time in the office to sustain their productivity. Desired frequency of remote work in days may be dependent on the environment at home, small children, availability of childcare and space for a dedicated workplace as well as personal characteristics such as self-discipline and self-motivation.

## 2.5. Organization benefits and challenges hybrid work

Organization benefits	Organization challenges
<ol style="list-style-type: none"> <li>1. Corporate cost saving</li> <li>2. Potential employee attraction and retention</li> <li>3. Increased organizational commitment</li> <li>4. Increased corporate social responsibility (Linden et al, 2018).</li> </ol>	<ol style="list-style-type: none"> <li>1. Maintaining organizational culture,</li> <li>2. Managerial resistance and attitudes</li> <li>3. Performance management style. Managerial trust versus control, and need for new managerial skills</li> <li>4. Ensuring ergonomics in remote work</li> <li>5. Digitalization</li> <li>6. Policies for sustainable hybrid work</li> </ol>

Table 2. Summary of organizational challenges and benefits of hybrid work (ILO,2020, Linden et al, 2018).

Hybrid work may improve company performance through facilitating **cost reductions**, lower capital costs by reducing office space and equipment required by the company. A complete shift to remote working in fact implies a substantial reduction in trade-costs for services faced by firms. Companies offering telework may also attract workers at lower wages than would otherwise be the case in particular if combined with other measures that improve work-life-balance such as flexible hours to the extent workers are willing to give up a higher salary in return for these amenities (compensating differentials) (OECD, 2020). Economically it means employees would be able to make bigger savings as their costs reduce. It may lead to relocating from living in the city center to other areas or suburbs, spending more time with family. For companies it means less office space and investing more in digital tools and solutions as well as monitoring performance of employees working remotely. The hybrid working may enable organizations to better recruit talent, because it is giving the possibility to **attract talents from broader geographic areas**, attain innovation thru use of information technologies and form value for all the stakeholders (Hilberath et al, 2020). There is limited literature data on employee's engagement during hybrid working in COVID-19 pandemic, a viable date is optimistic in the short term (Palumbo, 2020), long term effect on engagement has not been possible to study yet.

**Maintaining organizational culture**, it is difficult to sustain organizational culture in circumstances when most employees are working away from office. In order to be successful when working in a virtual setup, organizations must support work done virtually and include organization's values in virtual communication (Lippe et al, 2020). COVID-19 creates stress about job sustainability in many workers, this can be negatively affecting employees' engagement (Filimonau et al, 2020).

**Attitudes and managerial resistance**, lack of managerial support is a limiting factor for telework implementation, there needs to be clear communication that organization supports remote working otherwise employees will avoid choosing working from home more frequently than 1-2 days per month.

**Performance management style**. There has to be new managerial skills and strategies adapted to teleworking/hybrid working, because employees cannot be supervised or physically observed during teleworking at the same extent as in traditional work. Additionally, control and tight monitoring which may be a natural reaction in untrained managers may reduce flexibility of the employee and may have a negative effect on motivation. Output control is preferable, it gives employees more flexibility by allowing them to choose how to reach set objectives. Management should be based on results in combination with trust, commitment and self-discipline (Lippe et al, 2020, ILO,2020).

**Ensuring ergonomics in remote work**. It is shown that decrease in employee productivity during hybrid working during COVID-19 pandemic may be related to ergonomics/disaster

preparedness (Ralph et al, 2020). So, employers should think about ergonomics and how to make the workplace comfortable and like the one employee used to have in the office.

**Digitalization (ILO, 2020).** Employers need to ensure necessary technology and tools for work and preferably there should not be any additional costs for employers. There is also a need for new skills for employees, therefore necessary training should be provided. Important concern that needs to be addressed is data security at all working locations. It is important to ensure technical assistance on demand.

**Policies, procedures.** Many organizations are helping employees to maintain good work life balance by developing practices and policies. Policies include both the informal and formal methods of maintaining employees work and leave schedules, flexible work hours, telecommuting, job sharing. Benefits typically take in various compensation-related areas that safeguard against earning loss, medical expense payments and paid vacations. Currently there are a lot of uncertainties about hybrid work setup therefore our work would bring additional data for supporting policies decisions.

Optimal hybrid work setup would incorporate elements that allow workers to experience maximal hybrid work benefits and decrease the impact of challenges on productivity and well-being. Most important elements that are related to productivity are working hours flexibility, performance management, stressing importance of management by result and including autonomy, trust and support, effective communication as well as the right to disconnect. Attention must be paid to the health and well-being of the employees, because it can suffer from less boundaries between work and life and social isolation loss.

We created and tested with our data an optimal hybrid work model with the goal to maximize productivity and well-being by addressing most important hybrid work challenges and benefits from available literature data and tested it in an empirical part. Main hybrid work elements and their relation to productivity and well-being will be described in more detail in next chapters.

2.6. Theoretical model of hybrid work elements to minimize challenges and maximize benefits

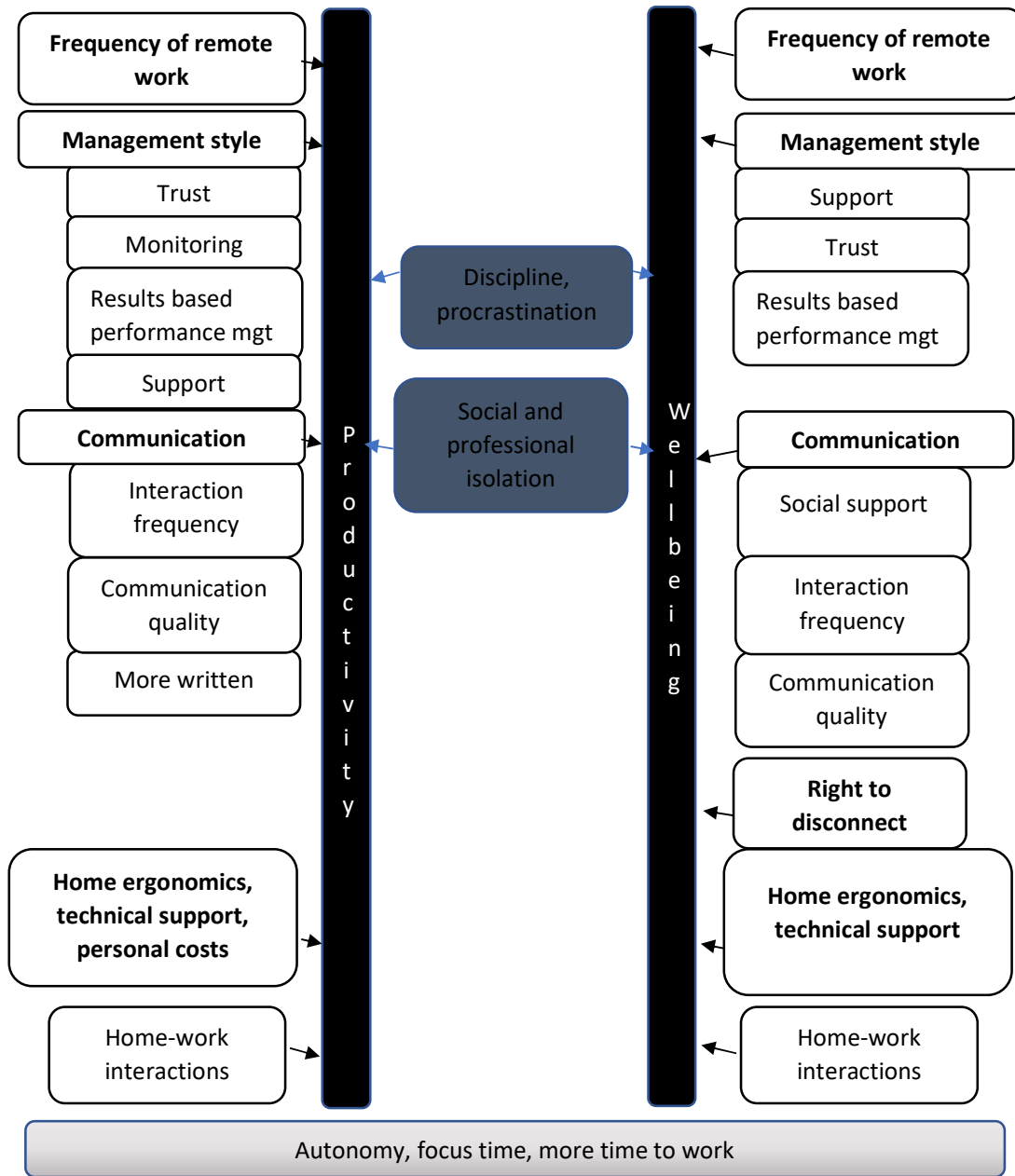


Figure 1. Hybrid work elements (frequency of hybrid work, trust, monitoring, results based performance management, support, interaction frequency, communication quality and more written than verbal communication, right to disconnect, home ergonomics, technical support, home-work interactions) and personal factors (discipline and social isolation) and their effect on work outcomes – well-being and productivity (Wang et al, 2020, Golden et Veiga, 2005, Golden and Gajendran, 2019, Perry et al, 2018). Autonomy, focus time, more time to work - main hybrid work benefits.

**Remote work frequency.** Working time flexibility and autonomy is reported as a remote work benefit which allows employees to work on time when they are most productive (Wang et al,

2020). Autonomy is negatively related to loneliness and perceived social isolation, positively related to life and work satisfaction and productivity (Ford et al, 2020). Number of working days away from office needs to be agreed, for employees working longer hours on days out of office, more flexible hours there is work life balance threat, burnout threat (affect well-being), need for education.

According to Golden et Veiga, employers satisfaction is proportional to work time working from home and reaches its peak at around 2 days (11,5 hours per week) working from home and does not increase from further increase of working time at home (Golden & Veiga, 2005). According to PwC's US Remote Work Survey more than 50% of employees would like to work in office not more than 2 days per week, but 68% of managers say, that average worker should be in office at least 3 days per week to maintain the organization culture (PwC's US Remote Work Survey, 2020). It creates tension between managers wanting employees more in office and employees expressing more satisfaction working more days at home. More data is needed to gain understanding in optimal balance of office and home working days.

In a large study in 2015 it was shown that telework more than 1 day per week is affecting employee task related productivity in a negative way, negative effect increases by the telework frequency (Lippe et al, 2020) and it also negatively affects the team performance rated by managers. Limitation of the study is that it was conducted in 2015, when frequent teleworking was rare and was limited to maximum 1 day per week and companies have not adapted to support those who work from home. Currently we have the possibility to explore situations when many organizations are working in a telework setup and have adapted many strategies to make it more successful.

***Hypothesis 1a:** Remote work frequency up to 3 days per week correlates positively or does not influence workers productivity and does not correlate negatively with reported employee satisfaction compared to higher frequency of remote work.*

***Hypothesis 1b:** remote work frequency up to 3 days is positively correlated with employee well-being*

### **Management practices and style in hybrid work setup**

**Monitoring** refers to different practices to monitor employee performance on an everyday basis, for example, request to report time and task split, monitoring through digital tools, request to daily report to manager, etc. It is shown that employee monitoring during hybrid work is negatively related to work-home interferences and may be consequently to well-being, additionally it is shown that perceived control or lack of trust is negatively related to remote workers task related demands (time pressure and uncertainty) what may increase stress which may negatively affect well-being (Turetken et al, 2011). Besides, close control of the employees is not so necessary as management thought before: persons can work independently (Gigauri, 2020). Therefore, the traditional



“command and control” style of management becomes less relevant and managers may struggle to find other ways to be sure that employers are getting their work done. If workers do not feel a sense of belonging during hybrid working, they may also distrust their managers and company leadership. This may lead to the manager’s loss of control, and certain workers may abuse the working from home arrangement (ILO, 2020). Effect on different monitoring practices has not been extensively studied before, there is some qualitative data available, that persons with lower self-discipline should benefit from more monitoring, and therefore their productivity would improve, but quantitative data does not support this (Wang et al, 2020). Our study would bring additional data to gain more understanding about hybrid workplace elements which could correlate with workers self-discipline and procrastination and would help to enhance workers productivity in hybrid work setup.

***Hypothesis 2a:** monitoring practices (such as request to daily report to manager, request to report time/work split, checking out with digital tools), are not related with workers productivity in hybrid work setup.*

Mutual **trust** and confidence between employers and workers are essential in this working arrangement. When the managers portray trust and control, they create an independent environment which the employees enjoy, and which makes them feel more responsible. This in turn positively influences productivity (Wharton University of Pennsylvania, 2020). Key to success in remote work setup is mutual trust and results-based performance management (Wang et al, 2020, ILO, 2020). Excessive monitoring may lead to employees' belief that they are not trusted and unnecessary consultations with colleagues and managers which may decrease productivity. Managerial trust, autonomy and its effect in relationship with procrastination and self-motivation on employee productivity have not been studied before our work could bring new data in this area. Importance of communication is related to building trust of people in the company and making them feel safe, especially when these are health related issues “in this phase, there was a need to build confidence and optimism amongst employees” (Shankar, 2020, Gigauri, 2020). Trust may enhance workers' self-motivation and therefore would improve productivity by decreasing procrastination (ILO,2020), but this relationship has not been tested by quantitative data. Our data would bring additional insight about the relationship between trust and monitoring with procrastination and productivity in hybrid work setup.

***Hypothesis 2b:** manager trust has negative correlation with employees self-reported level of procrastination in hybrid work setup, monitoring (as request to daily report to manager, request to report time/work split, checking out with digital tools) do not have effect on employee’s procrastination in hybrid work setup.*

**Results based performance management.** Furthermore, the effective management of hybrid working requires a results-based management approach. This involves identifying objectives, tasks

and milestones, and then monitoring and discussing progress without overly burdensome reporting requirements (ILO2, 2020). The most useful tool to support workers with maintaining their work-life balance and productivity is to manage remote/hybrid work by results and not by focusing on the number of hours or the schedules that they work (ILO,2020). This relationship is suggested in qualitative studies, but there are no quantitative studies exploring this relationship. Therefore, we are proposing

***Hypothesis 2c:** managerial trust and results-based performance management during COVID-19 correlate positively with employee productivity and well-being in hybrid working setup.*

**Managerial, organization and social support** – it is important to ensure that work-related technical issues are solved in remote work setup and technical help is available on demand (organization support) (ILO, 2020). Social support decreased the impact of all challenges of remote work (Wang et al, 2020). Being socially connected with colleagues may have different meanings during the COVID-19 lockdown. Potentially, even limited social support can have strong positive effects when social resources are hard to obtain (Wang et al, 2020). In remote working setup self-motivation is very important to maintain productivity and decrease procrastination, therefore it is advised to improve colleague support and managerial support on a regular basis, as perceived level of colleague and managerial support increases self-motivation (Gillet et al, 2020) what is important mechanism for reducing procrastination in hybrid work setup.

***Hypothesis 2d:** social support from colleagues in hybrid working setup during COVID-19 correlates negatively with employees self-reported procrastination.*

### **Effective communication in hybrid work**

Communication and coordination may also require different strategies and because working at home does not provide the same information about the pulse of work (Mustajab et al, 2020). Work autonomy and working hours flexibility may create tension and questions about availability for interactions with colleagues and can create pressure for persons working from home to be always available and responsible for such requests (ILO, 2020, Eurofound, 2017, Gitlab, 2020), what can negatively affect well-being (Forsgren, 2020). Therefore, it is important that main rules about workers availability, preferred channels of communication, and expected speed of response are discussed and regular meetings are scheduled in advance where formal and informal interactions may occur (Gitlab, 2020). Remote work setup requires more frequent scheduled meetings than situations when everybody is working from the office (ILO,2020) and this is relevant for hybrid work as well.

There is limited research data covering the question of how optimal communication looks during hybrid work setup, surveys indicate increased frequency of meetings (Owl labs, 2019) which try to compensate for communication challenges related to not being present in the same workspace. From the other side – too much and too long meetings can decrease productivity since the time is

spent not efficiently. There is no quantitative data about meeting frequency relationships with employees self-reported productivity, which we are aiming to explore in our study.

Important change compared to communication in office is **speed of communication** and fast implementation of changes and leadership capability to keep employees aligned. Communication needs to be **quicker** when working from home, require more detailed written planning and contextualizing meeting outcomes, it improves collaboration and builds necessary trust (ILO,2020, Gitlab, 2020).

***Hypothesis 3a:** more frequent than in office work interactions with manager and team in hybrid working setup during COVID-19 positively affects productivity.*

**Changes from mostly verbal to mostly written** with more detailed decision documentation (Ford et al, 2020, Gitlab, 2020), precision in written communication with providing as much context as possible, avoiding unwritten rules (Gitlab, 2020) and more detailed documentation help to improve information flow in hybrid work setup, allowing access to information and minimizing knowledge gaps (Phillips, 2020).

***Hypothesis 3b:** change to more written than verbal communication in hybrid work setup during COVID-19 correlates positively with employee productivity*

**Scheduled informal interactions** (ILO, 2020, Gitlab, 2020). Workplace interactions include relationships between employees and managers, co-workers, employees and customers. Positive workplace interactions lead to well-being of all stakeholders in the organization (Phillips, 2020). The positive feelings generated by the workplace interaction boost the employees' morale (McGrath et al, 2017).

***Hypothesis 3c:** regular and frequent informal (at least 1 time per week) work interactions in hybrid working setup during COVID-19 pandemic have positive relationship with well-being and decreased sense of social isolation.*

**Boundary setting in work and private life - right to disconnect** (ILO, 2020).

People who feel constant stress to be responsive 24/7 are at higher risk of well-being decrease and therefore the right to disconnect should be implemented. Subsequent and important questions that arise include: what are the 'rules' in terms of when, what and how individuals communicate? At what point does communication become intrusive (Dwivedi et al, 2020, Von Bergen et al, 2020).

Some countries have considered implementing "the right to disconnect" in their legislation, for example France, USA, Canada, South Korea (Von Bergen et al, 2020). There are also counterarguments to such restrictions, because many people may benefit from flexible working hours, restricted access to work information may lead to less flexibility, which in turn can affect productivity negatively. For optimal hybrid work setup, it is important for both - management and employees to understand and keep the boundary between the flexibility and expectation to work all the time.

Impact of pressure to be always responsive on well-being is not studied in quantitative studies and it could bring additional insight in current knowledge and support policymakers with additional data.

***Hypothesis 4:** feeling of pressure to always be responsible to different requests correlates negatively with well-being.*

**Ergonomics at home** – it is shown that ergonomics training can increase employees working remotely productivity (Harrington, 2004, Ralph et al, 2020), but there is no data about the importance of home ergonomics training on well-being.

Please see **Summary of hypotheses and outcomes** in Appendix A.

### 3. Methodology

Goal of our study is to gain insight and examine relationships between different hybrid workplace elements (managerial and organization support, trust, monitoring, results based performance management, remote work frequency, work interaction frequency, informal interaction frequency, communication change to more written, communication/collaboration quality, home ergonomics, company activities to improve employees well-being) and outcome variables - workers productivity and well-being.

First semi structured interviews (Whiting, 2008) were concluded with companies HR managers to gain insight in the validity of hybrid work elements identified in literature and to explore if there are any additional elements and we used interview insights to develop our research questionnaire. Our proposition was that managerial and organization support, trust, monitoring, results based performance management, remote work frequency, work interaction frequency, informal interaction frequency, communication change to more written, home ergonomics, technical support, company activities to improve employees well-being are elements that are considered by companies and they have impact on workers productivity and well-being. We performed interviews with HRM of 2 companies (AS Balta and SIA Nutricia), we chose companies which were employing white collar workers and had been implementing hybrid work during COVID-19 pandemic limitation period and operating in Latvia. Please see the interview questions in Appendix B. We were collaborating with SSE Bachelor students in performing interviews (Bočkāne and Eiduka (2020)) because our research direction was similar. Transcripts of interviews are available on demand. Impact on survey design please see in section 3.3. The interviews were conducted in the time period from January-February, 2021.

Second part was a structured survey (please see the questions in Appendix C) which was used to gather results and examine data about the relationships between variables. We collected samples by recruiting companies to participate in our study and distributing our survey to all employees through companies HRM. It is shown that better results in remote working setup are for those who are working complex knowledge jobs; therefore, we choose white collar workers as a target group for our study (Dingel et al, 2020). Our objective was to collect 400 answered questionnaires between 1st March and 31st March 2021 to be able to have around 250 fully completed surveys for data analysis. We choose companies who are employing white collar workers across different industries in Latvia. The target individuals were those who are employees of companies working in financial services, telecommunication, transport, education, health care, manufacturing, legal, marketing, pharmaceutical companies as well as public administration, to gain insight on possible differences between industries.

Sample of enterprises: in order to achieve a representative sample size we used the list of Latvia's most valuable enterprises (<https://top101.lv/en>), we approached approximately 50 companies from this list and used LinkedIn and personal contacts. In total six companies agreed to participate in our research. Enterprises were approached randomly by contacting the HR manager or CEO and it was offered to participate in the survey and get back from the authors the summary of results. We approached local and international companies with subsidiaries in Latvia. Additionally we sent a link to a survey to LinkedIn contacts which are representing industries in which we wanted to do research and their job specific allow work to be done from home. We also used personal contacts to recruit additional companies to participate in the research and recruited more companies by that and the questionnaire was also distributed to white collar workers through social media (around ¼ of responses). All participants completed the survey in digital form. Before completing the survey, all participants were informed that their responses will be anonymous, and confidentiality was assured.

The used quantitative research method is a structured questionnaire (Ponto, 2015). The questions were structured to investigate the identified key measurement elements and their relationships with outcome variables – productivity and well-being. Questions were divided: for managers and white-collar employees of companies.

The questionnaire consisted of 13 questions for managers and 37 questions for employees. Managers also had the possibility to continue with employee questions.

### 3.1. Hybrid work elements

Working from home days per week, sample question: “On average how many days per week have you been working from home during the last month.” Job autonomy (Karasek, 1979), social support (Shukla et al, 2016), managerial support (Aboelmaged & Subbbaugh, 2012). Manager trust (in teleworker) was measured using two items from a scale developed by Baker et al. (2006a, 2006b). Social isolation was measured by questions developed by Golden et al, 2008. Organization support was measured by question: Q14. Help is available from my organization when I have problems in hybrid working setup in working days working from home (Lippe et al, 2020). Managerial support was measured with Q30a I am satisfied with support I receive from my manager when I need it, Q28d My manager is checking in regularly enough with how I am doing (not just work related), Q34f Support from manager (0/3- experienced/not experienced). There was a score created for managerial support, summing responses from mentioned 3 questions. Monitoring score was calculated from responses to Q22adefghjs, assigning 0 if not experienced and 1 if otherwise. We measured discipline and procrastination with questions Q35 abcde (Lindner, 2015, Tuckman, 1991). We created a score for discipline summing responses from all those questions. We measured work interactions with sample questions: Q24 How many meetings have you had while working from home during last

month? a) with teamwork related, b) with manager/CEO, c) informal meetings with manager/colleagues. We created meeting measures, adding results from a, b, c answers, calculating total number of formal meetings with manager/CEO and team and total number of formal and informal meetings.

Control variables: age, gender, occupation, organization engagement as described in other studies, impact of COVID-19 pandemic on business operations, job sustainability. Full questionnaire please find in the Appendix C.

### 3.2. Hybrid work outcomes

We evaluated the following hybrid work outcomes - productivity and well-being.

Well-being was measured by WHO-5 well-being, which is a self-reported scale validated by several studies and internationally adopted for measuring psychological well-being (Topp et al, 2015). We developed scores from summing up the answers to 5 well-being questions (WHO-5, Q29abcde).

Productivity was measured using selected questions from Work Productivity and Activity Impairment (WPAI) Questionnaire (Gawlicki et al, 2012) and work quality and quantity self-assessment scale adapted from Koopmans et al, 2013, we used those scales, because those were used in similar research (Lippe et al, 2020). Total score for productivity measure was calculated adding points from 5 questions: Q17, Q18, Q19, Q20, Q21 (Please see Appendix C). Points were assigned from 1-5 depending on the answer (strongly disagree, somewhat disagree, neither agree or disagree, somewhat agree, strongly agree or similar).

### **Challenges in measuring white collar worker productivity**

There are challenges in white collar workers productivity measurement, because white collar workers (referred as knowledge workers in the literature) role varies a lot among personnel and therefore productivity of all workers is difficult to capture with a single measurement method. Traditional productivity measures are usually based on the ratio of output and input that is quantifiable. In knowledge work however, a direct relationship between these two does not necessarily exist due to various moderating elements. Many measurement challenges are related to capturing outputs, and it is difficult to define a standard outcome for a work the content of which constantly varies. It is also important to consider the qualitative nature of the knowledge work, therefore quality aspects need to be part of the productivity measurement (Aaltonen, 2012). Subjective measurements such as interviews and surveys have been presented as a way to solve some of the challenges regarding productivity measurement in the white collar work context, because by this approach is possible to capture comprehensively various elements affecting productivity instead

of the mere calculation of outputs and inputs, which are difficult to define and measure in the knowledge work.

In reviewing the available literature (Van der Voordt, 2004) reports that in knowledge dominant work environments, productivity has traditionally been measured by 1) actual labor productivity, e.g. number of phone calls or completed documents per month, 2) perceived productivity, where employees rate various aspects of their productivity themselves, 3) time spent performing tasks, or time gained due to process efficiency, 4) absence from work due to illness and 5) indirect indicators including speed of problem-solving, concentration ability etc. Many authors consider self-perceived productivity as a reasonable indicator of productivity (Kurjenniemi et al, 2020, Lippe et al, 2020, Wang et al, 2020) though reliability of this measure can be questioned due to the fact that social desirability of the answer plays a role at the individual level.

Due to mentioned considerations we designed productivity measure, taking in consideration various aspects - self perceived productivity, reported missed hours from work due to any reason, work quality self-perceived measure: self-reported productivity is measured with selected questions from Work Productivity and Activity Impairment (WPAI) Questionnaire (Gawlicki et al, 2012) and work quality and quantity self-assessment scale adapted from Koopmans et al, 2013. There are also questions for managers to assess workers productivity changes adapted from Lippe et al, 2020.

### 3.3. Identified hybrid workplace elements validation with semi structured interviews

Authors conducted interviews to get confirmation of the elements obtained from the literature, their interactions and succeeded to get the approval as the findings of the interviews align with the elements described in the literature. Full transcription of the interviews is available on demand. Results confirmed most elements previously found in the literature (managerial and organization support, trust, monitoring, results based performance management, remote work frequency, work interaction frequency, informal interaction frequency, communication change to more written, home ergonomics, technical support, company activities to improve employees well-being) are elements that are considered by companies and they have impact on workers productivity and well-being. There was an additional new hybrid work setup element regarding communication - high context communication, which was mentioned regarding giving feedback - “that it is more difficult to give feedback without knowing the context”. This is indicating the need to change communication during hybrid working to low context to increase communication efficacy and may indicate more benefits of written communication than verbal.

On performance and productivity: there were differences in recommended regularity for 1:1 meeting between 2 interviewed companies with manager and team from once per month to 2 times



per week . In literature we did not find data on exact meeting frequency during hybrid work, surveys are showing that employees are experiencing high quantity of meetings, up to 11 meetings per week (Owl labs, 2019) therefore **we adapted hypothesis**

***Hypothesis 3a:** more frequent than in office (at least 2 times per week) work interactions with manager and team in hybrid working setup during COVID-19 positively affects productivity.*

#### 3.4. Data analysis

We performed statistical analysis with Qualtrics Stats IQ function. We performed multivariable regression of hybrid workspace elements (autonomy, managerial and organization support, trust, monitoring, results based performance management, remote work frequency, work interaction frequency, informal interaction frequency, communication change to more written, home ergonomics, technical support, company activities to improve employees well-being), control variables (age, gender, occupation, presence of children below 12 years, organization engagement, impact of COVID-19 pandemic on business operations, job sustainability) and outcome variables – self-reported productivity and well-being and additional regression analysis of hybrid workspace elements and procrastination and social isolation, which were shown to be important elements influencing productivity and well-being (please see the model Figure 1). Statistical analysis method was ordinary least squares (OLS) regression combined with relative importance analysis (also known as Johnson's Relative Weights). Relative importance analysis calculates the proportion of explainable variation in the output due to that variable. This is shown as a series of percentages that add to 100%.

## 4. Results and discussion

### 4.1. Overview

Goal of our study was to gain insight and examine relationships between different hybrid workplace elements (managerial and organization support, trust, monitoring, results based performance management, remote work frequency, work interaction frequency, informal interaction frequency, communication change to more written, communication/collaboration quality, home ergonomics, company activities to improve employees well-being) and outcome variables - workers productivity and well-being during COVID-19 pandemic.

We collected 469 responses to the survey questionnaire, from which 289 were completed fully (62%) and used in data analysis, 44 were excluded because respondents answered that their job specifics does not allow them to work from home, they were not continuing to fill the questionnaire after this question. There were 136 partially filled questionnaires, part of them were from managers who chose to answer only to managerial questions (46) and part who did not finish the survey till the end. 28% of respondents were male and 72% female, most respondents were in the age group 30-39 years (39%), followed by 40-49 years (30%), 50-59 years (16%), 18-29 (12%) and more than 60 (3%).

Companies which participated in the survey were from different categories (manufacturing, State and public administration, IT, pharmaceutical, telecommunication, marketing and media, transport and logistics, financial services, law and legal aid, health care, social care, education and others). The most represented industries were manufacturing (25%), State and public administration (16%), IT (7%). Current job of employees of these enterprises/ represented departments: marketing, sales, IT, administration/secretarial, finance, HR, logistics and others from which marketing (14%), IT(13%) and sales(13%) are the most represented. The target group were white collar employees and this target was reached. The IT sector was described in studies (e.g. Lippe et al, 2020, Ford et al, 2020, Dahik et al, 2020) and from this sector we do have a significant number of respondents to the survey. Adding other industries creates added value to our work as they were not previously studied in depth.

Further research with bigger data amounts and more companies participating in surveys would make this research more comprehensive. It would give more possibilities to compare differences between industries and occupancies of employees. More occupation groups and a bigger number of enterprises would make this research more wide. To make conclusions about age groups and compare results between these groups more respondents would be needed in groups 18-29 and 50-59 as these age groups were in the minority. Less male as female were participating in the survey (in %) and gender specifics cannot be objectively assessed. The length of the questionnaire and time needed to

fill it reduced the amount of filled surveys as some of the respondents stopped at some stage in the middle.

## 4.2. Productivity in hybrid work setup

### 4.2.1. Manager evaluation of productivity

We had 114 responses from managers in our survey. Questions asked to managers to evaluate productivity of their team were Q47, Q48. Managers on average think that approximately 65% of their employees did not change productivity, 21% improved productivity and 13% decreased productivity, compared with time when working in office. 72% of managers agree or strongly agree that their team is working from home as well as from the office.

### 4.2.2. Employees self-reported productivity

Employees rate that their quantity of work, working from home, compared with working in office (Q18) is about the same (58% of respondents) or somewhat more (29% of respondents), 3% much more. Only 8% of respondents admit that their work quantity is somewhat less and for 1% it is much less. Comparison with other studies please see in Appendix D. Studies present increased or not changed productivity as well as decreased productivity. Usually, studies, performed at the beginning of pandemic show decreased productivity, related to poor ergonomics at home and fear from pandemic (Ralph et al, 2020), studies later during pandemic and studies in IT sector show not changed or increased productivity, comparing with time before COVID-19 pandemic (Ford et al, 2020, Dahik et al, 2020, Birkinshaw et al, 2020, Susilo, 2020). The relationship between work-from-home and job performance is not direct; workers need to achieve a certain level of job satisfaction first before their job performance increases (Susilo, 2020).

We performed regression analysis on hybrid workplace elements and productivity as outcome variables (please see Appendix E). **Most significant ( $p < 0,05$ ) elements positively correlated with changes in productivity were (relative importance, %): discipline (25%), number of working days from home up to 5 days (10,5%), communication and collaboration quality (8,8%) better focus time (7,1%), more time to finish work (6,9%), meeting quality (5,5%), organization support (3,5%), monitoring task performance versus goals (2,8%), more meetings than in office (2,8%), meetings with manager more than 3 times per week (2,5%), meetings with team work related 2-3 times per week (1,8%), dedicated workplace at home (2,3%). Negatively correlated with changes in productivity - presence of children (1,4%).**

## 4.3. Working days from home relationship with productivity and well-being

We found a statistically significant relationship between working from home frequency and productivity. The highest productivity was observed in workers, who were working from home 5 days

per week, followed by a group, which worked 3-4 days a week and 2 days. It is different from our assumptions in hypothesis 1, therefore hypothesis 1 is partially supported. There was no statistically significant relationship between well-being and number of days working from home, H1a was not supported, please see regression analysis data on well-being in Appendix E and in section 4.6. Findings on well-being.

Frequency of working days at office was correlated positively with employee satisfaction with current work setup, highest value of satisfaction was seen for 5 days working from home.

**Most statistically significant elements positively correlated to satisfaction with hybrid work setup ( $p < 0,01$ ) were (relative importance, %) meeting quality improved (14,2%), discipline (12,4%), working days at home up to 5 days (11,2%), effective communication and collaboration (7,9%).** Negative correlation with satisfaction with hybrid work setup was observed for following elements: **social isolation (11,2%), personal costs increased (9,6%), pandemic has disrupted the flow of operations in organization (8,3%), feeling pressure to always be responsive to different requests (3,9%) and current job - sales (2,5%).**

*H1: Remote work frequency up to 3 days per week correlates positively or does not influence workers productivity and does not correlate negatively with reported employee satisfaction compared to higher frequency of remote work. **Partially supported**, working up to 5 days remotely correlated positively with productivity.*

*H1a: remote work frequency up to 3 days is positively correlated with employee well-being. **Not supported**, no correlation.*

Weitzer et al, 2021 were studying the effect of working days from home on employee productivity and well-being, the study showed different results on productivity than ours: they demonstrated that people working from home part time and all time more frequently reported lowered productivity compared with persons not working from home. We observed the opposite tendency, it may be explained by the fact that in our study we included only white collar employees, but the study of Weitzer included all population and was performed on first 50 days of pandemic limitations but our survey was performed later and therefore companies and people have had better adapted to working from home. Weitzer et al reported an increase in well-being for persons working all time from home, but our study did not show any differences in well-being in relationship with working days from home, this also may be explained with the fact that employees at the beginning of the pandemic enjoyed more working from home, but after facing different challenges and other limitations related to COVID-19 pandemic in long term, may not feel so well.

Our data showed that homework interactions (presence of children) is also an important factor related negatively with productivity in hybrid work setup, but the relative importance of this factor was low (1,4%). In other studies findings were controversial, some indicating that presence of

children was related with more home-work interactions and related negatively with productivity (Ralph et al, 2020, Wang et al, 2020), especially at the beginning of pandemic, there are also studies that employees with children tend to report the same or even better productivity at hybrid work setup when they are able to handle the childcare than employees without children (Ford et al, 2020). Therefore we can conclude that with time people are able to find solutions to be able to handle childcare and to perform their work obligations effectively.

#### 4.4. Management style

We examined different **monitoring** practices and their relationship with productivity, well-being and discipline including procrastination. Our data showed that monitoring practices (regular call with manager at morning, request to daily report to manager, cameras on during meetings, request to report your daily work by time/task split, checking in or out via digital tools, demand to answer quicker to different requests) were not important factor related to productivity (please see Appendix E, monitoring), or discipline/procrastination. There is no extensive data about monitoring effect on self-reported productivity in remote work in literature, there is data about monitoring effects on procrastination (no significant relationship) (Wang et al, 2020). We studied the effect of monitoring on self-discipline, which is broader than procrastination and our data also showed no correlation. Therefore

***H2a: monitoring practices (regular calls with manager at mornings, request to daily report to manager, request to report time/work split, request to daily report to manager, checking out with digital tools, cameras on during meetings, demand to answer quicker on different requests), are not related with workers productivity in hybrid work setup was supported*** with our data.

Taking in consideration that extensive monitoring has no effect on employee productivity and employees who are extensively monitored may lose the feeling that managers trust their ability to perform on work tasks, therefore other management practices should be considered as more effective to ensure employees performance in hybrid work setup.

**Among statistically significant management style elements from our model (trust, monitoring, managerial support, monitoring task performance versus goals) significant ( $p < 0,05$ ) factor positively correlated with changes in productivity was (relative importance, %): monitoring task performance versus goals (2,8%).** Please see Appendix E. Trust, monitoring and managerial support had no correlation with productivity and well-being, therefore

***H2c: managerial trust and results-based performance management during COVID-19 correlate positively with employee productivity and well-being in hybrid working setup – is only partially supported.*** The data does not demonstrate the relationship between managerial trust and workers productivity and well-being. Results based performance management was statistically

significantly correlated with workers self-reported productivity and well-being (please see results on well-being in section: 4.6. Findings on well-being), there was no quantitative literature data to compare those findings.

Our regression analysis showed that discipline is a hybrid work element with high relative importance (25%) positively correlating with self-reported productivity, therefore we ran regression analysis with hybrid workplace elements and discipline and procrastination as outcome variables.

**Among elements positively correlated with changes in discipline in regression analysis were ( $p < 0,1$ ): working time in the company (1-3 years showed maximum discipline) (6,6%), having the possibility to choose between working places (3,5%). Negative correlation was for changes (both increased and decreased) in personal costs (12,3%), meeting frequency (4,4%), gender (male) (4,3%), no possibility to choose between working places (3,5%).**

**With procrastination were negatively correlated following elements ( $p < 0,05$ ) – trust (11,5%), collaboration intensity (I am frequently called to provide information to others) (9,8%), feeling safe about the sustainability of current job (10,7%), collaboration and communication effective (9,3%), working time in current company up to 3 years, and positive correlation was observed for following elements: feeling pressure always to be responsive (7,4%), working time in organization (less than 3 years) (4,6%), gender (male) (3,3%) (please see Appendix E). Monitoring did not have statistically significant correlation with procrastination and discipline.**

Discipline was positively correlated with productivity and well-being (please see results on well-being in section: 4.6. Findings on well-being) and we also found that procrastination (Q35d) was negatively correlated with productivity. Results were similar to results reported in the study of Wang et al, 2020 but there were no studies done on discipline and well-being correlation. Discipline has not been extensively studied as a hybrid work element, since it was believed that discipline is a personal trait, based on which workers are selected as suitable for remote work. Research of Wang et al, 2020 brings insights that workers' discipline has a relationship with social interactions quality in remote work setup and social support is correlated with lower scores in procrastination. Our data are showing that collaboration intensity and communication efficacy have negative correlation with procrastination, showing the importance of social support from colleagues in reducing procrastination. Respondents with low scores in discipline tended to report more significance of managerial and organization support to increase their productivity. Our data are supporting the importance of establishing effective communication in hybrid work setup to achieve the best outcomes. Interestingly discipline was negatively correlated with Q15 Do you have a feeling of pressure to always be responsive to managers or clients and procrastination was negatively correlated with trust, what supports assumption, that workers, who feel more stressed and not trusted at work

tend to have lower self-motivation to work (Parker et al, 2020) therefore mutual trust between managers and employees is important hybrid workplace element.

*H2b: manager trust has negative correlation with employees self-reported level of procrastination in hybrid work setup, monitoring (such as) do not have effect on employees procrastination in hybrid work setup – supported* with our data.

*H2d: social support from colleagues in hybrid working setup during COVID-19 correlates negatively with employees' self-reported procrastination was supported.*

Interesting finding was that workers' self-reported discipline correlated positively with well-being. This finding supports the view, that workers well-being in hybrid work is strongly related with perceived work challenges (Etheridge et al, 2020), and persons with higher discipline are able to better overcome hybrid work challenges and better to use resources to establish effective communication and collaboration to benefit from social support (Wang et al, 2020). This finding may increase awareness of the importance of self-discipline as a hybrid work element and may also motivate hybrid workers to develop their self-discipline to achieve effectiveness at work and improve their well-being.

We can conclude that in a hybrid work environment productivity is influenced by communication efficiency also indirectly - by ensuring social support which is important to maintain optimal levels of discipline (Wang et al, 2020) which in turn have high impact on productivity and well-being.

Trust was negatively correlated with procrastination, contrary to the common belief that more monitoring (micromanagement) would be needed to decrease procrastination in individuals with low self-discipline, our data are showing that workers who feel trusted are reporting higher productivity. Procrastination was positively correlated with Q15: Do you have a feeling of pressure to always be responsive to requests from managers, clients or team members? This means that micromanagement and frequent checking on workers can create unnecessary stress and tension which in fact influence negatively their perception on how productive they are.

Besides, procrastination has been framed as a trait-like variable in remote working literature (Allen et al, 2015), and therefore managers tend to provide flexible work arrangements for individuals with greater abilities to avoid distractions. Our study brings additional data to support the idea that procrastination is one of the challenges in remote working and that it can be mitigated by work characteristics (i.e., by strengthening collaboration between colleagues and managerial trust).

#### 4.5. Communication

We performed regression analysis on different elements related to communication in hybrid work setup (meeting frequency, meeting quality (always with agenda, meeting notes, follow up, relevant), more written than verbal communication, and productivity, please see appendix E.

**Most significant ( $p < 0,05$ ) communication related elements positively correlated with changes in productivity were (relative importance, %): communication and collaboration quality (8,8%), meeting quality (5,5%), more meetings than in office (2,8%), meetings with manager more than 3 times per week (2,5%), meetings with team work related 2-3 times per week (1,8%).**

Our data show that **meeting frequency with manager and team has significant correlation with productivity**, maximum productivity reached at 3 work related meetings with manager per week, less frequent meetings with manager seemed to negatively correlated with productivity. More meetings with team: 2-3 meetings with team correlated positively with productivity and it was statistically significant difference between 1 meeting per week and 2-3 meetings per week with team. Therefore

***Hypothesis 3a: more frequent than in office (at least 2 times per week) work interactions with manager and team in hybrid working setup during COVID-19 positively correlates with productivity was supported.***

Collaboration and communication effectiveness was correlated with productivity positively, and it was a significant factor (relative importance 8,8%). Important factor was meeting quality (always with an agenda, meeting notes, follow up, relevant for your work) which correlated with productivity. Therefore our results confirm indirectly that important decisions need to be documented to facilitate the information flow between workers.

Change to more written communication – only 19% of managers responded that communication has changed from more verbal to more written, therefore we could not evaluate the effect on productivity, since it may not be implemented in practice to an extent that employees could feel benefit to their productivity.

***H3b: change to more written than verbal communication in hybrid work setup during COVID-19 correlates positively with employee productivity; our data did not support this hypothesis.***

Informal meeting frequency did not correlate with employees well-being, it can be explained that many companies already have adopted informal meetings in their practice and therefore informal meetings are a hygiene factor for well-being and not beneficial. Our study data indicate that communication quality is still an open question and more research is needed to understand how to increase communication and collaboration quality in hybrid work setup.



*Hypothesis 3c: regular and frequent informal (at least 1 time per week) work interactions in hybrid working setup during COVID-19 pandemic have positive relationship with well-being and decreased sense of social isolation – was not statistically significant relationship.*

#### 4.6. Findings on well-being

**Elements statistically significantly ( $p < 0,01$ ) correlated positively with well-being (please see Appendix E) on regression analysis were (relative importance, %) discipline (12,4%); age (9,1%); home ergonomics training (6,3%); feeling safe about sustainability of job (4,5%); psychological professional support (2,5%), engagement in sports activities (3,7%). Factor correlated negatively with well-being was feeling pressure always respond to different requests from managers, clients or team members (17,4%), social isolation (9,0%); difficulties to use technologies (4,4%)**

Home ergonomics training was shown to decrease physical discomfort related to remote working and increase workers productivity (Harrington, 2004). There were no quantitative studies showing the need for home ergonomics training to increase employees well-being, therefore our data would bring additional insight on the need for ergonomics training.

Well-being is negatively correlated with Social isolation. Social isolation has a high negative impact on the well-being of employees therefore activities that reduce social isolation during hybrid working are important to increase employee well-being. Similar findings were in other studies (Wang et al, 2020). We performed regression analysis on hybrid workplace elements and **social isolation as outcome variable (please see Appendix H) showed negative statistically significant ( $p < 0,05$ ) correlation of following elements (relative importance, %): meeting quality increase (14,%), importance of setting certain workday in office (7,3%), opportunity to work on working hours when most productive (5,9%), documenting project progress (5,0%), meetings with team frequency more than 3 times per week (4,6%), support from colleagues (4,0%). Elements that correlated positively with social isolation were autonomy (1,8%), decrease of meeting quality (14,3%).**

Our data show that poor communication is not only impairing performance but can also impair professional relationships and increase work stress (Day et al, 2012, Wang et al, 2020) and lead to negative effects on well-being, and perceived social isolation (Wang et al, 2020). Thus, our findings inspire managers and researchers to think further how to facilitate high quality communication for hybrid workers. Our findings are indicating that social isolation has positive correlation with autonomy, which is also supported with other data in literature that autonomy and flexibility of working hours may make the communication between employees more challenging (Ford et al, 2020,

ILO, 2020, Wang et al, 2020) and less efficient communication may lead to greater perceived social isolation not allowing much social interactions.

Feeling pressure to always be responsive to different requests correlated negatively with well-being, and it was the most important contributing factor for changes in well-being on regression analysis, supporting the **need to implement the right to disconnect** in hybrid work policies. Large number of workers reported feeling that they needed to be constantly available, such as being expected to respond to electronic/telephone messages immediately, be available always, and be responsive after work hours. Research shows that anxiety at work is greater for those workers experiencing high levels of close monitoring and a strong belief that their supervisor does not trust them. Findings show that the more a worker feels mistrusted, the lower their perception that they are performing their core tasks well (Parker et al, 2020). In our study well-being was negatively correlated with Q15: Do you have a feeling of pressure to always be responsive to requests from managers, clients or team members? In our study Q15 was not correlated with self-reported productivity. 37% of employees reported that they feel pressure to always be responsive, which is approximately the same to that reported in similar studies (Parker et al, 2020).

***Hypothesis 4: feeling of pressure to always be responsive to different requests correlates negatively with well-being and does not correlate with productivity was supported.***

Covid-19 has thrust many leaders into remote management which requires a different skill set than face-to-face management and being forced to make this transition quickly. Research shows that many managers are struggling with the effective management of people working from home, with this translating into many workers feeling untrusted and micromanaged by their bosses. Simply telling managers to trust their employees is unlikely to be sufficient. Rather, they need to learn new skills of delegation and empowerment to provide their workers with greater autonomy over their work methods and the timing of their work, which in turn will promote worker motivation, health, and performance (Parker et al, 2020). We asked in our questionnaire Q50: Have you received guidance how to manage employees from home (e.g. training for managers)? 44% (N=43) managers were answering affirmative and 56% (N=55) managers - negative.

In our questionnaire Q51 we asked: Has your leadership style changed while leading a team working from home? Only 39% of managers answered that it changed towards more trusting employees, 12% reported that they changed style to more controlling employees and for 49% it has not changed. Research shows that managers who cannot “see” their direct reports sometimes struggle to trust that their employees are indeed working. When such doubts creep in, managers can always start to develop an unreasonable expectation that those team members be available, ultimately disrupting their work-home balance and causing more job stress. In literature 38% of managers agreed that remote workers usually perform worse than those who work in an office, with 22% being unsure

(Parker et al, 2020). However, in our conducted research with a question (Q48) to managers: Do you believe your team is working from home as well as from the office? 1% of managers strongly disagreed and 9% disagreed with the statement and 70% agreed or strongly agreed that the team is working as well as from the office, rest were unsure (20%). Our research results show higher levels of trust from managers to employees working remotely but there is a gap between managers' opinion about trusting employees and employees' sense of not being trusted.

We can conclude from our findings that it is important to train managers to remote management skills, including results based performance management practices and stress importance to create trusting atmosphere and reducing pressure and control; it will result in significant improvement of well-being and productivity of workers.

#### 4.7. Employee opinion on what needs to be improved in work setting

We asked in survey Q23 - What would you need to be improved in your work setting to be able to work more productively during remote working? It was an open question and respondents were able to share their thoughts and ideas. It shows that technical support and equipment at home are the most frequently mentioned elements, which are needed to increase workers productivity. Technical support and equipment can be considered as hygiene elements for successful hybrid working and supports the survey findings about the importance of organization support. Responses also showed that tasks related performance management and effective communication are important elements to increase their productivity and thus were supporting our hypotheses with additional data (H2c and H3b) (please see Appendix F). Answers of respondents confirm in a literature review identified individual hybrid work challenges - there is stated an importance of ensuring technical support from organization and recommended for employers to provide employees with appropriate equipment, it supports the statement that organization support can increase productivity. Respondents confirm an importance of effective communication and collaboration in hybrid work setup which authors explored in this research work as one of the main challenges. There were no new findings from answers of respondents with not identified hybrid work elements or hybrid work challenges which would differ from the literature review and interviews with HRs of companies.

Among activities employees mentioned as significant for improving well-being, on regression analysis with well-being significant positive correlation was observed for following elements: **home ergonomics training (6,3%), psychological professional support (2,5%), engagement in sports activities (3,7%)** (please see Appendix E). Therefore our study brings additional data about the employees opinion about important benefits from the company which would help them to feel better in a hybrid work setup.

#### 4.8. Limitations

The results from our survey of the white-collar workers might not be generalizable to other populations, since remote work is not possible to a similar extent in all occupations.

Furthermore, results might not be generalizable to pre- and post-pandemic conditions considering the exceptional characteristics of the COVID-19 pandemic limitations period compared to “normal” times. In addition, we conducted our study almost a year after the onset of COVID-19 limitations in Latvia, warranting further examination of the long-term associations of working from home with workers self-reported productivity and well-being.

In the creation process of the survey authors could miss some important questions and not be included in the questionnaire we distributed, the same applies to interviews with HR managers of companies. Methodology limitations of structured survey was that only developed models could be tested, not allowing insight on additional elements which may be influencing workers self-reported productivity and well-being. To solve it authors included the open question in the questionnaire to find out if something significant was missed. Survey measures only current state responses, which can be influenced by other factors than related to hybrid working practice. We tried to predict the most important, e.g. effect of pandemic on flow of operations in a company, feeling safe about sustainability of job, company engagement, which we used as control variables. Current analysis focused only on some aspects of managerial practices and communication and there was no in depth analysis of management and other practices in companies which may have an impact on well-being and self-reported productivity of workers.

#### 5. Conclusions

Goal of our study was to explore what is the relationship between hybrid work setup elements and employee productivity and well-being during COVID-19 pandemic. The key findings were (please see Appendix G for the list of hypotheses and findings):

1. Remote day frequency up to 5 days were correlated positively with employee productivity and satisfaction and were not correlated with well-being.
2. Monitoring practices (regular calls with manager at mornings, request to daily report to manager, request to report time/work split, request to daily report to manager, checking out with digital tools, cameras on during meetings), are not related with workers productivity in hybrid work setup and have no impact on discipline and procrastination therefore their role need to be reevaluated in managing hybrid workers.
3. Results based performance management is an important factor that correlates with workers productivity in hybrid work setup.

4. Discipline and procrastination were important individual elements correlated with workers productivity, managerial trust and colleague support were statistically significantly correlated negatively with procrastination and feeling pressure to always be responsive positively correlated with procrastination.
5. Both communication quality and quantity were important elements, which correlated with productivity and well-being. Our data supported the need for more frequent meetings in hybrid work setup, compared with working in the office.
6. Workers well-being was correlated negatively with hybrid work challenges – feeling pressure “to always be on”, ineffective communication, social isolation and positively with discipline. Important elements for improving workers well-being were: home ergonomics training, psychological professional support, engagement in sports activities.
7. It is important to train managers on remote management skills, including results based performance management practices and creating a trusting atmosphere, reducing pressure and control, which can potentially lead to maintained well-being and productivity of workers.

Results from our study suggest that employee productivity and well-being can be maintained and improved in hybrid work setup during COVID-19 pandemic, harnessing different managerial practices and recognizing discipline as a hybrid work element. Effective communication is one of the biggest challenges in hybrid work, current elements may not give the complete explanation of the best setup for effective communication and collaboration, therefore it is an important topic for future research. Future studies would be needed to investigate both short-term and long-term associations of hybrid working with the employee’s well-being and perceived productivity, and objectively measured productivity to clarify the positive and negative repercussions of working from home for employees and employers, and ultimately to inform policy makers. Such further research holds the potential to inform public policy to minimize longer term negative consequences of COVID-19 prevention measures and plan hybrid work in the future.

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## 7. Appendices

### Appendix A. Summary of hypotheses and outcomes

<b>Frequency of remote work</b>
<i>H1: Remote work frequency up to 3 days per week correlates positively or does not influence workers productivity and does not correlate negatively with reported employee satisfaction compared to higher frequency of remote work.</i>
<i>H1a: remote work frequency up to 3 days is positively correlated with employee well-being</i>
<i>H2a: monitoring practices (regular calls with manager in mornings, request to daily report to manager, request to report time/work split, request to daily report to manager, checking out with digital tools, cameras on during meetings), are not related with workers productivity in hybrid work setup.</i>
<i>H2b: manager trust has negative correlation with employees self-reported level of procrastination in hybrid work setup, monitoring (such as) do not have effect on employees procrastination in hybrid work setup.</i>
<i>H2c: managerial trust and results based performance management during COVID-19 correlate positively with employee productivity and well-being in hybrid working setup.</i>
<i>H2d: social support from colleagues in hybrid working setup during COVID-19 correlates negatively with employees' self-reported procrastination.</i>
<i>H3a: more frequent than in office (at least 2 times per week) work interactions with manager and team in hybrid working setup during COVID-19 positively affects productivity</i>
<i>H3b: change to more written than verbal communication in hybrid work setup during COVID-19 correlates positively with employee productivity</i>
<i>H3c: regular and frequent informal (at least 1 time per week) work interactions hybrid working setup during COVID-19 have positive relationship with well-being in hybrid work setup during COVID-19 pandemic and decreased sense of social isolation.</i>
<i>H4: feeling of pressure to always be responsive to different requests correlates negatively with well-being and does not correlates with productivity</i>

## ***Appendix B. Interview questions***

- 1) What is your work position? (If unknown prior to the interview)
- 2) How has the hybrid work setup developed at your organization?
- 3) How are employees selected for working in a hybrid work setup?
- 4) How is employee performance managed in a hybrid work setup?
- 5) Do you give/receive feedback from your supervisor now that your work is hybridized? Is it different from before? How?
- 6) Please describe how you communicate in a hybrid work setup?
- 7) Are there more/less misunderstandings between you and your colleagues/supervisors now that you work in hybrid setup? If yes, provide an example!
- 8) Are relationships somehow strengthened in a hybrid work setup? If so, how?
- 9) How do you build trust regarding the professional abilities of others?
- 10) Are employees offered support to be successful in a hybrid work setup? If yes, what support?
- 11) What are the main challenges that managers face in a hybrid work setup?
- 12) What are the main challenges that employees face in a hybrid work setup?
- 13) How does the hybrid work setup impact employee engagement if compared to before?
- 14) How does the hybrid work setup impact employee performance if compared to before?
- 15) Has employee well-being changed during hybrid work compared with previous office working setup and what is the company implementing to improve employee well-being?
- 16) What are the main learnings during hybrid working and recommendations to others?

**Appendix C. Structured survey**

General	What is the name of the organization you currently work for?
	<p>Does your job specifics allow it to be done from home? (Yes/No)          IF yes          43. Are you managing a team (Yes/No) - if yes, redirected to manager questions (Q44-56), if no, continue with employee questions          a. On average, how many days per week are you working from home during the last month?            a. 1 day, b. 2 days, c. 3 days, d. 4-5 days, e. only working in office          3.b. How many days per week would you prefer to work from home after COVID-19 pandemic?            a. 1 day, b. 2 days, c. 3 days, d. 4-5 days</p>
Control	<p>7. The pandemic has disrupted the actual flow of operations in your organization?          (Strongly agree, Agree, Indifferent, Disagree, Strongly disagree)</p>
Productivity 1 (work quantity)	<p>17. During the past seven days, how many hours did you miss from work because of any reason, such as vacation, holidays, health problems?          (Scale)          18. Compared to working from office I judge the quantity of my work in working from home setup to be.. (Much worse-Much better)          19. Working part time from home and part time from the office helps in improving my productivity?          (Strongly agree, Agree, Indifferent, Disagree, Strongly disagree)</p>
Productivity 2 (work quality)	<p>20. Compared to working from the office I judge the quality of my work in working from home setup to be.. (Much worse-Much better)</p>
Productivity 3 (work efficacy)	<p>21. It took me longer to complete my work tasks than intended in working from home setup compared to work in the office.          (Strongly agree, Agree, Indifferent, Disagree, Strongly disagree)</p>
Elements to improve productivity - self reported importance . Monitoring (a, d, e, g,h,j)	<p>22. Do you have anything following and how significant it is to improve your productivity during working from home? (Not relevant (not experienced), Not important at all, somehow important, neither important or not important, important, very important)          a. Regular call with your manager at morning          b. Regular team meetings at least one time per week          c. Regular informal meetings with your team/other teams at least one time per week          d. Request to daily report to manager          e. Cameras on during meetings          f. Request to work on fixed working hours          g. Request to report your daily work by time/task split          h. Checking in or out via digital tools          i. More meetings</p>

	<ul style="list-style-type: none"> <li>j. Monitoring task performance versus goals and deadlines more frequently</li> <li>k. More efficient meetings (always with agenda, meeting notes, follow up, relevant for your work)</li> <li>l. Documenting project progress and sharing with team</li> <li>m. Dedicated workplace at home</li> <li>n. More time to complete your work</li> <li>q. Changes in motivation to work</li> <li>r. Better focus time</li> <li>s. Demand to answer quicker to different requests</li> <li>t. Opportunity to work in working hours when most productive</li> <li>v. New skills training</li> </ul>
Open	23. What would you need to be improved in your work setting to be able to work more productively during remote working? (Open)
Organization support	14. Help is available for my organization when I have a problem in hybrid work setup working days from home (Strongly Agree, Agree Indifferent Disagree Strongly disagree)
Tools, technostress	10. A) Are you finding it difficult to use the technologies in work from home set up? B) Do you have necessary tools for work at home? (Strongly disagree, Disagree, Can't say, Agree, Strongly agree)
Children, home-work interruptions	6. If you have children under 12 years old is childcare or substitute available to you? a. yes, I have children, childcare available, b. yes, I have children, childcare not available c. no, I have no children
Autonomy	13. Do you have the possibility to choose between working places (office or home)? (Yes, No)
Always on	15. Do you have a feeling of pressure to always be responsive to requests from managers, clients or team members? (Never-Always 5 point scale)
Meetings	24. How many meetings have you had while working from home during last month? a) once per week, b) 2-3 times per week, c) more than 3 times per week I) with the team, work related: II) with manager/ CEO? III) Informal meetings with manager/colleagues
Meetings	25. How frequency of meetings during working from home is increasing your ability to reach your work goals? (Decreases significantly, Decreases, Does not change, Increases, Increases significantly)

Meeting quality	26. Has meeting quality changed when working from home? (Decreased significantly, Decreased, Has not changed, Increased, Increased significantly)
Communication/ collaboration	27. Is communication and collaboration effective during hybrid/home working? (Less effective-More effective)
Communication/ collaboration	28. a. We have found meaningful ways to stay connected with colleagues in the current environment. (Strongly agree, Agree, Indifferent, Disagree, Strongly disagree) b. My own performance is dependent on receiving accurate information from others c. In my job I am frequently called to provide information and advice d. My manager is checking in regularly enough with how I am doing (not just work-related) e. I received enough feedback from my manager
Well-being	29. During last 2 weeks: a. I have felt cheerful and in good spirits. (All time, most of time, More than half of time, Some of time, At no time) b. I have felt calm and relaxed. (All time, Most of time, More than half of time, Some of time, At no time) c. I have felt active and vigorous. (All time, Most of time, More than half of time, Some of time, At no time) d. I woke up feeling fresh and rested. (All time, Most of time, More than half of time, Some of time, At no time) e. My daily life has been filled with things that interest me. (All time, Most of time, More than half of time, Some of time, At no time)
Activities to improve well-being	34. What activities have you experienced in your workplace while working remotely and how important it is to improve your well-being? (Important-Not important) a. Engagement in sports activities b. Engagement in mindfulness activities c. Psychological professional support d. Engagement in healthy lifestyle practices e. Support from colleagues f. Support from manager i. Mandatory meetings at the office j. Setting certain workdays in the office k. Team building n. Information about home working ergonomics training o. other
Social isolation	32. I feel isolated (Strongly agree, Agree, Indifferent, Disagree, Strongly disagree) I miss informal interaction with others (Strongly agree, Agree, Indifferent, Disagree, Strongly disagree)

Trust	3. During days working from home: (Strongly agree, Agree, Indifferent, Disagree, Strongly disagree) a. My manager trusts me more b. My manager worries that I am not getting the job done
Self-discipline	35. During working from home (Strongly agree, Agree, Indifferent, Disagree, Strongly disagree) a. I have trouble concentrating. b. I am good at resisting temptation. c. I would benefit from more monitoring from your manager to increase my productivity during working from home days? d. I needlessly delayed finishing jobs, even when they were important. e. I have stable everyday routine
Control	37. I feel safe about the sustainability of my current job. (Strongly agree, Agree, Indifferent, Disagree, Strongly disagree)
	8. How satisfied are you with your current work from home arrangement? (Extremely dissatisfied-Extremely satisfied)
	9. Would you support hybrid working after COVID-19 pandemic? (Strongly disagree-Strongly agree)
Personal costs	16. Have your personal costs noticeably changed related to work? Increased, b. Decreased, c. have not changed
Age	38 What is your age (18-29, 30-39, 40-49, 50-59, 60+)
Gender	39. What is your gender? (M/F)
	40. For how long time you have been working for this organization? (Up to three months, Three months till year, 1-3 years, More than 3 years)
Job	41. What is your current job? (a. Finance, b. Marketing, c. IT, d. HR, e. Sales, f. Logistics, g. Administration/ secretarial, h. Other (specify))
Industry	42. In what industry do you work? (a. Manufacturing, b. Health care (social care), c. Education, d. Transport (logistics), e. Financial services (banking, insurance), f. Telecommunication, g. IT, h. Law, legal aid, i. Marketing, media, j. State and public administration, k. Pharmaceutical, l. Other (specify)
<b>Managerial questions</b>	45. Do you have experience in managing remote teams before COVID-19 pandemic? (Yes/No)
	46. How would you rate your team's labor productivity in current situation? (Poor-Very good)
	47. Approximately how many team members improved, how many did not change, and how many decreased productivity during the period when

	working from home at least one day per week? (Improved productivity, Did not change productivity, Decreased productivity)
	48. Do you believe your team is working from home as well as from the office? (Strongly disagree-Strongly agree)
	49. How do you think, how many days working from home in a week would be optimal for maximizing workers productivity after release of COVID-19 related limitations?
	50. Have you received guidance on how to manage employees from home (e.g. training for managers)? (Yes/No)
	51. Has your leadership style changed while leading a team working from home? (Has not changed, Changed towards more trusting employees, Other)
	52. Has your approach towards performance management changed during remote working during COVID-19 pandemic? (Changed: I am checking more often task performance versus goals and agreed deadlines and/or implementing project management tools, Changed: I am controlling more if employees are working during work time, Has not changed: I was checking task performance already before)
	53. Would you support hybrid working after COVID-19 pandemic? (Yes, Cannot say, No)
	55. What forms of providing feedback you used most frequently? (During online meetings, During team meetings, 1:1 in office, Do not give feedback until I met person 1:1)
	54. How has working from home has impacted employee engagement during COVID-19 pandemic? (Much lower-Much higher)
	57. Has communication changed in your company? (It changed from verbal to more written, It is less efficient, Takes more time, It is faster and more efficient, It is difficult to reach colleagues, employees)
	56. How frequently do you provide feedback on performance on average during working from home period in COVID-19 pandemic? (1 time per 2 weeks, Once per month, Once per half of year or less)



**Appendix D. Summary of studies about workers self-reported productivity changes in hybrid/remote work setup compared with working in office**

Study	Outcome
Studies at Company level. Ford et al, 2020, Dahik et al, 2020, Birkinshaw et al, 2020	At majority of employees were able to keep the same level of productivity or be more productive. 12% less time drawn into large meetings and 9% more time interacting with customers and external partners. Employees experienced greater enjoyment, satisfaction and motivation.
Multiple companies. Susilo, 2020	Did not change productivity. Study showed that the relationship between work-from-home and job performance is not direct; workers need to achieve a certain level of job satisfaction first before their job performance increases.
Population level study. Etheridge et al, 2020	Workers who have increased their intensity of working from home substantially report productivity increases, while those who previously always worked from home report productivity declines. Notable groups suffering the worst average declines in productivity include women and those in low-paying jobs.
Software developers. Ralph et al, 2020	Decrease in self-reported employee productivity and well-being compared to the period prior to COVID-19 crisis. Main findings were that change in productivity depends on ergonomics/disaster preparedness and changes in well-being depends on ergonomics and fear
Mirela, 2020	Decrease in productivity, comparing with time before COVID-19 limitations, authors suggest that it can be explained by the fact that study was done at the very beginning of the pandemic
Study at population level. Weitzer et al, 2021	Perceived productivity seemed to decrease when people worked from home, working from home and related benefits were not equally distributed among gender, age, and educational attainment.
Our study	Maintained or increased productivity. Elements which correlated with productivity were: discipline, working days from home, communication and collaboration quality, better focus time, more time to finish work, meeting quality, organization support, monitoring task performance versus goals, more meetings, meetings with manager 2-3 times per week, meetings with team work related 2-3 times per week, dedicated workplace at home, presence of children.

**Appendix E. Regression analyses data**

Regression of Productivity with 24 explanatory variables

Variable	Relative Importance	Coefficient	P-Value
<b>Discipline</b>	24,6%		
< 11		-1,0609	<b>0,0004</b>
11 - 15 (Baseline)		0	
15 - 17		0,7975	<b>0,0173</b>
17 - 20		1,0889	<b>0,0127</b>
<b>On average, how many days per week are you working from home during the last month?</b>	10,5%		
Only working in office		-1,0801	0,1604
1 day		-0,5094	0,7605
2 days		-1,7145	<b>0,0043</b>
3-4 days		-0,5856	<b>0,0691</b>
5 days (Baseline)		0	
<b>Q27: Is communication and collaboration effective during hybrid/ home working?</b>	8,8%		
Less effective		-0,7569	<b>0,0087</b>
More effective (Baseline)		0	
<b>Better focus time</b>	7,1%		
Not experienced		-1,1042	<b>0,0374</b>
Important (Baseline)		0	
Indifferent		-0,7611	<b>0,0115</b>
Not important		-0,1357	0,6481
<b>More time to complete your work</b>	6,9%		
Not experienced		0,8260	<b>0,0236</b>
Important (Baseline)		0	
Indifferent		0,7047	<b>0,0034</b>
Not important		0,6992	<b>0,0096</b>
<b>Q26: Has meeting quality changed in working from home?</b>	5,5%		
Decreased significantly		-0,9861	0,3970
Decreased		0,2352	<b>0,0864</b>
Has not changed (Baseline)		0	
Increased		0,6494	<b>0,0844</b>
Increased significantly		0,9788	0,4984
Social isolation	4,1%	-0,1262	0,1531
<b>Q42: In what industry do you work? - Selected Choice</b>	3,8%		
Manufacturing		-0,0652	0,9777
Health care, social care		-1,2752	0,2781

Education		0,6270	0,7649
Transport/ logistics		0,4854	0,3910
Financial services (banking, insurance)		-0,7070	0,2005
Telecommunication		0,1319	0,8613
IT		0,0249	0,7711
Law, legal aid		0,5021	0,8830
Marketing, media		-0,5985	0,3395
State and public administration		-0,5186	0,3229
Pharmaceutical		-0,3179	0,7430
Other (specify) (Baseline)		0	
<b>Q14: Help is available from my organisation when I have a problem in hybrid work setup working days from home.</b>	3,5%	0,3818	<b>0,0168</b>
Q7: The pandemic has disrupted the actual flow of operations in your organization?	3,1%	-0,1829	0,4705
<b>Monitoring task performance versus goals and deadlines more frequently</b>	2,8%		
Not experienced		-0,9164	<b>0,0575</b>
Important		-0,2268	0,5341
Indifferent		-0,1768	0,5140
Not important (Baseline)		0	
<b>More meetings than in office</b>	2,8%		
Not experienced		0,6373	0,2586
Important		-0,4457	<b>0,0504</b>
Indifferent		0,1967	0,6848
Not important (Baseline)		0	
<b>With manager/ CEO</b>	2,5%		
Once per week (Baseline)		0	
2-3 times per week		-0,6923	<b>0,0396</b>
More than 3 times per week		0,3269	0,4836
<b>Dedicated workplace at home</b>	2,3%		
Not experienced		-1,3506	0,7801
Important (Baseline)		0	
Indifferent		-0,9621	<b>0,0182</b>
Not important		0,0283	0,6466
New skills training	1,8%		
Not experienced		-0,5769	0,8133
Important (Baseline)		0	
Indifferent		-0,5483	0,1836
Not important		-0,1317	0,7802
<b>With the team, work related</b>	1,8%		
Once per week (Baseline)		0	
2-3 times per week		0,4879	<b>0,0697</b>
More than 3 times per week		0,2507	0,2836



Regression of Procrastination with 24 explanatory variables

Variable	Relative Importance	Coefficient	P-Value
<b>Trust</b>	11,5%	-0,0898	<b>0,0185</b>
<b>Q37: I feel safe about the sustainability of my current job.</b>	10,7%	-0,1161	<b>0,0462</b>
Q7: The pandemic has disrupted the actual flow of operations in your organization?	9,9%	0,0869	0,1135
<b>In my job I am frequently called to provide information and advice</b>	9,8%	-0,1903	<b>0,0026</b>
Q27: Is communication and collaboration effective during hybrid/ home working?	9,3%		
<b>Less effective</b>		0,2042	<b>0,0481</b>
More effective (Baseline)		0	
<b>Q15: Do you have a feeling of pressure to always be responsive to requests from managers, clients or team members?</b>	7,4%	0,0786	<b>0,0534</b>
Q38: What is your age?	7,3%		
18-29		0,0645	0,7976
30-39 (Baseline)		0	
40-49		0,1485	0,1600
50-59		0,0063	0,8164
60+		0,4244	0,1045
Well-being	6,1%	-0,0197	0,2262
Q40: For how long have you been working for this organization?	4,6%		
Up to three months		-0,1927	0,4620
Three months till year		-0,3696	0,0689
1-3 years		-0,1475	0,2747
More than 3 years (Baseline)		0	
Q13: Do you have the possibility to choose between working places (office or home)?	3,5%		
Yes (Baseline)		0	
No		0,1238	0,2874
Q39: What is your gender?	3,3%		
Male		0,1916	0,0990
Female (Baseline)		0	
Social isolation	3,0%	0,0301	0,2904
Q26: Has meeting quality changed when working from home?	2,6%		
Decreased significantly		-0,0366	0,9873
Decreased		0,0645	0,7769
Has not changed (Baseline)		0	
Increased		0,0527	0,2548
Increased significantly		0,3916	0,2105
Q16: Have your personal costs noticeably changed related to work?	2,4%		

Increased		-0,0932	0,4657
Decreased		0,0573	0,3766
Have not changed (Baseline)		0	
Q6: If you have children under 12 years old is childcare or substitute available to you?	1,6%		
Yes I have children, childcare available		-0,0891	0,4374
Yes I have children, childcare not available		-0,0092	0,9520
No, i have no children (Baseline)		0	
Setting certain workdays in the office	1,3%	0,0200	0,9786
Managerial support	1,2%	0,0394	0,1578
Autonomy	1,2%	-0,0428	0,9786
Engagement in mindfulness activities	0,8%	0,0153	0,5937
Organization support	0,8%	-0,0321	0,8615
Engagement in sports activities	0,6%	0,0169	0,6645
<b>Monitoring</b>	0,5%	-0,0064	0,5759
Engagement	0,4%	-0,0041	0,9599
Meetings	0,2%	0,0094	0,8382

Sample Size  
285

Adjusted R-squared P-Value  
21,9% 0,000553

Regression of Well-being with 24 explanatory variables

Variable	Relative Importance	Coefficient	P-Value
<b>Q15: Do you have a feeling of pressure to always be responsive to requests from managers, clients or team members?</b>	17,4%	-0,6411	<b>5,44E-05</b>
Discipline	12,4%		
< 11		-0,7584	0,1116
11 - 15 (Baseline)		0	
15 - 17		0,6183	0,3034
<b>17 - 20</b>		1,2062	<b>0,0440</b>
Q38: What is your age?	9,1%		
18-29		-0,6848	0,4601
30-39 (Baseline)		0	
40-49		0,4431	0,1886
<b>50-59</b>		1,1954	<b>0,0102</b>
60+		0,0626	0,8777
<b>Social isolation</b>	9,0%	-0,2195	<b>0,0229</b>
Q26: Has meeting quality changed when working from home?	7,9%		
Decreased significantly		-1,6965	0,1780
Decreased		-0,4910	0,4245
Has not changed (Baseline)		0	
Increased		0,6797	0,1736
Increased significantly		-1,2978	0,2949
<b>Information about home working ergonomics training</b>	6,3%	0,4548	<b>0,0017</b>
<b>Q37: I feel safe about the sustainability of my current job.</b>	4,5%	0,3425	<b>0,0528</b>
<b>Are you finding it difficult to use the technologies in work from home set up?</b>	4,4%	-0,3633	<b>0,0387</b>
Q16: Have your personal costs noticeably changed related to work?	4,0%		
Increased		-0,3370	0,8140
Decreased		0,5089	0,1703
Have not changed (Baseline)		0	
<b>Engagement in sports activities</b>	3,7%	0,3671	<b>0,0226</b>
Monitoring task performance versus goals and deadlines more frequently	3,7%		
<b>Not experienced</b>		-1,2714	<b>0,0566</b>
Important		-0,2368	0,5865
Indifferent		0,4734	0,4112
Not important (Baseline)		0	
I received enough feedback from my manager	3,4%	0,2585	0,2292

Q6: If you have children under 12 years old is childcare or substitute available to you?	3,2%		
Yes I have children, childcare available		0,4123	0,4187
Yes I have children, childcare not available		-0,5420	0,2550
No, i have no children (Baseline)			
<b>Psychological professional support</b>	2,5%	-0,1682	<b>0,0112</b>
On average, how many days per week are you working from home during the last month?	2,0%		
Only working in office		-0,8837	0,4346
1 day		1,2493	0,1995
2 days		0,3726	0,9765
3-4 days		0,1727	0,7372
5 days (Baseline)		0	
My manager is checking in regularly enough with how I am doing (not just work-related)	1,5%	0,1542	0,9860
Q14: Help is available from my organization when I have a problem in hybrid work setup working days from home.	1,1%	0,1661	0,9025
With manager/ CEO	1,0%		
Once per week (Baseline)		0	
2-3 times per week		-0,5594	0,4140
More than 3 times per week		0,3622	0,3337
Engagement in mindfulness activities	0,8%	-0,1225	0,6553
Engagement	0,7%	0,0245	0,6508
Informal meetings with manager/ colleagues	0,5%		
Once per week (Baseline)		0	
2-3 times per week		0,3153	0,7542
More than 3 times per week		0,2340	0,7584
Setting certain workdays in the office	0,5%	-0,0957	0,8057
Trust	0,3%	-0,0817	0,1698
Q39: What is your gender?	0,2%		
Male		0,1703	0,9256
Female (Baseline)		0	

Sample Size R-squared

285 53,0%



Regression of Social isolation with 19 explanatory variables

Variable	Relative Importance	Coefficient	P-Value
<b>How many days per week would you prefer to work from home after COVID-19 pandemic?</b>	27,4%		
Only working in office		1,0721	0,0236
1 day		0,3980	0,1696
2 days		0,7455	<b>0,0059</b>
3-4 days (Baseline)		0	
5 days		-0,7561	<b>0,0886</b>
<b>Q26: Has meeting quality changed when working from home?</b>	14,3%		
Decreased significantly		1,1837	0,2224
Decreased		0,5306	<b>0,0243</b>
Has not changed (Baseline)		0	
Increased		-0,3413	0,3554
Increased significantly		-1,1602	0,2084
<b>Setting certain workdays in the office</b>	7,3%	0,1428	<b>0,0333</b>
Q41: What is your current job? - Selected Choice	7,3%		
Finance		-0,0464	0,9070
Marketing		0,4999	0,0861
IT		-0,2577	0,6868
HR		-0,5364	0,2970
Sales		0,3046	0,2900
Logistics		-0,2553	0,8000
Administration/ secretarial		-0,1902	0,6001
Other(specify) (Baseline)		0	
Opportunity to work in working hours when most productive	5,9%		
Not experienced		0,3765	0,3285
Important (Baseline)		0	
Indifferent		-0,9232	0,0602
Not important		-0,3710	0,2921
<b>Documenting project progress and sharing with team</b>	5,0%		
Not experienced		-0,4225	0,2999
Important (Baseline)		0	
Indifferent		-0,5587	<b>0,0839</b>
Not important		0,0980	0,5876
Q38: What is your age?	4,8%		
18-29		0,2132	0,9377
30-39 (Baseline)		0	
40-49		-0,3237	0,1752
50-59		-0,3477	0,1428

60+		-0,7012	0,2433
<b>With the team, work related</b>	4,6%		
Once per week (Baseline)		0	
2-3 times per week		0,5642	<b>0,0333</b>
More than 3 times per week		-0,2184	0,4786
<b>Q13: Do you have the possibility to choose between working places (office or home)?</b>	4,5%		
Yes (Baseline)		0	
No		0,9856	<b>0,0177</b>
Q27: Is communication and collaboration effective during hybrid/ home working?	4,2%		
Less effective		0,2860	0,6028
More effective (Baseline)		0	
<b>Support from colleagues</b>	4,0%	0,2809	<b>0,0303</b>
On average, how many days per week are you working from home during the last month?	3,0%		
Only working in office		0,5167	0,9533
1 day		0,4072	0,7628
2 days		0,1024	0,6011
3-4 days		0,0450	0,8078
5 days (Baseline)		0	
Informal meetings with manager/ colleagues	2,7%		
Once per week (Baseline)		0	
2-3 times per week		-0,3837	0,1607
More than 3 times per week		0,2414	0,6810
<b>Autonomy</b>	1,8%	0,3675	<b>0,0516</b>
Q14: Help is available from my organization when I have a problem in hybrid work setup working days from home.	0,8%	-0,0893	0,4281
My manager is checking in regularly enough with how I am doing (not just work-related)	0,8%	-0,0840	0,3174
Trust	0,7%	0,0679	0,1645
Q39: What is your gender?	0,4%		
Male		-0,0891	0,8933
Female (Baseline)		0	
With manager/ CEO	0,3%		
Once per week (Baseline)		0	
2-3 times per week		-0,0597	0,9598
More than 3 times per week		-0,0234	0,9604
Sample Size	Adjusted R-squared	P-Value	
289	19,8%	1,64E-06	

**Appendix F. What improvements workers suggested for optimal hybrid work setup to be able to work more productively**

Satisfaction	Areas of improvement	Proposals for improvement
Very Satisfied 88	Best equipment and technology support for working remotely	Remote working place optimal and well equipped Company is doing everything possible to make working remotely efficient and productive for employees The company provides employees with a monthly budget to spend on improving home office Have no proposals for further improvements.
Satisfied 102	Need of appropriate furniture for home office	Need for the second monitor, printer, scanner Need to be more space at home Need separate room for working, coffee machine, office chair, ergonomic desk
Not satisfied 9	Disruptions by family members	Kids being sick, homeschooling and closed schools Have more support and understanding from other family members
Satisfied but needs improvement 51	Organizing daily operations in the company  Excessive workload	Improve on communication skills Meetings should be more efficient with improved quality and not concentrating on quantity Shorter and more productive meetings would be desirable Better access to information and documents. More training and up-skilling needed to be able to work remotely Tasks need to be more precise and clear. Measurable tasks with enough time to fulfill them and defined urgency for execution of tasks. Determined working hours, but not the working time. Someday/-s a week should be left without online meetings as otherwise it is disturbing to do current work. Better and more communication with colleagues Change of communication channel Willingness to receive more feedback from the manager Lunch deliveries organized to home

	Better information turn-over Too much incoming information	
Not fully satisfied 34	Technical support	Programs are running too slow Better internet speed and connection and IT support Improve data transmission Digitized versus on paper documents Better access to databases Better planning of own time Higher self-motivation
Not satisfied 5	Turning home into the office	Psychologically cannot accept working from home Will return to work in the office

**Appendix G. Summary of hypotheses and outcomes**

<p>Frequency of remote work</p> <p>H1: Remote work frequency up to 3 days per week correlates positively or does not influence workers productivity and does not correlate negatively with reported employee satisfaction compared to higher frequency of remote work.</p>	<p>Partially supported, working up to 5 days remotely correlated positively with productivity</p>
<p>H1a: remote work frequency up to 3 days is positively correlated with employee well-being</p>	<p>Not supported, no correlation</p>
<p>H2a: monitoring practices (regular calls with manager in mornings, request to daily report to manager, request to report time/work split, request to daily report to manager, checking out with digital tools, cameras on during meetings), are not related with workers productivity in hybrid work setup.</p>	<p>Supported</p>
<p>H2b: manager trust has negative correlation with employees self-reported level of procrastination in hybrid work setup, monitoring (such as) does not have effect on employees procrastination in hybrid work setup.</p>	<p>Supported</p>
<p>H2c: managerial trust and results based performance management during COVID-19 correlate positively with employee productivity and well-being in hybrid working setup.</p>	<p>Partially supported – trust no correlation, results based performance management correlates positively with productivity and well-being</p>
<p>H2d: social support from colleagues in hybrid working setup during COVID-19 correlates negatively with employees' self-reported procrastination.</p>	<p>Supported</p>
<p>H3a: more frequent than in office (at least 2 times per week) work interactions with manager and team in hybrid working setup during COVID-19 positively affects productivity</p>	<p>Supported</p>
<p>H3b: change to more written than verbal communication in hybrid work setup during COVID-19 correlates positively with employee productivity</p>	<p>Not supported</p>
<p>H3c: regular and frequent informal (at least 1 time per week) work interactions hybrid working setup during COVID-19</p>	<p>Not supported</p>

have positive relationship with well-being in hybrid work setup during COVID-19 pandemic and decreased sense of social isolation.	
H4: feeling of pressure to always be responsive to different requests correlates negatively with well-being and does not correlates with productivity	Supported