

MASTER

How individual, job, and workplace design aspects relate to hybrid working modes and consequential organizational outcomes

a closer look at individual and team productivity, organizational identification and workplace cohesion of hybrid office workers

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How individual, job, and workplace design aspects relate to hybrid working modes and consequential organizational outcomes

A closer look at individual and team productivity, organizational identification and workplace cohesion of hybrid office workers

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A closer look at individual and team productivity, organizational identification and workplace cohesion of hybrid office workers.

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Abstract

The COVID-19 pandemic led to a global shift towards remote work or working from home (WfH). Hybrid working, incorporating the flexibility of where to work, gained prevalence during the pandemic.. Initially, organizations were concerned about a potential decline in employee productivity and social challenges with remote work. However, subsequent research indicated a positive overall perception of working from home, with a preference for hybrid working modes expressed by both employees and employers. It can offer benefits such as reduced commuting time and improved work-life balance, however challenges like communication difficulties remain. This shift to remote and hybrid work presents a significant change in employees' work patterns. With the widespread transition to WfH, understanding its impacts on employees and organizations is crucial. Concerns include potential drops in organizational outcomes, such as productivity and organizational identification, highlighted in recent research. This study aimed to explore the relationships between individual, job, and workplace characteristics and hybrid working modes with organizational outcomes. Using a dataset from the "Work in Transition (WiT)" research project, the study found that self-management skills, shared workplaces at the corporate office, satisfaction with the home office, and workplace autonomy had the largest impacts on organizational outcomes. The findings emphasize the shift in office use towards collaborative tasks in the office and concentrated work at home. Recommendations include restructuring offices and providing support plans for home office setup and self-management skills. The knowledge gained can inform future research, policy design, and methods to enhance work environments.

Keywords: Hybrid working, WfH, CREM, Organizational outcomes, Productivity, Self-management

Executive summary

The COVID-19 pandemic led to a global shift towards remote work or working from home (WfH). Hybrid working, incorporating the flexibility of where to work, gained prevalence during the pandemic. Initially, organizations were concerned about a potential decline in employee productivity and social challenges with remote work. However, subsequent research indicated a positive overall perception of working from home, with a preference for hybrid working modes expressed by both employees and employers (Ipsen, van Veldhoven, Krichner & Hansen, 2021; Marzban, Durakovic, & Candido, 2021). It offers benefits such as reduced commuting time, improved work-life balance, and more efficient time management, although challenges remain, including communication difficulties between managers and employees. This shift to remote and hybrid work presents a significant change in work patterns of employees.

With the widespread transition to WfH and the increasing prevalence of hybrid working, understanding their impacts on employees and organizations is crucial. Concerns surrounding WfH include potential drops in organizational outcomes including, productivity, organizational identification, and cohesion, which have been highlighted in recent research. Initial research provides mixed signals of WfH productivity, with some employees experiencing both gains and losses. Workplace characteristics, such as noise and poor lighting, have emerged as influential aspects in deciding to WfH. Furthermore, WfH has been affected by individual and job characteristics. This shift towards hybrid working hold implications for Corporate Real Estate Management (CREM) to optimize work environments and consequently organizational outcomes. To navigate this transformation effectively, a deeper understanding of hybrid working and the aspects influencing these outcomes are needed. Therefore, this research aimed to answer the following research question:

‘How do individual, job, and workplace characteristics and hybrid working modes relate to each other and to individual employee productivity, team productivity, organizational identification, and workplace cohesion?’

To answer the research question, a newly available dataset, provided by the “Work in Transition (WiT)” research project (a collaboration between the Center for People and Buildings, Eindhoven University of Technology, and the Delft University of Technology), containing 6,414 valid responses, were used for quantitative analysis. The data showed that, within the measurement scale, employees rated their organizational outcomes to be mostly above average. Both individual productivity and team productivity scored above average, while organizational identification was rated slightly higher. For workplace cohesion slightly lower means were noted among the respondents. Respondents indicated that they preferred to WfH in order to save on commuting time, have better concentration, and have a better work/life balance, while reasons to come into the office mainly concerned interacting with colleagues, being in proximity of colleagues, and meeting for projects.

Bivariate analysis revealed that, firstly, all organizational outcomes were significantly related to each other, where higher values for one of the outcomes were related to higher values for the other outcomes. Furthermore, self-management significantly influenced flexibility and the other organizational outcomes, with higher self-management skills associated with increased flexibility and the other outcomes, except for workplace cohesion. A shared workspace in the corporate office was found to be relevant, enhancing individual productivity, creativity, and collaboration, while also influencing preferred office days. The latter means that those who have a shared workspace at the corporate office

were found to prefer working at the office on Mondays and Thursdays more so than those with a private workspace. Higher home office satisfaction related to increased individual productivity, team productivity, and collaboration. Furthermore, managers experienced higher collaboration and organizational identification but lower workplace cohesion than non-managers, while age related to collaboration, individual productivity, creativity, and home office satisfaction. Older employees perceived higher values for collaboration, individual productivity, creativity, and home office satisfaction. Lastly, part-time employees reported lower individual productivity, creativity, and collaboration.

The current study investigated the relationships between the individual, job and workplace characteristics on hybrid working modes and consequent organizational outcomes. Although the individual organizational outcomes were found to be highly interrelated, they do not offer individual insights in how hybrid working modes are related to the outcomes. Existing research suggests private offices enhance individual productivity. Consequently, this thesis found lower perceived productivity in private workspaces compared to shared workspaces. It furthermore highlights disparities in perceptions of organizational identification and workplace preferences between managers and non-managers, as managers were found to perceive lower organizational identification and tended to spend more time in the office. In addition to this, it was found that the self-management skills of the employee, the presence of shared workplaces at the corporate office, satisfaction with the home office, and finally workplace autonomy had the largest impacts on one or more of the organizational outcomes. Therefore, the findings of this study emphasize the change in the office use favoring collaborative tasks in the office and concentrated work at home. To optimize this change, restructuring of offices as well as support plans for home office set-up and self-management skills could be beneficial.

Knowledge gained from this study can be used for future research and can serve as a basis in the design and implication of policies and other methods aimed to improve the work environments of both the home and the corporate office. In addition to this, it can be used to support the self-management skills of employees in order to maintain optimal organizational outcomes, by for instance offering tips or guidelines to employees. Future research should firstly try to overcome this study's limitations, by using an even more elaborate dataset containing responses from different organizations, making use of path analyses, and by using research specific questions instead of an existing dataset. Furthermore, as the results of this study emphasize the importance of shared office designs, the need for adequate self-management skills, and highlights the importance of a suitable home workspace. Additional research into the specific characteristics of both the home office and corporate office physical workspaces is required. This would offer a more detailed understanding of the interplay between these two environments and their respective impacts on organizational outcomes. In addition to this, this thesis advances understandings of hybrid working and its relation to organizational outcomes by comparing its findings to existing theories and challenges conventional ideas. This includes theories regarding organizational identification and workplace cohesion as well as how these theories relate to other organizational outcomes or hybrid working modes.

Management samenvatting

De COVID-19 pandemie veroorzaakte een wereldwijde shift naar thuiswerken, wat zorgde voor een toename in de interesse naar de impact op zowel werknemers als organisaties. Hybride werken, waarbij thuiswerken en werken vanaf kantoor wordt gecombineerd, kreeg tijdens de pandemie steeds meer belangstelling. Hybride werkmodellen variëren in de autonomie van werknemers, waarbij sommige vaste kantoordagen hebben om zo de kantoorbezetting te spreiden. Andere daarentegen hebben meer autonomie in het kiezen in waar en wanneer te werken. Ondanks vroegtijdige zorgen over prestaties en persoonlijke kwesties zijn deze positief ervaren, waarbij veel werknemers ervoor kiezen om hybride te willen blijven werken na de pandemie (Ipsen, van Veldhoven, Krichner & Hansen, 2021; Marzban, Durakovic, & Candido, 2021). Hybride werken biedt voordelen zoals kortere reistijden, betere balans tussen werk en privé, en efficiënter gebruik van tijd. Desondanks blijven er uitdagingen, zoals communicatieproblemen tussen managers en werknemers. De shift naar hybride werken brengt aanzienlijke veranderingen in werkpatronen van medewerkers.

Met de massale overgang naar thuiswerken en de toenemende mate van hybride werken, is het cruciaal om de impact op werknemers en organisaties te begrijpen. Zorgen rond thuiswerken omvatten mogelijke dalingen in organisatie waardes, waaronder productiviteit, identificatie met de organisatie en samenhang tussen collega's, zoals is benadrukt in recent onderzoek. Initieel onderzoek geeft gemengde signalen over thuiswerk-productiviteit, waarbij sommige werknemers zowel winst als verlies ervaren. Werkplekelementen, zoals geluid en verlichting, zijn naar voren gekomen als invloedrijke factoren bij de beslissing om op thuiswerken over te gaan. Bovendien wordt hybride werken beïnvloed door individuele en baankenmerken. Deze overgang naar hybride werken heeft gevolgen voor bedrijfsvastgoedmanagement (CREM) om werkomgevingen te optimaliseren en daarmee ook de bedrijfswaardes. Om deze transformatie effectief te navigeren, is een dieper begrip van hybride werken en de factoren die deze uitkomsten beïnvloeden nodig. Daarom beoogde dit onderzoek de volgende onderzoeksvraag te beantwoorden:

'Hoe verhouden individuele, baan- en werkplekkenmerken en hybride werkstijlen zich tot elkaar en tot individuele productiviteit, teamproductiviteit, identificatie met de organisatie en werkpleksamenhang?'

Om deze onderzoeksvraag te beantwoorden is een recentelijk beschikbaar geworden dataset gebruikt. Deze dataset is beschikbaar gesteld door het "Werk in Transitie (WiT)" onderzoeksproject (een samenwerking tussen het Center for People and Buildings, de Technische Universiteit van Eindhoven, en de Technische Universiteit van Delft), en bevat 6,414 gevalideerde antwoorden. De data liet zien dat, binnen de meetschaal, werknemers hun bedrijfswaardes over het algemeen bovengemiddeld beoordeelden. Zowel individuele alsook team productiviteit werden bovengemiddeld beoordeeld, terwijl identificatie met de organisatie nog wat hoger werd beoordeeld. Voor werkpleksamenhang werden iets lagere scores genoteerd bij de medewerkers. Medewerkers gaven aan dat ze liever thuiswerken om reistijd te besparen, zich beter te kunnen concentreren en een betere balans tussen werk en privé te hebben, terwijl redenen om naar kantoor te komen voornamelijk te maken hadden met interactie met collega's, nabijheid van collega's en vergaderingen voor projecten.

Uit bivariate analyse bleek dat in alle bedrijfswaardes significant met elkaar verband hielden. Dit betekent dat er een relatie was tussen hoge waardes voor één van de uitkomsten met hoge waardes voor de andere uitkomsten. Bovendien betekent dit dat zelfmanagement de autonomie en de andere uitkomsten van de organisatie aanzienlijk heeft beïnvloed, waarbij betere vaardigheden op het gebied van zelfmanagement verband houden met grotere autonomie en de andere uitkomsten, met uitzondering

van de samenhang op de werkplek. Een gedeelde werkruimte op het kantoor bleek relevant te zijn, omdat het de individuele productiviteit, creativiteit en samenwerking bevorderde en tegelijkertijd de voorkeurskantoor dagen beïnvloedde. Dit laatste betekent dat medewerkers met een gedeelde werkplek op het kantoor een grotere voorkeur hadden om op maandag en donderdag naar kantoor te gaan vergeleken met medewerkers met een privé werkplek op het kantoor. Autonomie op de werkplek speelde een substantiële rol, waarbij meer autonomie gerelateerd werd aan hogere individuele productiviteit, creativiteit en samenwerking. Hogere tevredenheid bij het thuiskantoor relateerde aan verhoogde individuele en teamproductiviteit en samenwerking. Bovendien ervaarde managers een hogere samenwerking en identificatie met de organisatie, maar een lagere samenhang op de werkplek vergeleken met niet-managers, terwijl leeftijd de samenwerking, individuele productiviteit, creativiteit en tevredenheid met het thuiskantoor beïnvloedde. Oudere werknemers ervaarden hogere waardes voor samenwerking, individuele productiviteit, creativiteit en tevredenheid met het thuiskantoor. Ten slotte rapporteerden deeltijdwerknemers een lagere individuele productiviteit, creativiteit en samenwerking.

Deze thesis onderzocht de relaties tussen de individuele, baan- en werkplekkenmerken op hybride werkmodi en de daaruit voortvloeiende organisatorische uitkomsten. Hoewel de individuele uitkomsten van de organisatie sterk met elkaar verbonden bleken te zijn, bieden ze geen inzicht in hoe hybride werkmodi zich verhouden tot de organisatorische uitkomsten. Uit bestaand onderzoek blijkt dat privé werkplekken de individuele productiviteit verhogen. Hierin tegen vond deze thesis een lagere waargenomen productiviteit voor werknemers met privé werkplekken vergeleken met werknemers met gedeelde werkplekken. Het benadrukt bovendien de verschillen in de perceptie van identificatie met de organisatie en werkplekvoorkeuren tussen managers en niet-managers, aangezien managers een lagere identificatie met de organisatie bleken te ervaren en de neiging hadden meer tijd op kantoor door te brengen. Daarnaast werd vastgesteld dat de zelfmanagementvaardigheden van de werknemer, de aanwezigheid van gedeelde werkplekken op het hoofdkantoor, de tevredenheid met het thuiskantoor en ten slotte de autonomie op de werkplek de grootste impact hadden op een of meer van de organisatorische resultaten. Daarom benadrukken de bevindingen van dit onderzoek de verandering in het kantoorgebruik, waardoor samenwerkingstaken op kantoor en geconcentreerd thuiswerken worden bevorderd. Om deze verandering te optimaliseren, kunnen herstructureringen van het kantoor en ondersteuningsplannen voor zowel het faciliteren van een thuiskantoor als ook voor vaardigheden op het gebied van zelfmanagement nuttig zijn.

De kennis die is opgedaan uit dit onderzoek kan worden gebruikt voor toekomstig onderzoek en kan als basis dienen voor het ontwerpen en implementeren van beleid gericht op het verbeteren van de werkomgeving thuis en op kantoor. Bovendien kan het worden gebruikt optimale bedrijfswaardes te behouden, door bijvoorbeeld tips of richtlijnen te geven aan medewerkers. Toekomstig onderzoek zou allereerst kunnen proberen de beperkingen van dit onderzoek te voorkomen door gebruik te maken van een nog uitgebreidere dataset met data van verschillende organisaties, gebruik te maken van pad-analyses en door onderzoekspecifieke vragen te gebruiken in plaats van een bestaande dataset. Bovendien benadrukken de resultaten van dit onderzoek het belang van gedeelde kantoortoewerpen, de noodzaak van adequate zelfmanagement vaardigheden en benadrukken ze het belang van een geschikte thuiswerkruimte. Aanvullend onderzoek naar de specifieke kenmerken van zowel de fysieke werkplek aan huis als op kantoor is nodig om een gedetailleerder inzicht bieden in de wisselwerking tussen deze twee omgevingen en hun respectieve impact op de resultaten van de organisatie. Daarnaast bevordert deze thesis het begrip van hybride werken en de relatie ervan met organisatorische uitkomsten door de bevindingen ervan te vergelijken met bestaande theorieën en conventionele ideeën uit te dagen. Dit omvat theorieën over organisatorische identificatie en cohesie op de werkplek, maar ook hoe deze theorieën zich verhouden tot andere organisatorische resultaten of hybride werkmodi.

Glossary

WfH	<i>Working from home</i>
Hybrid Working	<i>A flexible working model that combines elements of working remotely (such as a home or while commuting) and working from a physical office or other designated workplace</i>
Teleworking	<i>Originally defined as working at a distance, currently often used interchangeably with WfH</i>
CREM	<i>Corporate Real Estate Management</i>
Hybrid working modes	<i>When and where employees decide to work, their reasons for working at specific locations as well as the time spent at these locations and how autonomous they can work</i>

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This master's thesis represents the final product of my graduation project, as part of my academic journey within the Architecture, Building, and Planning program, within the Urban Systems & Real Estate track, at Eindhoven University of Technology. It reflects the culmination of the knowledge and expertise I've gained throughout my academic years.

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1. Introduction

This chapter contains a brief introduction and background to the topic. It then formulates the problem statement and required research questions. It provides a brief overview of the research outline and elaborates on the relevance and scope of the research.

1.1. *COVID-19 and the rise of Working from home*

In recent years, the world has witnessed multiple nationwide lockdowns in response to the implications of the COVID-19 pandemic (BBC News, 2020; World Health Organization, 2020). The adoption of remote work, or working from home (WfH), emerged as a crucial strategy to mitigate the risk of COVID-19 infection, and spread (World Health Organization, 2022). This shift stirred significant interest among researchers, sparking interest in investigations into the impact of WfH on both employees and organizations. An increase in research papers on this topic has been witnessed in recent years (Appel-Meulenbroek et al., 2022; Babapour Chafi et al., 2022), indicating the interest into this development.

The COVID-19 outbreak caused a drastic shift in the prevalence of hybrid working. Prior to the pandemic, a mere 31% of American employees worked partially from home, a figure that soared to 62% during the pandemic (Harter, 2020). In Europe, the proportion of remote workers increased from 11% to 22% during the pandemic, reaching up to 50% among key European Union members (Eurofound, 2022). Even after the pandemic, the Netherlands exhibited one of the most significant shifts, with expected weekly hours of WfH doubling from 4 to 8 hours (Centraal Planbureau, 2021), establishing it as a leader in remote work within the European Union (Eurofound, 2022).

Despite the recent increase in hybrid working, due to the COVID-19 pandemic, the concept of hybrid working has been around for a while. One of the first to define hybrid working as both working from a remote location (usually home) as well as working at the office was Halford (2005). Despite this early definition, few cases where employees worked on a hybrid basis exist (Alvesson, 2004). Early definitions of hybrid working primarily applied to knowledge workers, whose tasks historically allowed remote work (Parent-Thirion et al., 2017; Alvesson, 2004). Knowledge work can be described as work with non-material inputs and outputs, with the individuals as the primary bearers of knowledge (Alvesson, 1995).

Hybrid work models currently in use differ in terms of employee autonomy, with some organizations implementing fixed office days and others adopting a reservation system for office spaces (Centraal Planbureau, 2021). Eurofound (2022) categorized remote work into three levels: full-time WfH, high-frequency WfH (more than half the days), and occasional WfH (less than half the days).

Initially, many companies feared a drop in performance of its employees as well as numerous social and personal issues (Kniffin, et al., 2020). However, research during and after the pandemic has indicated that WfH is generally seen as positive (Ipsen, van Veldhoven, Kirchner, & Hansen, 2021). Most employees indicated that they preferred to work with a hybrid working schedule after the restrictions were lifted (Marzban, Durakovic, & Candido, 2021). Eurofound (2022) found that both employees and employers prefer to continue working on a hybrid schedule as this method has multiple benefits over both full-time WfH or full-time office work. These benefits are, amongst others, reduced

commuting time, improved work-life balance, reduced feelings of isolation, and more efficient time management with the drawbacks of difficulties in communications between managers and employees (Eurofound, 2022).

1.2. Problem statement

Because of the large-scale transition to WfH and a future where hybrid working is slowly becoming the norm, it is important to know the effects of these changes on both the employee and the organization. The main concern with this WfH concept is a loss of cohesion and team productivity, as indicated by Babapour Chafi et al. (2022). Especially employees that just started at a company, but also to an extent existing employees, struggle to fit to an organization's culture. Recently, more research has been performed on the possible negative effects of WfH. Felstead and Reuschke (2020) showed that 29% of the respondents experienced an increase in productivity while WfH, while 30% of the respondents reported a decrease in their productivity. The reasons why respondents experienced low productivity include lack of motivation, limited access to workplace and software resources as well as limited interaction with other co-workers. Reasons for increased productivity were not explored, apart from stating that employees who worked full time from home reported themselves to be significantly more productive (Felstead & Reuschke, 2020).

Kossen and van der Berg (2022) indicated a concern regarding identification with the company and an increase of social isolation among employees. They stated that WfH during the COVID-19 pandemic led to a decrease in identification with the organization. Organizational identification is defined as a process in which individual's goals and company's goals become increasingly integrated (Hall, Schneider, & Nygren, 1970). Organizational identification becomes a value of great importance in organizations with a high degree of WfH (Kossen & van der Berg, 2022). This is due to two aspects, the first being the role of organizational identification in connecting employees who WfH (Wiesenfeld et al., 1999). Wiesenfeld et al. (1999) suggested that the strength of organizational identification that teleworkers experience depends on the frequency of communication with other employees.

The second aspect is that organizational identification acts as a means to reconcile the interests of employees with those of the organization (Thatcher & Zhu, 2006). According to Kossen and van der Berg (2022), the increased social isolation among employees can be used as a mediator to explain the negative influence of an increased extent of WfH on organizational identification. Furthermore, organizational identification acts not only as an important motivator, but also for maintaining positive behaviour in virtual work groups (Wiesenfeld, Raghuram, & Gadur, 2001).

Other aspects that seem to affect the choice to WfH are the workplace characteristics. Pigini and Staffolani (2019) highlighted the key role of workplace characteristics in determining the probability of teleworking. Fan Ng (2010) has indicated that teleworkers desire similar qualities for their home office as they do for their corporate office. These aspects include privacy, quality lighting and adequate equipment, but also a disconnection from noises produced at home. In addition to workplace characteristics, Job characteristics were also found to be related to hybrid working, as Appel-Meulenbroek et al. (2022) found that the type of activities planned for the workday influenced the choice between working from home or at the corporate office. Furthermore, an increasing amount of research indicates that age and gender have an effect on the prevalence of WfH and hybrid working. Eurofound (2022) stated that young workers remained less likely to work from home both before and during the pandemic. They stated that women were more likely to work from home than men. This is in line with

the findings by Bloom (2021) who indicated that, in his research among women want to work from home full-time almost 50% more than men. Other studies also found that females were more likely to accept WfH than males (Xiong, et al., 2023)

Initial research on hybrid working and WfH has shown concerns regarding multiple organizational outcomes. These values include individual employee productivity, team productivity, organisational identification, and cohesion among employees. The rise of hybrid working and its uncertainties regarding the organizational outcomes pose implications for Corporate Real Estate Management (CREM). CREM needs to steer in spatial configuration of corporate offices and support for home offices in order to create an optimal work environment as this is beneficial for both the individual employee as well as the organization as a whole (Appel-Meulenbroek , Kemperman, van de Water , Weijs-Perrée, & Verhaegh, 2022). In order to provide usable data regarding the implications for CREM and the organization, it is not only important to know what aspects influence these organizational outcomes but also how they influence hybrid working and what influence hybrid working itself has on these organizational outcomes.

With the previous mentioned changes towards a hybrid working system, employees will plan their work schedule in a different and more self-regulated way. As this is a relatively new change, the amount of research into these changes and behaviours flowing from them is still limited. In addition to this, the widespread shift to large-scale telework or hybrid schedules following the COVID-19 pandemic could impact the initial results of such arrangements, considering that employees are still adjusting to these new working situations. Moreover, comprehensive research examining the holistic implications of this shift in work dynamics are still lacking as most research only focuses on single small-scale organizations (Babapour Chafi et al., 2022).

To conclude, the shift to hybrid working poses an uncertainty towards multiple organizational outcomes. These values include individual employee productivity, team productivity, organizational identification, and workplace cohesion. The selection of these organizational outcomes is based on their roles in determining the success of hybrid working modes, as they are often described as aspects that were possibly affected by hybrid working. Individual and team productivity could be seen as indicators of the effectiveness of hybrid work arrangements, as they directly impact the overall performance of organizations (Babapour Chafi et al., 2022; Felstead and Reuschke, 2020). Organizational identification speaks to the sense of belonging and commitment employees feel toward the company while workplace cohesion contributes to organizational culture and team performance (Kossen and van der Berg, 2022). Both are therefore crucial for maintaining a cohesive and motivated workforce in a hybrid working environment with physical distances to the corporate office. Initial research also shows that there are differences in preferred hybrid working modes based on age and gender. Furthermore, workplace characteristics and job characteristics also seem to influence preferences in hybrid working. In order to ensure that the shift to hybrid working happens smoothly for both employee and the organization, CREM needs to have data on how to steer in spatial configuration of corporate offices and supports for home offices in order to ensure an optimal work environment.

1.3. Research questions

The main research question of this thesis is defined as:

How do individual, job, and workplace characteristics and hybrid working modes relate to each other and to individual employee productivity, team productivity, organizational identification, and workplace cohesion?

To answer this question, multiple sub-questions are formulated. These sub-questions are visualized in a preliminary conceptual model (Figure 1.1) and listed below. Each number of the sub-questions relates to the respective number in the preliminary conceptual model. Sub-question *V* is not included in the preliminary conceptual model and will be answered through a separate analysis.

- I. How do individual, job, and workplace characteristics relate to hybrid working modes?*
- II. How do individual, job, and workplace characteristics relate to individual employee productivity, team productivity, organizational identification, and workplace cohesion?*
- III. How do different hybrid working modes relate to individual employee productivity, team productivity, organizational identification, and workplace cohesion?*
- IV. How do individual and job characteristics relate to the characteristics of the physical workplaces at home and in the office?*
- V. How do individual employee productivity, team productivity, organizational identification and workplace cohesion relate to each other?*

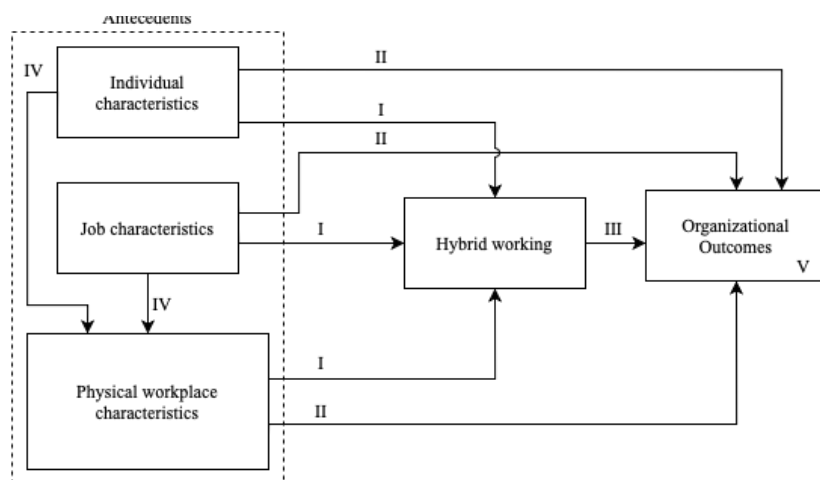


Figure 1.1 Conceptual model

1.4. Relevance

1.4.1. Practical relevance

This research offers relevance for organizations that experience a shift to hybrid working. For CREM, it is important to understand how to create an optimal work environment for employees while incorporating this shift to a hybrid working standard. By better understanding what aspects affect the prevalence to and style of hybrid work used by employees, the working conditions and schedules can be optimized for both the work office and the home office. This may result in a change in multiple organizational outcomes, being higher productivity of individuals and teams, improved identification with the organization and increased cohesion among employees and teams. An extensive list of individual, job and workplace characteristics, as well as hybrid work preferences that affect the above-mentioned organizational outcomes can be used by CREM to optimize their hybrid working policies in such a way that it benefits both the organization as a whole and the employees themselves. Based on the data provided in this research, CREM can steer an organization in a direction that utilizes the positives of working at home while retaining the positives that are associated with going to the office. This means more cost-effective offices with more predictable presence of employees and better optimized office lay-outs while at the same time providing a better work/life balance for employees, and a better cohesion among colleagues.

1.4.2. Academic relevance

The COVID-19 pandemic that started in early 2019 forced many companies to improvise on how to facilitate their employees in a safe but functional method. This has led to a large-scale shift of working conditions that comprised various potential positive and negative aspects. As teleworking only has existed on a relatively small scale, the amount of data that has become available since the COVID-19 pandemic makes large scale research possible. Yang et al. (2021) indicated that the need for large scale research towards this allows for the analysis of more accurate and specified situations regarding hybrid working in relation to both the home office and the corporate office. To the extent of the researcher's knowledge, none of the large-sample size studies regarding the effects of teleworking on organizational outcomes such as productivity mentioned by Yang et al. (2021) have been performed after the pandemic. Thus, as the need towards the availability of such research exists, this study provides relevant academic insights. This research can identify trends regarding hybrid working modes on which further research might continue, as it includes post-pandemic data from employees that work both at the office and from home.

1.5. Outline

This research is divided into three main parts. The first section consists of a literature review, the second section consists of quantitative research, and in the last section, the findings of the previous sections will be discussed.

The first section of this research consists of a review of the existing literature regarding organizational outcomes and hybrid work. This part aims to define the concepts of hybrid work, productivity, organizational identification, and workplace cohesion. It assesses the current knowledge on hybrid working, discuss several outcomes of hybrid working, and identify various antecedents that influence hybrid work and organizational outcomes.

The second part of this research consists of quantitative research. It includes the research design, method, and data analysis. A suitable dataset from the 'Work in transition' monitor provided by the CfPB was used to conduct the quantitative research and included 6,414 valid responses.

Finally, the last part contains conclusions that are drawn regarding the effects on the organizational outcomes, hybrid working, and among the antecedents themselves, as well as other findings from the current research. Lastly, the limitations of this research are discussed, and recommendations for future research are presented.

2. Organizational Outcomes

This chapter focuses on research concerning the relevant organizational outcomes and the aspects that influence them. First, each value will be discussed individually, after which possible relations between separate organizational outcomes are elaborated. The first organizational value to be discussed is productivity. After this, organizational identification is discussed. Then cohesion among employees and finally relations between these values are explored.

2.1. Individual productivity and Team productivity

The concept of productivity, essential for almost all business processes, is viewed as a measure of output relative to input. The Oxford English dictionary defined productivity as the effectiveness of productive effort as measured in terms of the output rate per unit of input. This can be calculated with the following formula: $\text{Productivity} = \text{Output} / \text{Input}$ (Jensen & van der Voordt, 2021). In scientific literature, productivity is often defined as the relationship between input and output (Aronoff & Kaplan, 1995). Within the context of this research, applying the relationship between input and output as a method of describing productivity is not sufficient. For knowledge workers, there is not necessarily a direct relation between input and output due to several intervening variables as well as the lack of clarity regarding the definitions of input and output (Bosch-Sijtsema, Ruohomäki, & Vartiainen, 2009). Due to its complexity, it is difficult to calculate the productivity (Drucker, 1991), as the tasks of knowledge workers are often not based on a routine (Ramírez & Nembhard, 2004).

Measuring productivity of office workers, and knowledge workers in particular, is difficult as their output is not easily quantifiable and diverse (De Been, van der Voordt, & Haynes, 2016). It is therefore common to measure the productivity of individuals and teams as perceived productivity. Perceived productivity is defined as one's own perception of output in relation to one's perception of input (Jensen & van der Voordt, 2021). Other methods of measuring productivity exist. For example, de Been et al. (2016) provide a summary of various ways to measure productivity of knowledge workers:

- Amount of time spent or saved (*e.g., time saved by using faster software*)
- Absence due to illness or lack of being productive
- Satisfaction (*i.e., assuming that a happy worker is also a productive worker*)
- Indirect indicators (*e.g., the extent to which one can concentrate or the frequency of being distracted*)

According to de Been et al. (2016), the complexity of measuring productivity of office workers is not only caused by the large number of possible influential variables, but also by the lack of a clear definition of what composes the output in productivity terms. Consequently, despite its subjectiveness, perceived productivity is often used to measure productivity of knowledge workers.

Scientific literature distinguishes between various forms of productivity, specifically individual, team, and production productivity (De Been et al., 2016; Bröchner, 2017). Individual and team productivity fall under the category of labour productivity, while production productivity is linked to the industry itself (Bröchner, 2017). For the purposes of this research, the focus will be on individual and team productivity, and production productivity will not be addressed. Both individual and team productivity are influenced by a range of aspects (Maarleveld & De Been, 2011) Team productivity is not merely

the sum of each team member's individual productivity, as changes in one member's productivity may not necessarily impact the productivity of others (Bosch-Sijtsema, Ruohomäki, & Vartiainen, 2009). In other words, one cannot merely add up what each person produces and consider that the team's productivity. This implies that team dynamics and individual characteristics can have a significant role in team productivity.

With the growing complexity of workplaces, the dependence of organizations on teams continues to grow (Salas et al., 2008). According to Dyer (1984), teams can be described as social entities that are composed of members with high task interdependency that have shared and valued common goals. Teams are often hierarchically organized and may be dispersed geographically. The latter became more frequent and pronounced with the shift to hybrid working. Salas et al. (2008) described teamwork as the following: "They must integrate, synthesize, and share information; and they need to coordinate and cooperate as task demands shift throughout a performance episode to accomplish their mission" (p. 541). Kozlowski and Klein (2000) conceptualize team productivity as a multilevel process arising when team members engage in both their individual and team related processes. Because of this, team productivity is just as important as individual productivity.

The previous described observation regarding team productivity by Bosch-Sijtsema, Ruohomäki, and Vartiainen (2009) underscores the complexity of teamwork and how it differs from a simple aggregation of individual efforts. To address this complexity, the researchers delved into the concept of team effectiveness. This goes beyond raw output or performance numbers and considers a broader spectrum of aspects. It incorporates aspects like team behaviour and attitude, which can significantly impact how well a team functions and achieves its goals (Bosch-Sijtsema, Ruohomäki, & Vartiainen, 2009). So, instead of merely quantifying output, team effectiveness takes into account the dynamics and interactions among team members, which are vital for understanding and enhancing a team's overall productivity and success. Similarly, Edmondson (1999) defined team productivity as the result of team beliefs and behaviour. Team processes, such as collaboration and creativity, have been used to indicate team productivity by researchers such as Chiochio (2007) and Tesluk and Mathieu (1999). Collaboration and creativity are often seen as team aspects that can enhance team productivity (Strubler & York, 2007). Therefore, including measurements regarding both aspects can give a more comprehensive understanding of team productivity.

As previously stated, collaboration is an important aspect of team productivity. It is seen as an integral part in sharing information and interpersonal coordination and cooperation (Salas et al., 2008). Collaboration, as defined by Chiochio et al. (2012), involves the appropriate use of four interrelated processes: teamwork communication, synchronicity, explicit coordination, and implicit coordination. To measure collaboration, Chiochio et al. (2012) developed a Collaborative work questionnaire. This questionnaire was designed to measure the extent to which employees perceive active collaboration with their colleagues. On the other hand, team creativity, as defined by Shin and Zhou (2007), refers to the generation of original and useful ideas related to products, services, processes, and procedures by a group of employees working together. They used questions based on the novelty, significance, and usefulness of ideas, as outlined by Amabile (1996), to measure team creativity.

To conclude, individual productivity and team productivity are closely related, but team productivity is affected by more than purely the summed productivity of all its members. A change in productivity of an individual does not necessarily relate to team performance. Furthermore, measuring productivity of knowledge workers is difficult due to the nature of their job tasks. Therefore, productivity is often measured as a perceived effect. Based on the literature discussed above, the measuring of both perceived

individual productivity and perceived team productivity are not straightforward. In addition to this research will also incorporate specific indicators to offer a more tangible understanding. These indicators include creativity and collaboration.

2.2. Organizational Identification

In this section, the concept of organizational identification will be explained. After this, the theories behind this concept will be elaborated. Then, the relevance of organizational identification to hybrid working will be discussed. Furthermore, the measurement of the concept will be briefly discussed and finally, the section will be concluded with a short summary.

The term identification is often used in psychoanalytic literature to denote a particular kind of emotional tie (Simon, 1997). When applied to organizations, this concept relates these emotional bonds to the organization's underlying beliefs. Organizational identification can thus be defined as a process in which an individual's goals and an organization's goals become increasingly integrated (Hall, Schneider, & Nygren, 1970). Dutton et al. (1994) offer another definition in line with this perspective, framing organizational identification as "the same attributes that he or she believes define the organization" (p. 240).

Organizational identification is deeply rooted in both social identity theory and the need-to-belong theory. The fundamentals of the social identity theory are that people tend to classify themselves and others into different social categories according to age, gender, socioeconomic status, interests, and skills (Tajfel & Turner, 1986). This categorization extends to social groups within organizations, fostering organizational identification, especially as taking part in multiple of these social categories becomes commonplace (Tajfel, 1974; Tajfel and Turner, 1986; Brunetto and Farr-Wharton, 2002).

In relation to WfH and organizational identification, the social identity theory could be used to explain why employees might see a reduction in organizational identification as they experience less direct interactions (Wiesenfeld, Raghuram, & Gadur, 2001). Kossen and van der Berg (2022) used the social identity theory, as they state that an increased extend of WfH reduces communication and face-to-face interactions with colleagues within the organization, thereby reducing the level of organizational identification (Allen et al., 2003; Wang et al., 2020).

As the feeling of belonging to an organization also describes the organizational identification of individuals, the association between organizational identification and the need-to-belong theory can be made (Wiesenfeld, Raghuram, & Gadur, 2001). Baumeister and Leary's need-to-belong theory assumes that the desire to form at least a small number of interpersonal relationships is natural (Baumeister & Leary, 1995). These relationships are important for human mental, emotional, and physical well-being (Wang, Albert, & Sun, 2020). Within the organizational context, the theory plays a significant role as employees strive to connect to each other (Wang, Albert, & Sun, 2020).

Organizational identification includes both cognitive and affective components (Brunetto & Farr-Wharton, 2002). The cognitive components reflect an individual's perception of belonging to and being a typical member of an organization (Mael and Ashforth, 1992; Smidts et al., 2001; Wu et al., 2016). The affective components represent an individual's feelings about being part of the organization (Smidts et al., 2001; Wu et al., 2016).

Where the social identity theory described the “social and psychological tie binding employees and the organization” (Wiesenfeld, Raghuram, & Garud, 1999, p. 778) the need-to-belong theory relates to the relevance of personal connections within an organization (Baumeister & Leary, 1995). As hybrid working creates a working environment where social and psychological ties and connections are more difficult to maintain or create, both the social identity theory and the need-to-belong theory are relevant in explaining the effects that influence organizational identification in relation to hybrid working.

Studies regarding the effects of virtual teams and virtual offices already identified the risk of increased isolation and a decrease in communication as key challenges within the virtual work setting (Allen et al., 2015; Zhang, 2016). Allen et al. (2003) furthermore state that employees who are physically separated from their colleagues and their entire organization are at risk to lose their organizational identification. Wiesenfeld et al. (1999) also emphasize that organizational identification is extremely relevant in virtual workplaces to maintain positive attitudes within work groups. According to Thatcher & Zhu (2006) and Wiesenfeld et al. (2001) employees who work from home are less exposed to company related rituals, symbols and informal interpersonal interactions and more exposed to rituals, symbols and interactions associated with their home situation. As interactions at work or confrontation with organizational symbols helps build organizational identification, WfH thus creates a situation where this is absent (Thatcher and Zhu, 2006; Wiesenfeld et al., 2001). The higher the extent of WfH, the less the employees are exposed to organizational structures (Thatcher & Zhu, 2006) and therefore employees who work from home on a regular basis struggle to develop a sense of organizational identification (Bartel et al., 2012; Scott and Timmerman, 1999).

Measuring organizational identification has been done before (Staples et al., 1999; Mowday et al., 1970). Staples et al. (1999) used four items to measure the organizational identification of an individual. These four items originate from the questionnaire formulated by Mowday et al. (1979). Mowday et al. (1979) used the definition of organizational identification formulated by Porter and Smith (1970) which states “the relative strength of an individual’s identification with and involvement in a particular organization” (Porter & Smith, 1970). The questions formulated focused on three aspects: “(1) a strong belief in and acceptance of the organization’s goals and values; (2) a willingness to exert considerable effort on behalf of the organization; and (3) a strong desire to maintain membership in the organization” (Mowday et al., 1979, p. 226). These three aspects show consistency with the previously discussed theories regarding organizational identification.

These questions measure the perceived organizational identification of an individual and responses are given on a seven-point scale ranging from strongly disagree to strongly agree. Vu (2022) also measured organizational identification as a perceived effect. While the questions asked by Vu (2022) differ slightly from those used by Staples et al. (1999), the intent is the same as both measure the extent of organizational identification. Vu’s (2022) questions focus more on the extent to which an employee experiences the results or critiques of the organization as if they are results or critiques of their own, whereas Staples et al. (1999) use questions that focus on the extent an employee’s behavior is influenced by the organization.

2.3. *Workplace cohesion*

The importance of workplace cohesion has been widely indicated (Price and Mueller, 1981; Wood, et al., 1985). Despite the agreement on its importance, there are still debates on its definition and how to conceptualize and measure it (Cota, Longman, Evans, Dion, & Kilik, 1995; Hogg, 1992). The classic definition of cohesion reflects Festingers' (1950) view that cohesion is "the total field of forces which act on members to remain in the group". However, this concept has been considered as too general and vague and therefore difficult to convert into concepts and measures (Craig & Kelly, 1999). In the Third Version of the Copenhagen Psychosocial Questionnaire (COPSOQ III), workplace cohesion is described as a sense of community at work which is defined as "whether there is a feeling of being part of the group of employees at the workplace, e.g., if employees' relations are good and if they work well together." (Burr, et al., 2019, p. 16). Hogg (1992) defined cohesion in general as attraction to the group and assessed this by asking members how much they liked each other or how long they wanted to stay part of the group. There is a key distinction to be made when defining workplace cohesiveness within the scope of this research. This concerns the distinction between the individual and the group (Carron, Widmeyer, & Bralwey, 1985). The individual aspect of cohesion in the workplace relies on the extent to which the individual wants to be part of the group while the group aspect relies on the degree of closeness and unity within the group. The individual aspect is thus closely related to the theories of identification (Converse & Campbell, 1968), while the group aspects focus on the resistance to disruptive forces (Gross & Martin, 1952). Carron, Widmeyer, and Brawley (1985) defined cohesion as "a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (p. 213). In order to explain how cohesion affects employees, the relational cohesion theory can be applied. This theory explains how individuals may form emotional connections to organizations from their emotional attachments to other individuals within said organization (Thye, Vincent, Lawler, & Yoon, 2014).

The relational cohesion theory suggests that physical isolation can have a negative impact on a teleworking employee's ability to maintain their relationships with colleagues (Wang et al., 2020). According to Wang et al. (2020), there was no evidence of a relation between physical and psychological isolation. They suggest that the currently widespread availability of synchronous communication media as a replacement of face-to-face meetings allows employees to overcome psychological isolation. However, other research suggest that cohesion is strengthened when in the office (Wang et al., 2020). Babapour Chafi et al. (2022) stated that the main benefit of a return to the office is the increased opportunity for unplanned socializing which strengthens group cohesion. They also indicated that working from home made building trust and relationships harder, especially for new employees. These concerns showed that, despite Wang et al.'s statement (2020), the concerns of decreased cohesion as a consequence of working from home should still be taken into account.

Based on the literature, cohesion at the workplace can be seen as the sense of community at work which can be measured with the questions of the COPSOQ III (Burr, et al., 2019). These questions relate to both the individual effect and the group aspect of workplace cohesion. While the effects of hybrid working on workplace cohesion are unknown, Babapour Chafi et al., (2022) indicated that new employees might face difficulties integrating into the existing workplace community due to hybrid working as less spontaneous interactions between colleagues happen. Cohesion outcomes are therefore relevant to ensure a hybrid working environment that is beneficial to all employees, existing or new.

2.4. Relations between outcomes

Existing research has provided evidence for relations between the main organizational outcomes of the current study. Below, this will be elaborated for each combination of outcomes for which there is empirical evidence for a relation.

2.4.1. Workplace cohesion and Organizational identification

The need-to-belong theory previously discussed in the context of organizational identification partially overlaps with the relational cohesion theory (Wang, Albert, & Sun, 2020). Where the need-to-belong theory is used as a framework to explain the need for interpersonal relations on the work floor, the relational cohesion theory explains how positive affect and commitment caused by these interpersonal relationships may lead to a wider network that creates organizational commitment (Wang, Albert, & Sun, 2020). Therefore, the interpersonal relations between colleagues can result in an increased attachment to the organization. Wang, Albert, and Sun (2020) further suggested that frequent and positive interpersonal interactions could lead to stronger relations with colleagues as well as organizations. This increase in personal relations between colleagues generates positive emotions, which according to Wang, Albert, & Sun (2020) were associated with commitment to the organization and therefore increasing the organizational identification of the employee. It can thus be argued that increased workplace cohesion may have a relation with higher organizational identification.

H1a: Workplace cohesion is positively related to organizational identification

2.4.2. Workplace cohesion and Productivity

The relationship between cohesion and productivity has been of interest for a long time. Despite this, the exact nature of the relation between these two remains an area of discussion. Over the past decades, many meta-analyses have been produced on the relationship between cohesion and productivity (Beal et al., 2003; Carron et al., 2002; Mullen & Copper, 1994). According to Chiocchio and Essiembre (2009), the general findings of these analyses is that there exists a moderate and positive correlation between cohesion and productivity that is highly dependent on processes within groups of people. Greene (1989) stated that “The importance attributed to cohesion stems primarily from its presumed effect on group productivity; that is, high cohesion facilitates or enhances group productivity” (p. 70). Wheelless et al. (1982) reported positive correlations among cohesion, satisfaction, interaction, and productivity. A more up to date view of this is the statement by Castaño et al. (2013), who indicated that cohesion was meaningfully related to productivity. Rodríguez-Sánchez et al. (2017) also found that cohesion resulted in increased productivity, however noted that this only concerned the perceived productivity of the team itself.

H1b: Workplace cohesion is positively related to perceived productivity

2.4.3. Identification and Individual and Team productivity

The relation between organizational identification and productivity stems from the social identity theory previously discussed. Here, the theory was used to explain that organizational identification relates to the motivation to exert effort on behalf of the collective (Van Knippenberg, 2000). Within the scope of this study, the collective could be a team, group of colleagues, or an entire organization. As identification with the organization results in a sense of oneness, the oneness with the group induces an individual to take the group's perspective and experience their goals and interests as if it were their own (Dutton, Dukerich, & Harquail, 1994). Therefore, identification will generally be associated with a motivation to achieve a group's goal. Whether this extends to the fact that organizational identification actually results in higher productivity at work is depending on a number of other aspects (Van Knippenberg, 2000). The first element aligns with the argument made by Griffin and Moorhead (1986), which examines the relationship between cohesion and productivity in terms of how organizational identification influences behaviour as long as social identity remains relevant. Thus, organizational identification will only result in increased motivation to the extent that this is important to the identity of the organization (Haslam, 2004). The second element concerns the relationship between organizational identification and motivation to exert effort on behalf of the collective (Van Knippenberg, 2000). While this does not necessarily mean that organizational identification results in motivation to exert work, the possibility does exist, as van Knippenberg (2000) stated that "Identification may only be expected to be positively related to work motivation if high productivity is perceived to be in the collective's interest" (p. 360). It can thus be stated that organizational identification can lead to increased motivation resulting in higher individual productivity. However, as identification can be associated with the motivation to achieve group goals (Van Knippenberg, 2000), it can also be said that higher identification may result in higher team productivity.

H1c: Organizational identification is positively related to perceived productivity

2.5. Conclusion

To conclude, this chapter aimed to define the concepts of individual productivity and team productivity, organizational identification, and workplace cohesion. It furthermore explored the possible relationships between these concepts based on reviewing the existing literature.

Both individual productivity and team productivity were found to be closely related but could be affected by different aspects. While individual productivity is a fairly straightforward concept, team productivity is more complex, as a change in productivity of an individual team member does not necessarily affect team productivity. To provide a more comprehensive image of team productivity, additional concepts were used for its operationalization. These additional concepts included collaboration and creativity. Organizational identification describes the process wherein an individual's goals and an organization's goals become increasingly integrated. This concept relies on both the social identity theory and the need-to-belong theory and is crucial to maintain positive behavior within work groups, which is argued to be under threat in virtual work settings. Workplace cohesion can be described as a sense of community at work, i.e., the extent to which relations among employees are good and if they work well together. The relational cohesion theory is used as a groundwork for this concept, but also as an argument that physical isolation may negatively affect workplace cohesion. Therefore, lack of cohesion can be considered as an indicator of problems within an organization's workforce.

While all three concepts are proven to be relevant for organizations on their own, their interrelations are complex. The literature reviewed above has resulted in three hypotheses listed below:

H1a: Workplace cohesion is positively related to organizational identification

H1b: Workplace cohesion is positively related to perceived productivity

H1c: Organizational identification is positively related to perceived productivity

3. Hybrid working

This chapter delves into the historical background of hybrid working and its transformation to the current situation. Next, an insightful definition of teleworking is provided. It also discusses the possible advantages and disadvantages associated with hybrid working, especially those related to the previous discussed organizational outcomes. Lastly, it underscores the differences in how hybrid working could be implemented.

3.1. *Hybrid Working and Teleworking*

In this section, the history of hybrid working is discussed and how it changed to the current day situation. Afterwards, a definition of hybrid working will be given based on the history. Next, the aspects that influence hybrid working are explored. Finally, the relevant aspects of hybrid working will be summarized to be used in the research model.

3.1.1. *Background and current situation*

The term teleworking was first used by Nilles (1975) who described it as the opportunity to avoid long distances to the workplace. The term teleworking can be defined as work that takes place outside the conventional workplace and where communication with others is achieved through communications or computer-based technology (Bailey & Kurland, 2002; Nilles, 1994). Because of this, teleworking is well suited for knowledge workers, as the nature of their tasks are easier adaptable to internet-based communication (Nilles, 1994). Thatcher and Zhu (2006) and Feldman and Gainey (1997) identified teleworking as a multidimensional concept. Relevant aspects to its success are the place of work, the voluntary nature of telework and the frequency of telework. In general, knowledge workers have more experience with teleworking. Prior to COVID-19, teleworking in the US was only accessible for limited work activities and positions, such as managers and white-collar professions (DeSilver, 2020). In the EU, the ICT and other knowledge-based sectors already had experience with teleworking (Joint Research Centre, 2020). Especially high-skilled professionals and managers were quite used to working from home (Joint Research Centre, 2020). Positive aspects of teleworking are more flexibility in the work schedule and work hours as well as more freedom in the choice of work locations (Hill, Erickson, Holmes, & Ferris, 2010). Hill et al. (2008) defined workplace autonomy as “the ability of workers to make choices influencing when, where and for how long they engage in work-related tasks” (p. 149). Teleworking provides workplace autonomy by offering a choice for the time and place to concentrate and reduce fatigue due to less commuting time (Basile and Beauregard, 2016; Becker and Steele, 1995).

Flexible working schedules are another aspect that became increasingly popular as a method of facilitating employees. The concept of flexible working schedules, originally termed “flexitime” (Coenen & Kok, 2014) can be defined as “workers exercise a decision regarding the time of day they will arrive at and leave from work” (Baltes, Briggs, Huff, Wright, & Neuman, 1999, p. 497). In other words, flexible working schedules allow employees to have freedom of choice when and where to work or not to work. Flexible work schedules are often regulated by having fixed opening hours of the corporate office, core work time or carryover (Baltes, Briggs, Huff, Wright, & Neuman, 1999). Flexible working schedules have already been widely adopted for quite some time (Feldman & Gainey, 1997),

mainly within the service industries (Armstrong-Stassen, 1998). The reasons for adaptation of these flexible work schedules include reduced turnover and increased productivity (McNall, Masuda, & Nicklin, 2009).

Eurofound (2022) has included various aspects that affect the level of hybrid working among employees. They reported that employees with children were more likely to work from home. Furthermore, employees working at larger organizations (firms with over 50 employees) were more likely to be working from home. They argue that this can be attributed to larger organizations having better access to digital infrastructure and more pre-existing options for teleworking. The same attributes are the cause of the massive differences between teleworkers within individual EU27 members. For example, Romania, Latvia, and Bulgaria experienced the lowest number of cases of working from home prior to the COVID-19 pandemic, whereas Luxemburg, Sweden and the Netherlands had one of the largest shares of people teleworking. While these percentages increased for all EU27 members during the COVID-19 pandemic, countries with great digital infrastructures saw bigger jumps than others.

3.1.2. Definition, advantages, and disadvantages of hybrid working modes

Teleworking, as described in the previous section, is a fundamental component of hybrid work, where employees can strike a balance between working from home and the corporate office. Therefore, teleworking should be seen as a part of hybrid working which has various up and downsides.

Sailer, Thomas, and Pachilova (2023) defined hybrid working as a fusion of WfH and working from the office. While incorporating the main concept, this definition still falls short as it does not include other places that employees started to use for their work. These places can include for example public libraries or the train. The hybrid working arrangement introduces several complexities, as many leaders lack understanding of what hybrid work is or how to implement it successfully. Furthermore, Sailer, Thomas, and Pachilova (2023) found that despite potential advantages, hybrid work also brings potential drawbacks.

One of the key advantages of hybrid working is the flexibility it offers to employees. This flexibility can lead to increased productivity, as it allows individuals to adapt their work environment to suit their specific needs and preferences. Hybrid work can also minimize common disturbances and interruptions experienced at the traditional office (Eurofound, 2022). The most prominent disturbances at the office are high sound levels, lack of privacy, poor lighting, or extreme temperatures (Banbury & Berry, 2005). When employees have the opportunity to work from home, these concerns can potentially be mitigated (Oseland & Hodsman, 2018) as the home office offers an alternative to the corporate office. Furthermore, the advantages of hybrid working extend beyond the corporate office. Oseland and Hodsman (2018) revealed that hybrid working can notably reduce noise distractions and speech interference, thereby enhancing productivity. However, it is worth noting that these benefits are primarily prevalent among employees who possess a dedicated and well-equipped workspace at home (Awada, Gale, Becerik-Gerber, & Shawn, 2021).

It is important to acknowledge that, while working from home can offer various benefits, it does not mean that the home office is free of disturbances. The research by Bergefurt et al. (2023) identified several characteristics of the home office that can contribute to disruptions, including having a small desk, lacking a dedicated workroom, and noise. These aspects can potentially affect productivity,

emphasizing the need for a suitable home working environment. Disturbances in a home office, much like those in a corporate office, can have a negative impact on an individual's work performance (Zijlstra, Roe, Leonora, & Krediet, 1999). In addition to the drawbacks regarding the disturbances of the home office, there are more potential drawbacks, especially in the context of large-scale hybrid working. A significant challenge associated with teleworking and the shift to hybrid working is the potential reduction in organizational identification, as discussed by Wiesenfeld, Raghuram and Garund (1999): “without organizational identification, virtual workers may view themselves as merely independent contractors, operating autonomously and without consideration for the organization that employs them” (Wiesenfeld, Raghuram, & Garud, 1999, p. 786). The consequences of teleworking extend beyond organizational identification. A shift towards teleworking, particularly when it is mandatory, can result in employees feeling less connected with their colleagues due to physical isolation (Šmite et al., 2023). This can lead to a decline in workplace cohesion, mainly due to the deterioration of communication with colleagues and managers (Ruiller et al., 2019; Ganjerdran and Harrison, 2007). However, it is essential to note that the effects of physical isolation on psychological isolation remain an area of uncertainty. While Wang et al., (2020) could not find empirical evidence for the direct correlation between physical isolation and psychological isolation, it is worth considering the widespread availability of easy-to-use communication tools, such as MS Teams, Skype, or other online communication platforms. These tools can facilitate interactions between colleagues, closely simulating the experience of face-to-face meetings (Wang et al., 2020).

Research by Huo et al. (2022) investigated the effect of teleworking on organizational identification. They stated that a different effect of teleworking on organizational identification stems from both the voluntary nature of the teleworking as well as the existing level of organizational identification. According to their research, voluntary teleworking results in a higher organizational identification. Furthermore, high-level organisational identification would more likely result in employees experiencing voluntary telecommuting as a job resource rather than a nuisance (Huo et al., 2022) as an employee's level of organisational identification will modify their responses to organizational practices (Lee & Park, 2015).

In general, teleworkers seem to be more productive than traditional office workers, as they have fewer interruptions and distractions, longer working hours, better use of high-productivity moments, and increased enjoyment due to flexibility (Tavares, 2017). This is in line with findings by Bloom et al. (2015), who stated that working from home resulted in a thirteen percent increase in employee performance. Nine percent of this was from employees working more minutes per workday, due to fewer sick days and breaks. The other four percent was from higher performance per minute, due to less distractions. There are, however, also negative effects of extensive telework on productivity (Hoorweg, Peters, & van der Heijden, 2016). They revealed that while low telework intensities can be associated with increased individual productivity, extensive telework resulted in lower productivity. In addition to this, the productivity increase is only the case if appropriate telework hours are made, as a decrease in productivity can be measured when telework hours are too long (Kazekami, 2020). This suggests that there is an optimum of telework hours where productivity gains are the largest. Kazekami (2020) suggests that this optimum lies close to normal working hours. As organizations often relies on teams (Milliken & Martins, 1996), the effects of teleworking on team productivity are of great importance (Dutcher & Saral, 2012). There seems to be little effect on productivity of team members when teleworking. Furthermore, in case of negative consequences due to teleworking, reinforcement that all team members have a high contribution mitigates the decreased productivity (Dutcher & Saral, 2012).

Finally, hybrid working could be implemented in different ways, resulting in different hybrid working modes. The extent of autonomy employees have in choosing their work environment can be influenced by various organizational rules and regulations (Centraal Planbureau, 2021). Some organizations may impose specific guidelines, such as reserving workspaces or mandating fixed office attendance days (Bloom, 2021). These rules could significantly affect how employees navigate their hybrid work modes, adding an organizational dimension to the concept. The freedom employees have regarding when, where, and how to work all fall under the umbrella of workplace autonomy (Hill, et al., 2008). As these aspects are all associated with hybrid working modes, it is argued that, for the purpose of this research, workplace autonomy should be seen as a relevant aspect of hybrid working modes. Furthermore, employees can have different reasons to choose to work from home or at the office. For example, Appel-Meulenbroek et al., (2022) stated that employees let their choice of where to work depend on the type of tasks planned for that day. Flexibility in the work schedule, hours, and locations (Hill, Erickson, Holmes, & Ferris, 2010), as well as lower commuting times (Basile and Beauregard, 2016), are all aspects related to hybrid working. Therefore, in addition to the workplace autonomy, the preferences and reasons employees have in choosing when and where to work are relevant in determining their hybrid working modes.

3.1.3. Hypotheses

Hybrid working has its origins in teleworking, which has been around since the seventies, the recent events caused by the COVID-19 pandemic have accelerated the shift to work on a hybrid basis. With this shift in working style, the time and place employees choose for their work has changed as well. Based on the literature addressed in the previous subsection. activity attributes such as frequency, duration, priority, location, and facilities are therefore important when determining the extend of and reasoning for hybrid working. In addition to this, employees can have individual reasoning for choosing their work location or are bound by rules set by their organization. All these aspects can be seen as relevant attributes to the resulting hybrid working style. The effect that hybrid working has on organizational outcomes differs between productivity, organizational identification, and workplace cohesion. While the effects of teleworking on the individual characteristics seem still debatable, it is crucial to take these into account.

To test if hybrid working influences organizational outcomes, the following hypotheses are created:

- H2: hybrid working relates to organizational outcomes*
- H2a: hybrid working relates to individual and team productivity*
- H2b: hybrid working relates to organizational identification*
- H2c: hybrid working relates to workplace cohesion*

3.2. Conclusion

To conclude, this chapter aimed to provide a brief history of hybrid working and teleworking. It furthermore indicated the challenges and benefits of the usage of hybrid working modes.

Hybrid working can be seen as a combination of working both from a remote location (often from home) and working from the corporate office. The concept itself is rooted in teleworking, which has been around since the seventies. Events caused by the COVID-19 pandemic accelerated hybrid working. This also introduced complexities and potential advantages and drawbacks. Hybrid work offers flexibility, minimizing disturbances and interruptions, with benefits, such as improvements to work/life balance, extending beyond the corporate office. However, it is also crucial to acknowledge drawbacks. Large-scale hybrid working may reduce organizational identification, impacting workplace cohesion. While those working from home seem more productive, there are challenges, including the need for an optimal WfH duration. Hybrid working's implementation varies, influencing workplace autonomy and navigating hybrid working modes. Employees' individual employees' preferences are also influential aspects, influencing their decisions on when, where, and how they participate in hybrid working modes.

4. Personal and environmental characteristics

As briefly discussed in the introduction, variables such as age and gender have proven to be of influence on the extent of WfH. Therefore, it is important to take the effects of these variables on hybrid working into account. This chapter will first discuss the workplace characteristics. As these characteristics pertain to both the corporate office as well as the home office, no distinction between these two locations will be made. Afterwards, individual characteristics and job characteristics will be discussed and finally, the relevance of CREM is shortly discussed.

4.1. *Workplace characteristics*

Traditionally, research has primarily focused on the impact of the corporate office on employee productivity. For instance, a better workplace environment increases perceived productivity with a potential 19% (Gensler, 2005). While the workplace environment remains a main point of interest, the COVID-19 pandemic has increased the scope of what employees see as their workplace.

During the COVID-19 pandemic, for many employees, home offices became their main workplace instead of their corporate offices (Yang, Kim, & Hong, 2021). Because of this, the aspects of the home office work environment on productivity have become just as important as those of the corporate office. When looking at home offices, research on their effects of productivity has increased since the COVID-19 outbreak (Cuerdo-Vilches, Navas-Martín, & Oteiza, 2021). For instance, Ng (2010) indicated that employees desire similar workplaces at home as at their corporate office. Yang, Kim and Hong (2021) stated that the presence of a separate room for working at home is crucial for positive work outcomes. Research by Cuerdo-Vilches, Navas-Martín, and Oteiza. (2021) also concluded that a separate room for working at home has a positive relation with productivity. Other aspects that influence perceived productivity within home offices are indoor environmental quality (Cuerdo-Vilches, Navas-Martín, & Oteiza, 2021), ergonomic furniture (Montreuil & Lippel, 2003), and communication technology (Morgan, 2004).

Therefore, while describing a different work location, employees' requirements for the work environment are similar for their home office and their corporate office. The workplace requirements differ depending on the tasks that have to be done. As the design of the workspace consists of many aspects that may influence different organizational outcomes, categorizing these aspects helps in indicating what aspect might influence each organizational outcome. This has been done by De Been et al. (2016) who made a division in physical conditions, space, ergonomics, and aesthetics as the main categories that affect productivity in general. Similar divisions were made by Al Horr et al. (2017), who included categories for indoor air quality and ventilation, thermal comfort, lighting and daylight, noise and acoustics, office layout and biophilia and views. Both categories largely overlap, with the main difference being that Al Horr et al. (2017) included more specific categories that De Been et al. (2016) grouped under physical conditions.

Physical conditions

Physical conditions, encompassing aspects like indoor climate, light, greenery, and sound, play a pivotal role in workplace productivity (de Been et al., 2016; Kleeman et al., 1991). The categories of Al Horr et al. (2017) were more detailed as they also included thermal comfort. Indoor air quality and ventilation can affect productivity (Satish, et al., 2012), as they found reductions in perceived productivity in cases where higher CO₂ concentrations, due to bad ventilation, were present. Furthermore, Thompson and Jonas (2008) found that an increase of fresh air may increase perceived employee productivity by up to 3%. The next aspect mentioned by Al Horr et al. (2017) concerned satisfaction with thermal comfort. Studies have shown that an uncomfortable warm or cold temperature in the office can have a negative effect on the perceived productivity of employees (Lan et al., 2009; Niemelä et al., 2002; Roelofsens, 2015). Literature suggests that temperature changes may influence perceived employee productivity. Employee productivity increases with temperatures up to 21-22 °C and decreases for temperatures above 23-24 °C (Seppänen et al., 2003; Seppänen & Fisk, 2006). Furthermore, lighting and daylighting aspects might also affect perceived productivity, as Galasiu and Veitch (2006) found that people strongly prefer daylight in their work environment. They also stated that individual control over lighting systems were deemed preferable. In addition to this, Kleeman et al. (1991) found that improved lighting resulted in higher productivity. Another aspect that influences productivity is biophilia and views. Not only do plants affect air quality (De Been et al., 2016), which indirectly affects the indoor climate, they might also have a direct positive effect on productivity (Van Den Berg, 2005). Literature furthermore suggests that plants might have an indirect positive effect on productivity by their influence on health (Ulrich, 1984; Van den Berg, 2005). The last physical condition mentioned by Al Horr et al. (2017) concerns noise and acoustics. Aspects that affect productivity the most are overheard conversations from colleagues and (uncontrollable) background music (Sundstrom et al., 1994; Furnham and Strbac, 2002). WfH or hybrid working offers a possible escape from these noise distractions and can thus improve productivity (Oseland & Hodsman, 2018).

Space

Maarleveld and De Been (2011) highlighted that the most important predictor for individual productivity is satisfaction with the possibilities to concentrate, whereas the most important predictor for team productivity is satisfaction with communication possibilities. Similar results were found by Brill and Weideman (2001), who conclude that spatial arrangement favouring spontaneous interactions are extremely important for productivity. In addition to this, being able to work individually and without distractions also has a large impact, as noted by Hameed and Amjad (2009), who identified spatial arrangement, alongside lighting, as a highly influential factor. The physical environment of an office workspace plays a crucial role in influencing productivity (Wheeler & Ameid, 2006). Aspects such as seating density, proximity, and privacy all contribute significantly to overall productivity (Lee, 2010). Individuals working in open-plan offices experience negative productivity outcomes compared to those working in cell offices. This is especially true for employees carrying out tasks that require concentration, as they perform noticeably better in private offices (Seddigh, Berntson, Danielson, & Westerlund, 2014). Working in open settings can lead to distractions and disruptions, resulting in reduced perceived individual productivity, especially during tasks requiring concentration and individual creative thinking (Oseland, Marmot, Swaffer, & Ceneda, 2011). This is also true for employees who WfH, as employees that have a dedicated workroom at home experience more positive effects regarding productivity (Awada et al., 2021). The office layout not only affects productivity, depending on the type of task, but also directly affects the frequency of interaction with other employees (Penn et al., 1999; Lee, 2010). As these interactions make up 80 per cent of meetings between employees (Blackhouse & Drew, 1992), they could be considered crucial for both strengthening

workplace cohesion between existing colleagues and building trust and relationships with new employees (Babapour Chafi et al., 2022).

Ergonomics & ICT

The design of the workplace, regardless of the location, including elements such as desks and office furniture, plays a crucial role in ergonomics, thereby influencing productivity (De Been et al., 2016). Barber (2001) showed that the use of ergonomic chairs and advanced ICT facilities contributes positively to productivity. Von Felten et al. (2015) echoed these findings, noting a significant increase in perceived productivity when aspects like workspace design and ICT facilities are of excellent quality. Kleeman et al. (1991) also found an increase in employee productivity due to improved ergonomic furniture. This aligns with the findings from Brill and Wiedemann (2001), who emphasized that ergonomics, sufficient desk space, and access to technology are all important contributors to productivity.

Aesthetics

Colour is another factor that may affect productivity (Bakker, 2014). Earlier studies indicated that use of the colour blue can enhance creativity while red increases detail-oriented tasks (Mehta & Zhu, 2009). Nevertheless, Bakker et al. (2013) found no significant effect of any colour on the perceived outcomes regarding productivity or cohesion. In addition to colour, other aspects regarding aesthetics of the workplace that are considered relevant includes the presence of company related symbols, logos, and workplace identity (Thatcher & Zhu, 2006; Wiesenfeld et al., 2001). They emphasized that the differences between the home office and the corporate office affects the organizational identification experienced by the employees as the home office does not include company related symbols or logos.

Hypotheses

Based on the previously discussed literature, it can be argued that hybrid working modes, individual and team productivity, organizational identification and workplace cohesion are related to workplace characteristics of both the home office and the corporate office. Furthermore, well-designed physical conditions, ergonomics and aesthetics are expected to have a positive relationship with individual and team productivity, organizational identification, and workplace cohesion. While this is also expected for space, the space type is expected to influence individual productivity and team productivity differently. Open spaces are furthermore expected to have a positive influence on workplace cohesion. In addition to this, workplace characteristics are expected to influence the decision to WfH or to work at the office. This results in the following hypotheses included below:

H3: workplace characteristics at home and the corporate office relate to individual and team productivity, organizational identification, and workplace cohesion

H4: workplace characteristics at home and the corporate office relate to hybrid working modes

4.2. *Individual characteristics*

As already briefly mentioned in the introduction of this thesis, individual characteristics may influence the decision-making process regarding hybrid working as well as productivity, cohesion, and organizational identification. Significant differences in age, gender, and other individual characteristics regarding the prevalence to telework were indicated by Eurofound (2022). Below for each individual characteristic, the relations to hybrid working and the organizational outcomes are elaborated.

Age

Prior to the COVID-19 pandemic, workers aged 65 years and over were much more likely to telework compared to the average worker. This division in age groups remained during the COVID-19 pandemic, however each age group saw an increase in percentage of workers who chose to telework. The biggest jump in the prevalence of telework was among the core age group (25-49 years) while the largest age group to telework remained those of 65 years and over (Eurofound, 2022). Age might influence productivity, as reductions in cognitive abilities can be the cause of age-related productivity declines (Skirbekk, 2004). Age not only affects productivity but also has an influence on the organizational identification that employees experience (Klimchak et al., 2019). Younger employees tend to exhibit a higher tendency for extrinsic organizational identification, whereas for older employees this tends to be more intrinsic, meaning that younger employees rely more on external effects, such as corporate branding, to experience organizational identification compared to older employees (Klimchak et al., 2019). The differences in the sources of organizational identification between older and younger employees may be attributed to various aspects such as life experiences, career stage, and personal development (Klimchak et al., 2019).

Gender

During the COVID-19 pandemic, Eurofound (2022) recorded a slight positive gender gap in WfH, indicating that females tended to work from home more than males. Males that were working from home were recorded at 10 percentage points while female teleworking was recorded at 11.9 percentage points. The same slight gender gap was recorded in the increase in teleworking, where female teleworking saw an increase of 8 percentage points and male teleworking saw an increase of 7 percentage points. Eurofound (2022) argued that this difference stems from the greater teleworkability of jobs with a larger proportion of female employees compared to jobs with a higher proportion of male employees. A third explanation given by Eurofound (2022) was that female employees are more likely to combine telework with domestic caring activities. Another discrepancy that can be noticed based on gender is the perceived productivity, as suggested by previous research (Farooq & Sultana, 2022; Haynes & Suckley, 2017). According to Farooq and Sultana (2022), the impact of WfH on employee productivity is more positive among females than males, while Haynes and Suckley (2017) suggested that female employee productivity is higher in office environments compared to male employee productivity. The impact of organizational identification varies per gender, with females exhibiting a stronger communal orientation and greater affiliation needs, both of which organizational identification addresses (Fritz & van Knippenberg, 2017).

Household characteristics

Having children may be related to the prevalence of telework. Households with children were slightly more likely to work from home than households without children (Eurofound, 2022). Comparing this to the pre-COVID-19 period the increase in prevalence of telework was slightly greater for households that did not have children. Therefore, while the presence of children is relevant for the prevalence of telework, the COVID-19 pandemic did not influence parents' extent of telework. The link between household composition and productivity during COVID-19 has been proven, suggesting that the productivity of employees is lower among households with children (Huls, et al., 2022). However, as this was during the initial COVID-19 pandemic, Huls, et al. (2022) further suggested that post COVID-19 research is required to provide long term results.

Education level

According to Sostero et al. (2020), higher educated, higher paid and/or white-collar service job employees were much more likely to telework. During the COVID-19 pandemic, employees with a post-tertiary level of education reported a telework share of more than 40%, compared to 30% for those who completed tertiary education and 10% for those with secondary education (Eurofound, 2022). This shows that a higher education level results in a larger likelihood of telework. This is in line with other research that suggested that lower educated employees saw a larger drop of worked hours and thus a lower productivity (Huls, et al., 2022). Similarly, research by López-Igual and Rodríguez-Modroño (2020) also showed that higher educational levels significantly increase the likelihood of WfH.

Hypothesis

Based on the literature addressed above, it can be argued that individual characteristics such as age, gender, household characteristics, and education level are related to the prevalence to telework and the organizational outcomes as well as workplace characteristics. This results in the following four hypotheses:

H5: individual characteristics relate to individual and team productivity, organizational identification, and workplace cohesion

H6: individual characteristics relate to hybrid working modes

H7: individual characteristics relate to workplace characteristics

4.3. Job characteristics

A direct relation between job characteristics and the intention to telework has been identified in existing research (Samtharam & Baskaran, 2021). In their research, job characteristics in combination with teleworking may increase workloads and working hours. Furthermore, the type of activities influences the choice of work location (Appel-Meulenbroek et al., 2022). Based on this, this section aims to discuss the various job activities related to hybrid working or the organizational outcomes.

Management function

Managers often perceive organizational outcomes different than regular employees due to their unique roles and responsibilities. Their focus extends beyond individual tasks to encompass the broader goals and success of the organization to their employees (Raghuram, 2011). This stimulates the dynamic in the organization and can create high levels of organizational identification (Witting, 2006). This perspective is therefore expected to lead to variations in how they evaluate productivity, teamwork, and organizational identification. Managers, while striving to achieve their own objectives, often prioritize team cohesion and overall organizational performance. They may place greater emphasis on aligning employee efforts with company goals, viewing strong organizational identification as vital for success (Hamzagic, 2018). Consequently, they could perceive higher levels of identification compared to non-managers. Furthermore, managers and non-managers seem to evaluate hybrid working differently (Sailer, Thomas, & Pachilova, 2023). Managers tend to be less likely to WfH compared to regular employees, and they also perceived a lower productivity due to the implementation of hybrid working compared to non-managers (Bloom, Han, & Liang, 2022).

Commuting time

Commuting time is also a job characteristic that has been indicated by Basile and Beauregard (2016) and Steele (1995) as having a significant effect on employees in general. They indicated that a reduction in commuting time is seen as one of the main benefits of teleworking. Thus, the travel time can affect the prevalence of telework for employees. Another explanation for this is the relation between commuting time and productivity levels, as longer commuting times directly influence an employee's work participation and engagement, resulting in a loss of productivity in the workplace (Ma & Ye, 2019). As physical isolation may result in a loss of organizational identification (Choudhury et al., 2020), it can be argued that longer commuting times could result in shorter office hours and thus less organizational identification.

Job activities

The types of activities that are carried out during workhours differ per job. According to Tabak (2009), activities can differ in attributes such as frequency, duration, priority, location, and facilities. The frequency of an activity describes the number of times it is performed in a given time span, while the duration describes the amount of time required to perform the activity. Internal meetings are more frequent than giving an external presentation, and a meeting generally takes more time than making a call. The priority of the activity indicates how important the activity is for the employee. Some activities are perceived to be more important to perform during a workday and therefore take the priority of an employee. Location is another relevant attribute as not all activities can be performed in the same space. An open meeting space might not be the best location to make calls while a small office is not suitable for giving presentations. The same can be said for facilities, as some activities require different equipment. For instance, a projector is required when giving presentations while a phone is required to make calls (Tabak, 2009). Vos and van der Voordt (2001) defined six office activities which, in

decreasing share of worktime, are the following: desk work, formal communication, informal communication, telephoning, filing and other activities. Maarleveld et al. (2009) included the same six main activities. Vos and van der Voordt (2001) furthermore stated that employees choose to do each activity in a place best suited for this. Extending this to the hybrid working concept results in employees not only having to choose where in the office to do their activities, but if they want to do them in the office at all. The choice between home and corporate office depends on workspace preference as well as the type of activities planned for the workday (Appel-Meulenbroek et al., 2022). Thus, the attributes of work activities can influence the preferred hybrid working style. Furthermore, as the choice of workplace can depend on the planned work activities, it can be argued that an employee chooses the location that results in the best work environment. As different work activities require different work environments, a different degree of exposure to corporate culture can be experienced, which may affect the level of organizational identification, and cohesion. Participating in mainly individual tasks that require concentration is thus expected to result in less interactions with colleagues and therefore lower cohesion.

Self-management

The function, personality, and work style of employees can have a considerable influence on the relationship between workplace characteristics and productivity (Palvalin et al., 2017). Because of this, the right fit between an employees' work style and personal needs seems to be a critical factor in the implementation of flexiworking and other new working modes (van Diermen & Beltman, 2016).

Drucker (1999) stated that appropriate self-management is crucial for knowledge workers' success. As knowledge workers are expected to be able to cope with high pressure and many activities simultaneously, they require high self-management skills. Knowledge workers often work in an environment where planning and prioritizing are very important as time is limited (Claessens et al., 2004; Kearns & Gardiner, 2007). Palvalin et al., (2017) argued that self-management skills affect both individual and team productivity. According to Eurofound (2022), this has only become more important since the COVID-19 pandemic and rise of hybrid working.

Hypothesis

Based on the literature addressed above, it can be argued that job characteristics relate to the prevalence to telework. It is expected that having a management function has an influence on the perceived organizational identification as well as the perceived productivity and the time spent working at home and at the office. Having a longer commuting time is expected to result in a larger share of teleworking. Productivity is expected to be higher among employees that have short commuting times. Furthermore, having sufficient self-management skills is associated with more effective teleworking and therefore more positive impact on individual and team productivity, organizational identification, and workplace cohesion compared to those having less sufficient self-management skills. In addition to this, different types of job activities relate to different levels of individual & team productivity, organizational identification, and workplace cohesion.

H8: job characteristics relate to individual and team productivity, organizational identification, and workplace cohesion

H9: job characteristics relate to hybrid working modes

H10: job characteristics relate to workplace characteristics

4.4. CREM Relevance

The rise of hybrid working presents both opportunities and challenges for corporate management disciplines, including CREM (Höcker, Bachtal, & Pfnür, 2022). In order to ensure that CREM can take advantage of these opportunities and is well informed regarding the possible challenges, it is important to know where and how CREM can make a change. Therefore, this section focuses on the relation between CREM and hybrid working and elaborates on the complications hybrid working could have on CREM.

As the cost of real estate and facilities are considerably lower (10%) than the cost of staff (80%) (Hanssen, 2000), the importance of CREM to manage the activity area of space and workplace management is extremely important. In addition to this, it is important that CREM is able to create an optimal work environment for employees, as this can increase organizational outcomes such as productivity and collaboration (Appel-Meulenbroek et al., 2022). Changes made by CREM in the workplace area are thus not only relevant cost wise, but more importantly, they can directly affect the organizational outcomes relevant to this research.

Morgan (2004) argued that, based on the pros and cons of teleworking, it is crucial to find a balance between organizational management and workplace autonomy in order to maximize benefits for both employers and employees. Hybrid working does not consist of only positive aspects that are associated with flexible working schedules. The various different types of hybrid working modes can result in complications for the organization. Furthermore, the question could be asked if employees should have full autonomy in their working schedule. Both Bloom (2021) and Yang et al. (2021) indicated possible complications for CREM regarding predictions when employees will show up in office. They both show a fear of people staying home on Mondays and Fridays leaving the office empty during these days while remaining overcrowded during the rest of the week. Bloom (2021) also mentioned the importance of overlapping attendance schedules within teams and between teams that collaborate often.

4.5. Conclusion

This chapter aimed to identify the relationships between workplace characteristics, personal characteristics, and job characteristics, hybrid working, and organizational outcomes (i.e., individual and team productivity, organizational identification, and workplace cohesion). Furthermore, it provided a background on how CREM relates to the physical workplace.

Existing literature indicated several relationships between workplace characteristics of both the home office and the corporate office as well as hybrid working modes and organizational outcomes. Good physical conditions, ergonomics and aesthetics are expected to have a positive influence on individual and team productivity, organizational identification, and workplace cohesion. While this is also expected for the workspace, the type of workspace is expected to affect individual productivity and team productivity differently. Open spaces are furthermore expected to have a positive effect on workplace cohesion. In addition to this, home office characteristics are expected to influence the prevalence of hybrid working.

Personal characteristics were found to mainly affect the prevalence of hybrid work as females, elder people and people with children and higher educated people were more likely to WfH. Furthermore,

gender and age seem to influence productivity differently. For organizational identification, a difference in age was also found to be relevant.

With regards to job characteristics, having a management function, long commuting times or low self-management skills all seem to negatively relate to organizational outcomes. Long commuting times and sufficient self-management skills all seem to have a positive relation with the prevalence to hybrid work more often. Having a management function and having specific work activities also seem to relate to the prevalence for hybrid work.

In addition to the above, this chapter also aimed to indicate how changes made by CREM in the workplace area can directly influence the organizational outcomes relevant to this research. As CREM can steer in both object level decisions and object fit out, the impact CREM can have on a successful integration of hybrid work within an organization is significant.

5. Method

In the previous chapters, relations between the organizational outcomes, hybrid working, individual/environmental characteristics, and various control variables were identified. This chapter describes the methodology of the current study in preparation for the various quantitative analyses that will be performed. First, the data collection and general methodology of the research are discussed, followed by the elaboration of the research design. In addition to this, the reliability and validity of the research's findings are discussed. This chapter concludes with the proposed statistical analysis methods which are used in the current research.

5.1. Data

One of the most used methods of collecting quantitative data on a large scale is through surveys (Groves, et al., 2004). "Questionnaire surveys are a technique for gathering statistical information about the attributes, attitudes, or actions of a population by a structured set of questions" (Buckingham & Saunders, 2004, p. 13). To analyse the relations of personal and environmental characteristics on hybrid working and organizational outcomes (i.e., productivity, organizational identification, and cohesion), a large sample size is required. Preston (2009) indicated that surveys provide a broad and easy method of gathering quantitative data of large populations. Because of this, the collection of data through a questionnaire is deemed best for this research.

The dataset used in this research concerns an existing dataset. This dataset was provided by the "Work in Transition" (WiT) research project. This research project is a collaboration between the Center for People and Buildings (CfPB), the Delft University of Technology (TUD) and the Eindhoven University of Technology (TU/e). The WiT research program was designed in 2022 by experts from all three organizations and consists of four parts: the WiT monitor, the knowledge platform, assistance with hybrid working pilots and in-depth research. For this research only the data collected from this research program will be used.

The data gathered from two organizations are used in this survey. Table 5.1 provides an overview of the two organizations and their number of employees, as well as the number of total respondents that started the survey and the number of respondents that completed the survey. One of the organizations concerns a semi-public organization. The other organization concerns a Dutch public organization which provides the major share of respondents of the dataset. As the collection process was still ongoing at the time this research was performed, not the full data of the public organization was collected. Due to this, the response rate is low.

Table 5.1 Overview of participating organizations

Organization	Semi-public organization	Public organization
Employees	550	41,000
Respondents (total)	478	7,754
Respondents (completed)	339	6,075
Response rate [%]	61.1	14.8

The usage of an existing dataset can be beneficial for multiple reasons. Doolan and Froelicher (2009) stated that performing secondary data analysis is not only a cost saving method of acquiring data but it also provides instant access to the data. It should be noted though that while the cost and amount of time prior to the analysis is reduced, discrepancies between the used dataset and literature review might lead to missing or inaccurate aspects, as the variables in the dataset are not designed specific to the findings in the literature review.

5.2. Research design

Based on the relations found in the literature research of chapter 2, 3, and 4 as well as the questions included in the questionnaire, the conceptual model included in Figure 5.1 will be used. It also includes the aspects that are related to hybrid working and/or the organizational outcomes. All aspects present in the model are based on findings of the literature review.

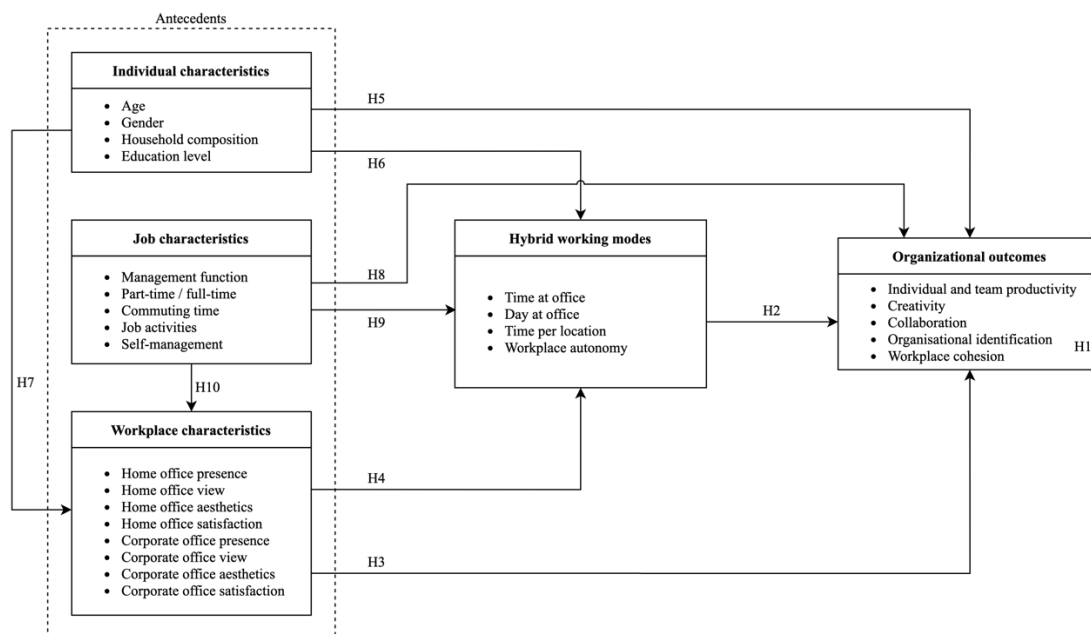


Figure 5.1 Conceptual Research Model

Based on the literature review, multiple hypotheses were formulated. These hypotheses were used to create a conceptual model, included in Figure 5.1. It is hypothesized that the individual organizational outcomes are related to each other. This has led to the following hypotheses:

H1a: Workplace cohesion is positively related to organizational identification

H1b: Workplace cohesion is positively related to productivity

H1c: Organizational identification is positively related to productivity

Based on the literature review, it is hypothesized that hybrid working influences organizational outcomes. This is split into a main hypothesis H2 and three sub hypotheses H2a, H2b, H2c, as shown below:

H2: hybrid working relates to organizational outcomes
H2a: hybrid working relates to individual and team productivity
H2b: hybrid working relates to organizational identification
H2c: hybrid working relates to workplace cohesion

Based on the literature review, it is hypothesized that workplace characteristics of both the home office and the corporate office have an impact on both hybrid working and the organizational outcomes of individual and team productivity, organizational identification and workplace cohesion. In addition to this, it is hypothesized that the type of office space relates differently to individual productivity and team productivity. This is split into two hypotheses, H3 and H4. These hypotheses are included below:

H3: workplace characteristics at home and the corporate office relate to individual and team productivity, organizational identification, and workplace cohesion
H4: workplace characteristics at home and the corporate office relate to hybrid working modes

Furthermore, based on the literature review, it is hypothesized that individual characteristics (i.e. age and gender) have an impact on both hybrid working as well as the organizational outcomes of individual and team productivity, organizational identification and workplace cohesion. In addition to this, it is hypothesized that individual characteristics relate to workplace characteristics. This is split into three hypotheses, H5, H6, and H7. This results in the hypotheses that are included below:

H5: individual characteristics relate to individual and team productivity, organizational identification, and workplace cohesion
H6: individual characteristics relate to hybrid working modes
H7: individual characteristics relate to workplace characteristics

Furthermore, it is hypothesized that job characteristics (i.e. commuting time, management function) have an impact on both hybrid working as well as the organizational outcomes of individual and team productivity, organizational identification and workplace cohesion. In addition to this, it is hypothesized that job characteristics relate to workplace characteristics. This is split into a main hypothesis H5 and three sub hypotheses H5a, H5b, H5c This results in the hypotheses that are included below:

H8: job characteristics relate to individual and team productivity, organizational identification, and workplace cohesion
H9: job characteristics relate to hybrid working modes
H10: job characteristics relate to workplace characteristics

Instead of testing these hypotheses, the individual variables will be tested. This was done as each hypothesis incorporates multiple variables, complicating the testing process. To test these separate variables, multiple regression analyses were performed depending on the measurement scale of each of the variables. Section 5.5 elaborates on the different tests depending on the measurements scales while Chapter 7 includes the individual tests for all hypotheses while Chapter 8 includes a conclusion and discussion about the study's findings.

5.3. Operationalization

To ensure accurate results, it is necessary that the measurement of the variables described in the previous section is reliable and valid. This section outlines how each variable was defined and measured. Some of the variables used in the questionnaire were based on established scales and scientific literature. This mainly concerns the measurement scales used to measure the organizational outcomes. Appendix D. includes an overview of all the survey questions used in this research and Table 5.2 provides an overview of all used variables.

The data on individual, job, and workplace characteristics were gathered through questions such as ‘What is your gender?’, ‘What is your age?’ and ‘What is your education level?’. Many of the questions regarding hybrid working were asked in a similar manner. These concerned questions such as ‘What percentage of your working time do you spend on the following activities?’ and ‘If you work from home, for what reason(s) do you mainly do this?’. All questions within the survey that were used in this research had predetermined answer categories, as no open questions were used.

Questions regarding hybrid work were created in collaboration between the CfpB, TUD and TU/e given the novelty of the topic. Workplace autonomy concerns the freedom employees have in choosing when and where to work. This included statements such as ‘How flexible are you; In choosing the location where to work?, In planning when to work?, and In deciding how to work?’ and were answered on a 5-point Likert scale ranging from [1] Not flexible at all to [5] Extremely flexible. The question of ‘How much time do you spend at each location?’ was answered by dividing percentages over each location, summed to 100%. The question of ‘At which days and times do you work preferably at the office during an average work week?’ was answered via a cross table where respondents could indicate different times and days. The questions regarding the respondents’ reasons to work at either home or in office was gathered via a set list of options where respondents could choose multiple options.

The questions regarding the workplace characteristics mostly consisted of yes/no questions such as ‘For working at home I have: A furnished workplace, no dedicated workspace and I never work at home’. Aesthetics and view related questions were answered by checking one or more predetermined options such as ‘nature view, urban view, etc’. Satisfaction with both the home office and corporate office was asked via a 5-point Likert scale ranging from [1] Extremely dissatisfied to [5] Extremely satisfied and included statements such as ‘How satisfied are you; With the entry of daylight?’

The data for job characteristics was gathered mainly via yes/no questions such ‘Do you have a management function?’ or questions with set answers such as ‘What is your commuting time to work?’ to which respondents could indicate their travel time in ranges of 15 or 30 minutes. To the question regarding their contractual hours, every number could be answered. Data regarding self-management skills was asked using an existing scale. This scale was designed by Spreitzer (1995) and consists of 12 items that are scored on a 7-point Likert scale. ranging from [1] Strongly disagree to [7] Strongly agree. This included statements such as ‘To what extent do you agree with the following; The work I do is important to me and My work activities are meaningful to me.’

For the organizational outcomes, scientifically validated scales were used. All these scales consist of multiple items that were scored on Likert scales. Table 5.2 also provides an overview of each scale, its reference and how it was scored. A more detailed overview of all scales including all individual statements is included in Appendix A.

Table 5.2 Variables overview

	Variable	Description	Reference	Scale	Range	N of items
Individual characteristics	1 Age	Age of the respondent	-	Continuous	0 - 75	-
	2 Gender	Gender of the respondent	-	Nominal	-	-
	3 Household composition	Does the respondent have children	-	Nominal	-	-
	4 Education level	Education level of the respondent	-	Nominal	-	-
Job characteristics	5 Management function	Is the respondent a manager	-	Ditochomous	-	-
	6 Worked hours	Hours worked by the respondent	-	Continuous	-	-
	7 Part-time / Full-time	Does the respondent work part-time or full-time	-	Ditochomous	-	-
	8 Commuting time	Commuting time of the respondent	-	Nominal	-	-
	9 Work activities	Time spent per job activity	-	Continuous	Seperate questions	-
	10 Self-management	Perceived self-management of the respondent	Spreitzer (1995)	7-point likert	[1] Strongly disagree [7] Strongly agree	12
Workplace characteristics	11 Home office presence	Presence of a dedicated home office	-	Ditochomous	-	-
	12 Home office view	View from the home office	-	Nominal	-	-
	13 Home office aesthetics	Aesthetics of the home office	-	Nominal	-	-
	14 Home office satisfaction	Perceived satisfaction of the home office	CfPB (2022)	5-point likert	[1] Extremely dissatisfied [5] Extremely satisfied	5
	15 Corporate office presence	Presence of a dedicated corporate office workspace	-	Ditochomous	-	-
	16 Corporate office view	View from the corporate office	-	Nominal	-	-
	17 Corporate office aesthetics	Aesthetics of the corporate office	-	Nominal	-	-
	18 Corporate office satisfaction	Perceived satisfaction of the corporate office	CfPB (2022)	5-point likert	[1] Extremely dissatisfied [5] Extremely satisfied	5
Hybrid oworking	19 Preferred time at office	Preferred time of day to come into the office	-	Ditochomous	-	-
	20 Preferred day at office	Preferred day to come into the office	-	Nominal	-	-
	21 Time per location	Most time spent at what location	-	Nominal	-	-
	22 Workplace autonomy	Perceived workplace autonomy of the respondent	CfPB (2022)	5-point likert	[1] Completely disagree [5] Completely agree	3
	23 Reasons for working at home	Respondents reasons for working at home	-	Nominal	Seperate questions	-
	24 Reasons for working at the o	Respondents reasons for working at the office	-	Nominal	Seperate questions	-
Organizational outcomes	25 Individual productivity	Perceived individual productivity of the respondent	IWPQ by Koopmans, et al. (2014)	5-point likert	[1] Never [5] Always	5
	26 Team productivity	Perceived team productivity of the respondent	Edmondson (1999)	7-point likert	[1] Strongly disagree [7] Strongly agree	5
	27 Creativity	Perceived creativity of the respondent	Shin and Zhou (2007)	7-point likert	[1] Extremely bad [7] Extremely good	4
	28 Collaboration	Perceived collaboration of the respondent	Chiocchio et al. (2012)	5-point likert	[1] Completely disagree [5] Completely agree	14
	29 Organizational identification	Perceived organizational identification of the respondent	Staples et al. (1999)	7-point likert	[1] Strongly disagree [7] Strongly agree	4
	30 Workplace cohesion	Perceived workplace cohesion of the respondent	COPSOQ III by Burr, et al. (2019)	5-point likert	[1] Never [5] Always	2

Measuring individual productivity was done by means of the IWPQ (Koopmans, et al., 2014). This questionnaire included questions regarding task performance, contextual performance, and counterproductive work behaviour (Koopmans, et al., 2014). The dimension regarding task performance has traditionally received the most attention and is also the most relevant for this research. It can be defined as “the proficiency with which individuals perform the core substantive or technical tasks central to his or her job” (Campbell, 1990, p. 708). The questions related to the task performance dimension provide insights into the extent to which the individual is able to plan and execute their work. This scale was rated on a 5-point Likert scale ranging from [1] Never to [5] Always. It included statements such as ‘Did I manage to plan my work in such a way that the work was finished on time, and I kept in mind what result I had to achieve with my work.’

To obtain measurements of team productivity, Edmondson’s (1999) scale was used. Edmondson (1999) formulated multiple questions based on Hackman’s (1987) team performance scale. In both cases, the questions resulted in self-reported, team performance ratings on a 7-point scale ranging from [1] Strongly disagree to [7] Strongly agree. The scales used by both Edmondson (1999) and Hackman (1987) included questions regarding team beliefs and team behaviour as perceived by each team member. Edmondson’s (1999) team productivity scale included statements such as ‘My team seems to be underperforming lately, and Those who receive or use the results of my team's work often complain about our work.’

In addition to this, based on the literature review, both creativity and collaboration were measured. Creativity was measured using the scale of Shin and Zhou (2007). Here creativity was referred to as the generation of original and useful ideas related to products, services, processes, and procedures by a group of employees working together. The questions used to measure creativity by Shin and Zhou (2007) were based on the novelty, significance, and usefulness of ideas, as outlined by Amabile (1996). This scale was scored on a 7-point Likert scale ranging from [1] Extremely bad to [7] Extremely good. It included statements such as ‘How well does your team come up with new ideas?’, and ‘How useful are these ideas?’

Collaboration was measured with the collaborative work questionnaire, as developed by Chiochio et al. (2012). Here collaboration involves the appropriate use of four interrelated processes: teamwork communication, synchronicity, explicit coordination, and implicit coordination. The collaboration scale was scored on a 5-point Likert scale ranging from [1] Completely disagree to [5] Completely agree. It included statements such as ‘My teammates and I; Provide each other with useful information that makes progress in work possible, and Share knowledge that promotes work progress.’

Organizational identification has been measured with the questions formulated by Staples et al. (1999). Four items are used to measure the organizational identification of an individual. These four items originate from the questionnaire formulated by Mowday et al. (1979). For purpose of instrument development, Mowday et al. (1979) used the definition of organizational identification formulated by Porter and Smith (1970) which stated “the relative strength of an individual’s identification with and involvement in a particular organization” (Porter & Smith, 1970). The questions formulated focused on three aspects: “(1) a strong belief in and acceptance of the organization’s goals and values; (2) a willingness to exert considerable effort on behalf of the organization; and (3) a strong desire to maintain membership in the organization” (Mowday et al., 1979, p. 226). These three aspects show consistency with the previously discussed theories regarding organizational identification. The organizational identification scale was scored on a 7-point Likert scale ranging from [1] Strongly disagree to [7]

Strongly agree. The scale included statements such as ‘I think my values and those of the organization are comparable, and I am proud to tell others that I am part of this organization.’

Workplace cohesion was measured with questions, as described in the Third Version of the Copenhagen Psychosocial Questionnaire (COPSOQ III). Here workplace cohesion is described as a sense of community at work, which is defined as “whether there is a feeling of being part of the group of employees at the workplace, e.g., if employees’ relations are good and if they work well together.” (Burr, et al., 2019, p. 16). The workplace cohesion scale was scored on a 5-point Likert scale ranging from [1] Never to [7] Always. The scale included the following statements ‘Is there a good atmosphere between you and your colleagues?’, and ‘Do you feel part of a community at work?’

5.4. Reliability and Validity

Before attempting to combine each set of scale items into a single item, a scale’s validity and reliability needs to be tested. The validity concerns the extent to which an instrument measures what is intended to measure, and the reliability concerns the ability of an instrument to measure consistently (Tavakol & Dennick, 2011). As the measures of individual and team productivity, organizational identification, and workplace cohesion were established scales, it can be assumed that the measurements of the variables meet the requirements of validity and reliability. Despite this, reliability and validity were checked.

To assess the internal consistency of the scales in the questionnaire, Cronbach’s Alpha was used. Internal consistency describes the extent to which all the items of a scale measure the same concept or construct, which is expressed as a number between 0 and 1 (Tavakol & Dennick, 2011). Acceptable values of Alpha range from 0.70 to 0.95, while too high values of Alpha can suggest that some items are redundant. Values below this range indicate poor inter-relatedness between items or heterogeneous constructs. Therefore, a maximum value of Alpha of 0.90 is recommended (Tavakol & Dennick, 2011).

As the Cronbach’s Alpha values are sensitive to scales that contain only two items, it is common to find low values for Cronbach’s Alpha (below the acceptable 0.7). Because of this, it is more appropriate to report the mean inter-item correlation for the items in the scale (Briggs & Cheek, 1986). The reported mean inter-item correlation should at least be between 0.2 and 0.4, with higher values indicating possible repetitiveness of the items and therefore showing redundancy of one of the items (Piedmont, 2014). In cases where the Cronbach’s Alpha was found to be too low and the scale contained a small number of items, the mean inter-item correlation is also included.

The normality of all the scaled data was also tested, as non-normal data requires non-parametric tests instead of parametric tests (Mishra, et al., 2019). The distribution of data is, however, called normal if the skewness or kurtosis of the data ranges between -1 and $+1$ (Mishra, et al., 2019).

Furthermore, multiple variables were recoded for various reasons. These reasons range from small percentages of respondents having chosen one of the categories, having to recode to match the scales used by the CBS data, or creating categories better suited to this study as the original categories included irrelevant data for this study. In Chapter 6, the reasons for recoding are discussed per variable. Table 5.3 includes an overview of all variables that were recoded for this study. Appendix C. includes the recode process of each variable included in Table 5.3. The recoded version of the Age variable was only used to compare to the CBS data, the original version was used in the rest of the analysis. The

variable of contractual hours was used as both a recoded variable (indicating part-time or full-time employment) and as a continuous variable indicating the exact number of hours worked.

Table 5.3 Overview of recoded variables

Variable	Reason for recoding
Age	Match CBS categories
Gender	Too small categories
Education level	Too small categories & match CBS
Household characteristics	Too detailed
Contractual hours	Too detailed
Commuting time	Too detailed
Home and corporate office view	Too detailed
Ergonomics and ICT	Too detailed
Facilities	Too small categories
Time per location	Too complex

5.4.1. Job characteristics

Self-management was measured using Spreitzers self-management scale (Spreitzer, 1995) and included twelve individual statements. For the self-management skills, an acceptable level of Cronbach's Alpha was found, as shown in Table 5.4. For all scales, an overview, as well as a more detailed overview of the reliability test can be found in Appendix A.

Table 5.4 Dimension reduction: Self-management

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of items
.873	.878	12

5.4.2. Organizational outcomes

The organizational outcomes contain six variables, being: individual productivity, team productivity, collaboration, creativity, organizational identification, and workplace cohesion. For each of these scales, a Cronbach's Alpha was computed. Table 5.5 includes an overview of all the values of Cronbach's Alpha.

Individual productivity

As previously discussed, individual productivity was measured with use of the IWPQ (Koopmans, et al., 2014) and contained five individual items. For this variable, an acceptable level of Cronbach's Alpha was found.

Team productivity

Measurement of team productivity was done with use of questions as designed by Edmondson (1999), who based his questions on Hackman's (1987) team performance scale, and included five individual items. For team productivity, an acceptable level of Cronbach's Alpha was found.

Creativity

In the WiT survey, creativity was measured based on questions formulated by Shin and Zhou (2007) and included four individual items. For this variable, an acceptable level of Cronbach's Alpha was found.

Collaboration

The measurement of collaboration in the WiT survey was done with use of the questions as designed by Chiochio et al. (2012) and included fourteen individual items. For this variable, an acceptable level of Cronbach's Alpha was found.

Organizational identification

As discussed in the literature review, organizational identification is an important factor regarding hybrid working. In the WiT survey, the questions regarding organizational identification were based on those formulated by Staples et al. (1999) and included four individual items. For this variable, an acceptable level of Cronbach's Alpha was found.

Workplace cohesion

The measurement of workplace cohesion was done with questions that are based on the cohesion questions as included in the COPSOQ III and included two individual items. Table 5.5 shows that workplace cohesion did meet the requirements for dimension reduction. Based on the mean inter-item correlation, the requirement for dimension reduction was also met with a score of 0.591.

Table 5.5 Dimension reduction: Organizational outcomes

Variable	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of items	Mean inter-item correlation
Individual productivity	.764	.751	5	-
Team productivity	.748	.758	5	-
Creativity	.881	.883	4	-
Collaboration	.910	.915	12	-
Organizational identification	.835	.838	4	-
Workplace cohesion	-	-	2	.591

5.4.3. Hybrid work

The measurement of Workplace autonomy (regarding the respondents' autonomy in choosing when and where to work) in the WiT survey was done with use of the questions as designed by the CfPB (2022) and included three individual items. Table 5.6 shows that workplace autonomy did meet the requirements for dimension reduction, as acceptable values of Cronbach's Alpha were found.

Table 5.6 Dimension reduction: Workplace autonomy

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of items
.798	.810	3

5.4.4. Workplace characteristics

The measurement of the various elements of satisfaction of both the home office and the corporate office regarding daylight, lighting, acoustics, ventilation, and temperature in the WiT survey was done with use of the questions as designed by the CfPB (2022). Both home office satisfaction and corporate office satisfaction included five individual items. Table 5.7 shows that the workplace autonomy scale had an acceptable Cronbach's Alpha coefficient.

Table 5.7 Dimension reduction: Organizational outcomes

Variable	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of items
Home office satisfaction	.863	.870	5
Corporate office satisfaction	.801	.804	5

5.4.5. Reasons for working at home/at the office

For the variables concerning reasons for working at home/in the office, a factor analysis was performed. Both variables consist of seven and eight separate questions respectively. It was expected that the items within these variables could create underlying aspects. Appendix B. includes an overview of the complete factor analysis output. The factor analysis was used with both an orthogonal and an oblique rotation with an eigenvalue of at least 1. In the end, the most ideal results were acquired while using the oblique rotation method. The total explained variance concerned only 44% and 52%. Appendix B. includes an overview of the total explained variance, as well as the potential aspects. Due to the low explained variance, the extracted aspects could not be used. Therefore, the original seven and eight questions were included in the descriptive analysis and no further bivariate analysis was conducted with the variables concerning reasons for working at home/ at the office.

5.5. Quantitative analysis

The data provided by the “Work in Transition” (WiT) research project was analysed through multiple statistical tests. These methods include descriptive analysis and bivariate analysis respectively.

5.5.1. Descriptive analysis

Before conducting bivariate analyses, it is crucial to perform a descriptive analysis. The descriptive analysis involves describing and analysing the sample on socio-demographic aspects and other relevant aspects. In this study, the descriptive analysis was performed on the entire sample on their differences in personal and environmental characteristics, as well as perceived organizational outcomes including individual and team productivity, organizational identification, and workplace cohesion. Furthermore, socio-demographic aspects, such as gender, age and education levels were compared to CBS data of Dutch office workers. This was done to check whether the results from this study can be generalized to the population of office workers in the Netherlands.

5.5.2. Bivariate analysis

Bivariate analysis is one of the simplest forms of quantitative (statistical) analysis and involves the analysis of two variables, for the purpose of determining the empirical relationship between them (Babbie, 2016). The selection of a specific bivariate analysis method hinges upon the level of measurement assigned to each variable. Once these levels of measurement have been determined, bivariate analysis may be conducted, employing tests such as the Chi-Square test, Independent T-test, One-Way ANOVA, or either the Pearson or Spearman correlation tests, as appropriate. (Field, 2009). In case of non-normal divided data, non-parametric alternatives were used for the t-test and ANOVA tests. In these cases, the t-test test was replaced with a Mann-Whitney U test and the ANOVA test was replaced with the Kruskal-Wallis H test. Table 5.8 provides an overview of the applicable bivariate test methods for each level of measurement for both the dependent and the independent variable (Field, 2009) which was used to determine the correct bivariate analysis method for each relationship.

Table 5.8 Bivariate analysis measurements overview

Independent variable	Dependent variable			
	Nominal (dichotomous)	Nominal (> 2 categories)	Ordinal	Interval/Ratio
Nominal (dichotomous)				<i>Independent t-test</i>
Nominal (> 2 categories)		<i>Chi-Square test</i>		<i>One-way ANOVA</i>
Ordinal				<i>Spearman Correlation</i>
Interval/Ratio	<i>Independent t-test</i>	<i>One-way ANOVA</i>		<i>Pearson Correlation</i>

5.5.3. *Effect sizes*

The bivariate analysis has provided sporadic insights into the statistical significance of the relationships within the model. Nevertheless, it is important to note that relying solely on p-values to indicate the significance of the obtained results is inadequate, as emphasized by Tomczak & Tomczak (2014). The diverse array of bivariate analysis methods introduces various indicators of strength, such as Chi-Square values, t-values, F-values, and correlation coefficients. This heterogeneity makes it challenging to discern and compare the magnitude or strength of the bivariate relationships accurately. Consequently, to provide a more comprehensive understanding, the results from the bivariate analyses were further scrutinized through the utilization of effect size estimates.

Effect size estimates offer a means to assess the robustness of the relationships between the variables under investigation, as advocated by Durlak (2009) and Tomczak & Tomczak (2014). The computation of effect sizes followed the formulations outlined in Tomczak & Tomczak (2014) research, which underscored the significance of effect size in evaluating the importance of relationships.

5.6. *Conclusion*

This chapter aimed to outline the methodology employed in the current study and provide a foundation for the various quantitative analyses carried out. The study relied on a pre-existing dataset that was acquired from the "Work in Transition" (WiT) research project. This dataset was generated through questionnaires administered by CfPB (Center for People and Buildings) and collected from Dutch office workers working at two organizations in 2023.

By making use of previously used scales and Cronbach Alpha reliability analyses, the measurements in the dataset were deemed valid and reliable. Furthermore, the Cronbach Alpha reliability analysis allowed for simplifying the variables that were to be used in the bivariate analyses. Based on the bivariate analysis, an effect size overview is possible, providing a clear overview of all relationships.

6. Data description

This chapter aims to provide a detailed overview of the used dataset. This is done by discussing the sample size and elaborating on the data of the individual and environmental characteristics, individual and team productivity, organizational identification, workplace cohesion, and hybrid working characteristics.

6.1. Sample description

As already discussed in section 5.1, this study uses an existing dataset from the “Work in Transition” (WiT) monitor. The initial dataset used in this study originates from two organizations. The first organization is a semi-public organization with 550 employees. This dataset originally contained responses from 478 respondents. After filtering out incomplete surveys, this resulted in 339 complete responses. The second organization concerns a public organization which has 41,000 employees. Of these employees 7,754 filled in the survey which resulted in 6,075 complete responses. In total the dataset thus has 8,232 responses, of which 6,414 responses are valid.

6.2. Individual characteristics

This section elaborates on the individual characteristics of the sample. The descriptive statistics of the individual characteristics are shown in Table 6.1. The individual characteristics are compared to CBS (2023) data from Dutch office workers in order to check if the dataset provides a representative image of the general population of Dutch office workers.

Table 6.1 Descriptive statistics: Individual characteristics

Individual characteristics		N	Mean	St. deviation
Age (Continue)		6394	47.29	14.902
		Frequency	Sample [%]	CBS data (2023) [%]
Age (Grouped)	≤ 35 years old	1328	20.8	37.8
	36 – 45 years old	1088	17.0	19.2
	46 – 55 years old	1526	23.9	21.5
	> 56 years old	2452	38.3	21.5
Gender	Male	3340	53.3	52.8
	Female	2785	44.4	47.2
	Other	143	2.3	-
Education	Other	575	9.1	19.9
	Secondary vocational education	1285	20.3	38.4
	Higher professional education or University	4473	70.6	41.7
Household composition	Household with children	2687	42.9	-
	Household without children	3581	57.1	-

Age

The first individual characteristic is the respondent's age. This variable was included as both a continuous variable ranging from 16 to 75 as well as a Categorical variable. This was done in order to have a variable for the bivariate analysis and one that has categories matching the divisions made by CBS (CBS Statline, 2023). The continuous variable has a mean of 47 indicating that the average age of the employees is relatively high. The standard deviation of 14.9 indicates that despite the high average, large differences in the age of the employees are present. After recoding, the categories ≤ 25 years old and 26 – 35 years old were merged, as the first category contained too few cases. This was also done for the categories of 56 – 65 years old and > 66 years old, as the latter category only contained one respondent. The same merges were performed on the data of the CBS to match the new divisions. The recoding process is included in Appendix C. Compared to the CBS data, this dataset contains less respondents younger than 35 years old. This is the same for the category of 36 - 45 years old. Both the category of 46 - 55 and >55 years old are overrepresented in this dataset compared to the CBS data. This was tested via a chi-squared goodness of fit test, $X^2(3, N = 6394) = 1367.36, p = <.001$. Therefore, the respondents within the current dataset are older than the average Dutch office worker. This is in line with findings by Hulzebosch et al. (2017), who found that the mean age of employees of the Dutch government was 48.1 years old. Furthermore, they stated that the mean age will continue to grow as the Dutch age of retirement goes up.

Gender

The second individual characteristic is the respondent's gender. Here, three categories are present. As can be seen in Table 6.1, more male respondents ($N = 3340$) are present than female respondents ($N = 2785$). Furthermore, an extremely small number of respondents ($N = 143$) identified themselves as having another gender than male or female. For further analyses, this category will be recoded into missing values due to the size of this category. The data was compared to averages of Dutch office workers (CBS Statline, 2023) via a chi-squared goodness of fit test. Based on this test, it was concluded that the data in this dataset did not match the data from the CBS, $X^2(1, N = 6125) = 7.36, p = .007$, meaning that the share of males and females differs from the CBS shares. As the CBS has no categories for people identifying themselves neither as male nor as female, no comparison to this data could be made.

Education level

In order to match the categories of this variable to the categories of the CBS data, the education level variable was recoded. An overview of this is included into Appendix C. Most respondents have completed a higher level of education (university or higher professional education). This category is also extremely overrepresented compared to CBS data, as over 70% of respondents fall into this category compared to over 40% of Dutch office workers. Both other categories are less represented in the dataset compared to the CBS data. This was tested via a chi-squared goodness of fit test, $X^2(2, N = 6333) = 406.72, p = <.001$. A possible reason for the higher-than-average education level could be due to the nature of the work that is done at both organizations included in the dataset of the WiT monitor.

Household characteristics

Originally, the variable of household characteristics not only included information about households with children, but also about the rest of the household composition, such as number of parents, etc. Based on findings by (Eurofound, 2022). (Eurofound, 2022). literature review, only the presence of children was mentioned to be a significant factor. Therefore, this variable was recoded to only include information about having children or not. An overview of the recoding can be found in Appendix C.

There are slightly more respondents that have a household without children (43%) than with children (57%). An explanation for this could be the higher average age of the respondents. It is assumable that in the age categories between 46-55 years old, less households with children are present. For the age category of >55 years old this is even more so the case. As based on the above-mentioned chi-squared goodness of fit test, both these categories are overrepresented compared to the CBS data, the lower percentage of households with children would be expected. As no direct CBS data of the household composition of Dutch office workers exist, the comparison of household composition of the current sample with CBS data is not possible.

6.3. Job characteristics

In this section, the job characteristics of the current sample will be discussed. An overview of the data is included in Table 6.2.

Table 6.2 Descriptive statistics: Job characteristics

Job characteristics		Frequency	Sample [%]	
Management function	Yes	622	8.5	
	No	6697	91.5	
Commuting time	0 – 30 min	2520	32.5	
	31 – 60 min	3443	44.4	
	> 60 min	1795	23.1	
Contractual hours (Part-time & Full-time)	Part-time (<32 hours)	2600	33.8	
	Full-time (>32 hours)	5094	66.2	
		N	Mean	St. deviation
Contractual hours (Continuous)	Total amount of worked hours per work week	7694	33.64	7.62
Self-management	Self-management skills combined (scored on 7 - point Likert scale)	6385	5.43	.77
Job activities (0-100% per activity)	Concentrated work	6929	26.17	19.29
	General and routine work	6744	24.99	21.70
	Planned meetings	7040	15.90	13.22
	Active collaboration with team members	6880	15.35	11.06
	Making phone calls	6357	9.88	12.93
	Other	4270	8.36	9.88
	Unplanned meetings	5820	7.58	6.02

Management function

The first job characteristic concerns if the respondent has a management function or not. As can be seen in Table 6.2 only 8.5% (N = 622) of the respondents functions as a manager. This is to be expected, as generally, one manager is supervising a number of people. In this sample, about one eight (91.5%; N = 6697) of all respondents has a management function of some sorts.

Commuting time

The second variable within the job characteristics is the commuting time. Here, the commuting time of the respondent to the office is indicated ranging from less than 15 minutes to more than 90 minutes. As Table 6.2 shows, most respondents (N = 3443; 44%) have a commuting time between 31 and 60 minutes. The second largest group (N = 2520; 33%) has indicated to have a commuting time between 0 and 30 minutes. The original data included values of [1] 0-15 minutes, [2] 16-30 minutes, [3] 31-45

minutes, [4] 46-60 minutes, [5] 60-90 minutes, and [6] > 90 minutes. As this resulted in both too many categories as well as categories with too few cases, the variable was recoded into three categories with 30-minute increments.

Contractual hours

The second job characteristic includes if the respondent works part-time or full-time. This variable was included as both a continuous variable and a grouped one. The continuous variable includes the exact hours a respondent has worked in a work week. A new variable was created, where hours of up to 35 per week were recoded into part-time and hours of 36 per week or more were recoded into full-time. Table 6.2 shows that on average, a respondent works 33.6 hours a week with a standard deviation of about 7.6 hours. About one third of the respondents (N = 2600) works part-time while the other two thirds of the respondents work full-time (N = 5-94).

Self-management

The fourth variable concerns the level of self-management of the respondents. As previously discussed in Section 5.4.3, self-management was measured with twelve questions of which the mean of all these questions was used for the ‘self-management score’. This score ranges from (1) Strongly disagree to (7) Strongly agree. A mean of 5.43 and a standard deviation of .774 was found for the self-management variable, as can be seen in Table 6.2 and Figure 6.1. Showing that, on average, respondents reported to either more or less or mostly agree with the self-management statements. Furthermore, a skewness of -.582 was noted. Based on this, it was determined that this variable was suitable for parametric tests.

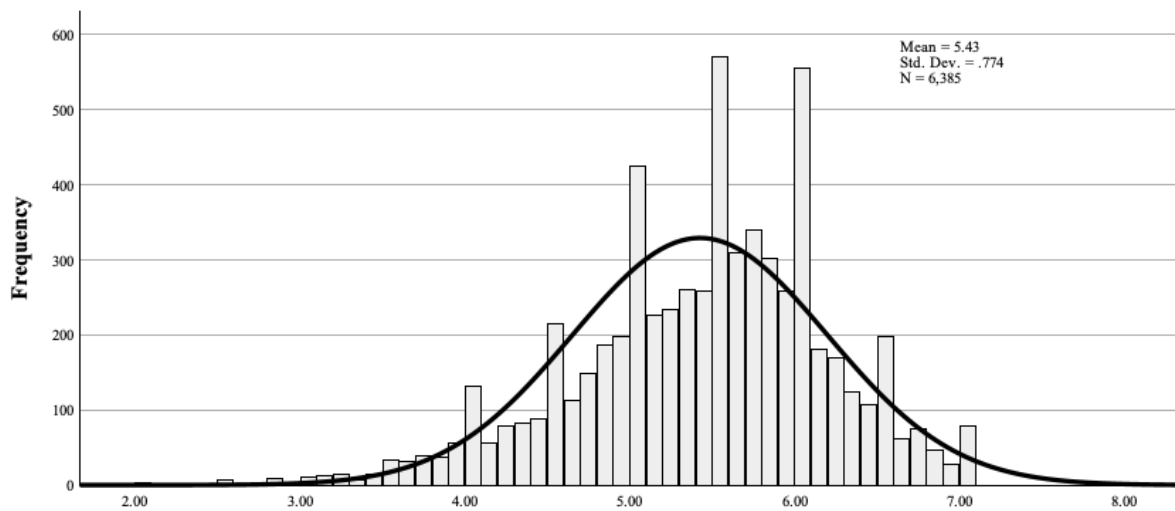


Figure 6.1 Self-management graph

Job activities

As can be seen in Table 6.2 the most common tasks of the respondents include general and routine work (25%) as well as concentrated tasks (26%). The second category of most common tasks is active collaborating with team members and planned meetings, taking up on average about 15% of the respondent’s time. Notably, the tasks that take up the most time on average, also have the largest standard deviation, indicating that for these tasks the largest differences between respondents can be found.

6.4. Workplace characteristics

This section elaborates on the distribution of the workplace characteristics of the sample. The descriptive statistics of the workplace characteristics of both the home office and the corporate office are shown in Table 6.3.

Table 6.3 Descriptive statistics: Workplace characteristics

Workplace characteristics			Frequency	Sample [%]
Home office	Home office presence	Dedicated home office	5266	79.9
		No dedicated home office	1325	20.1
	Home office view	Nature view	2190	33.8
		Urban view	3773	58.9
		No view	510	7.9
	Home office aesthetics	Vegetation	1162	19.1
		Coloured walls	1153	18.9
		Vegetation & coloured walls	1923	31.6
		None	1853	30.4
			N	Mean
Home office satisfaction	Daylight	6740	4.47	.74
	Lighting	6731	4.41	.74
	Ventilation	6737	4.29	.87
	Acoustics	6718	4.28	.82
	Temperature	6736	3.96	1.04
	General satisfaction	6734	4.28	.69
				Frequency
Corporate office	Corporate office presence	Private workspace	676	10.1
		Shared workspace	6025	89.9
	Corporate office view	Nature view	636	9.6
		Urban view	5386	81.6
		No view	608	9.2
	Corporate office aesthetics	Vegetation	1400	22.2
		Coloured walls	818	9.9
		Vegetation & coloured walls	1444	17.5
		None	2646	32.1
			N	Mean
Corporate office satisfaction	Lighting	6826	3.80	.86
	Daylight	6836	3.77	.90
	Acoustics	6786	3.06	1.08
	Ventilation	6431	2.85	1.10
	Temperature	6818	2.75	1.07
	General satisfaction	6823	3.25	.75
				Frequency
ICT Facilities	Basic ICT facilities	5753	87.9	
	Additional gear meetings home office	458	7.0	
	Additional gear meetings corporate office	99	1.5	
	Additional gear for both locations	228	3.5	
	No ICT facilities	5	0.1	

Home office presence & corporate office presence

These two variables indicate whether the respondent has a dedicated home office or not, and if the respondent has a dedicated workplace in the office or not. As can be seen in Table 6.3 most respondents have indicated to have a dedicated spot in their home to work from (N = 5266; 80%) while about 20% (N = 1325) use a regular room in their home to work in. Looking at the situation for the corporate office, almost 90% of the respondents (N = 6025) have indicated to work in shared workspaces while only 10% (N = 676) have a private workplace in the office. These percentages are close to those of the management function variable.

Home office view & corporate office view

For the home office, close to 60% of the respondents (N = 3773) indicate to have a view of urban structures, as can be seen in Table 6.3. A bit over 30% (N = 2190) indicated to have a view of nature, while around 8% (N = 510) indicated to have no view at all. Comparing this to the responses of the corporate office, $t(2) = -28.776$; $p = <.001$, more than 80% of the respondents (N= 5386) have a view of urban structures at their corporate office, while both the view of nature (N = 636) and no view (N = 608) had a response of about 9%. The dominance of the urban view of corporate offices can be explained by the fact that office buildings are often located in business parks that consist mostly of other office buildings. In addition to this, as the respondents only work at two organizations, the number of different office buildings that the respondents work in is small. For home offices, all respondents have a unique situation and thus more varied responses are expected.

Home office aesthetics and corporate office aesthetics

Looking at the data of both the home office aesthetics and the corporate office aesthetics, included in Table 6.3, most respondents indicated to have both vegetation and coloured walls in their home office (N= 1923; 32%), while only 19% (N = 1162) indicated to have vegetation in their office, and another 19% (N = 1153) indicated to have coloured walls. The other 30% (N = 1853) indicated to have neither. For the corporate office, only 23% (N = 1444) indicated to have both vegetation and coloured walls while 22% (N = 1400) indicated to have vegetation in their office and 13% (N = 818) indicated to just have coloured walls. 42% (N = 2646) of respondents indicated to have neither vegetation nor coloured walls, which was a much larger share compared to that of the home office.

Home office satisfaction and corporate office satisfaction

Looking at the overview of the satisfaction of both the home office and the corporate office included in Table 6.3, the highest satisfaction for the home office was found for daylight (Means = 4.47; Sd = .741) followed by general lighting (Mean = 4.41; Sd = .737). Both ventilation and acoustics scored similarly, with having an average satisfaction of 4.29 (Sd = .874) and 4.28 (Sd = .822). Temperature received the lowest average satisfaction (Mean = 3.96; Sd = 1.040). For the corporate office, satisfaction with light (Mean = 3.80; Sd = .864) and daylight (Mean = 3.77; Sd = .902) was highest, albeit being noticeably lower compared to the home office. All other criteria scored lower compared to the home office, with temperature scoring a mean of 2.75 (Sd = 1.074) on average. As employees do not have full control of the temperature of their office, this was to be expected. The same goes for the values of aesthetics and ventilation. Based on the dimension reduction with Cronbach's Alpha, for both the home office satisfaction and the corporate office satisfaction, a separate general satisfaction variable was created. Figure 6.2 and Figure 6.3 show the graphs of both the general satisfaction variables.

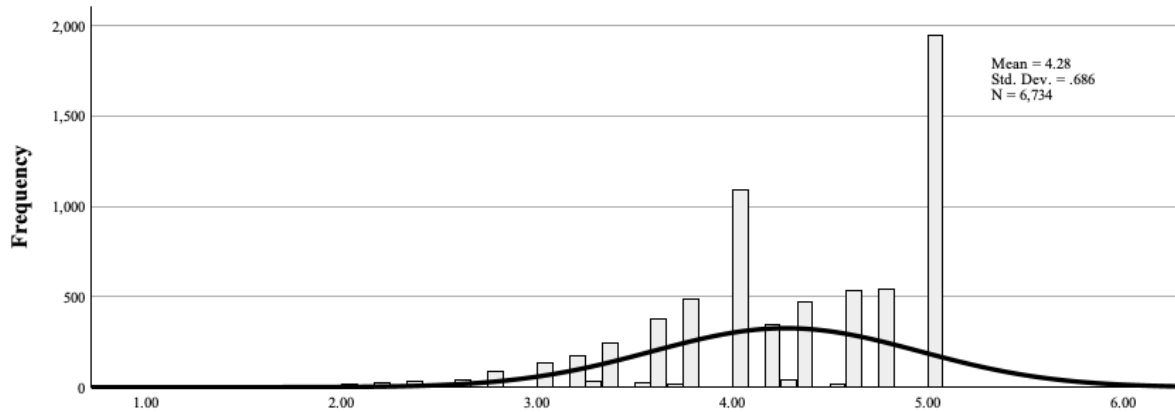


Figure 6.2 Combined home office satisfaction graph

A mean of 4.3 and a standard deviation of .686 was found, as can be seen in Table 6.3. Furthermore, a skewness of -.921 was noted. As this value was smaller than -1, it was determined that this variable was suitable for parametric tests.

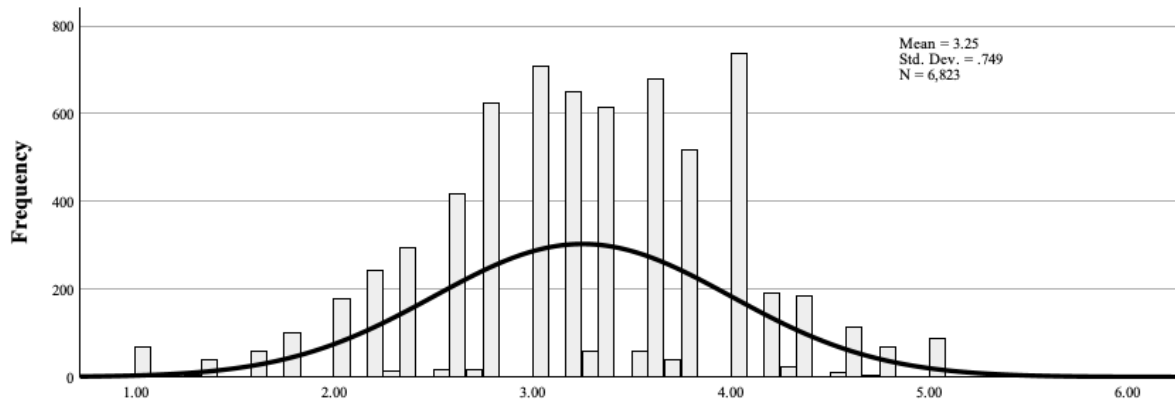


Figure 6.3 Combined corporate office satisfaction graph

A mean of 3.3 and a standard deviation of .749 was found, as can be seen in Table 6.3. Furthermore, a skewness of -.288 was noted. As this value was smaller than -1, it was determined that this variable was suitable for parametric tests.

ICT Facilities

This variable was recoded in order to indicate whether respondents had additional ICT facilities for their home office, corporate office, both offices, or neither of them. Appendix C. includes the recode scheme. Looking at the percentages in Table 6.3 it became clear that over 87% (N = 5753) of the respondents had basic ICT facilities available. This includes a smartphone or work laptop. As all other categories had extremely small percentages, the variable was not used for the bivariate analysis.

6.5. Organizational outcomes

In this section, the descriptive of the variables concerning all organizational outcomes will be discussed. This section is further divided into subsections for each type of organizational outcome.

6.5.1. Individual and team productivity

This Subsection concerns the descriptive analysis of the variables concerning both individual productivity and team productivity. Table 6.4 provides an overview of all the data.

Table 6.4 Descriptive statistics: Individual & team productivity

Individual & team productivity	N	Mean	St. deviation
Individual productivity	7012	3.8330	.62981
Team productivity	6176	5.0572	.86456
Creativity	5648	3.5778	.75746
Collaboration	6087	3.6899	.61247

For all variables, a test of normality was performed. Table 6.5 includes an overview of the resulting data. As can be seen, all variables showed a significance of < 0.05 indicating that the data was not normally distributed. Therefore, only for skewed data, non-parametric tests were used in Chapter 7.

Table 6.5 Test of normality: Individual & team productivity

Individual & team productivity	Shapiro-Wilk statistic	df	Sig.
Individual productivity	.979	4386	$< .001$
Team productivity	.949	4386	$< .001$
Creativity	.961	4386	$< .001$
Collaboration	.970	4386	$< .001$

Individual productivity

A mean individual productivity score on a scale from 1 (= never finish my work on time) to 5 (= always finish my work on time) of 3.83 and a standard deviation of .63 was found, as can be seen in Table 6.4. Figure 6.4 shows the graph of the individual productivity values. Furthermore, a skewness of $-.700$ was noted. Based on this, it was determined that this variable was suitable for parametric tests.

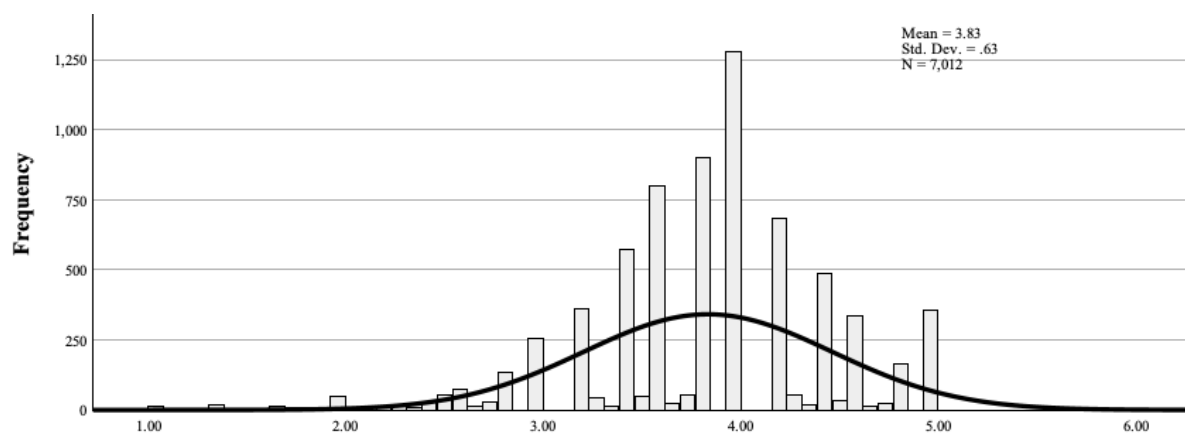


Figure 6.4 Individual productivity graph

Team productivity

A mean team productivity score on a scale from 1 (= strongly disagree) to 7 (= strongly agree) of 5.06 and a standard deviation of .87 was found, as can be seen in Table 6.4. Figure 6.5 shows the graph of the team productivity values. Furthermore, a Kurtosis value of .418 and a Skewness of $-.497$ was noted, indicating that the data is slightly skewed to the left-side. Due to this, it was determined that this variable was suitable for parametric tests.

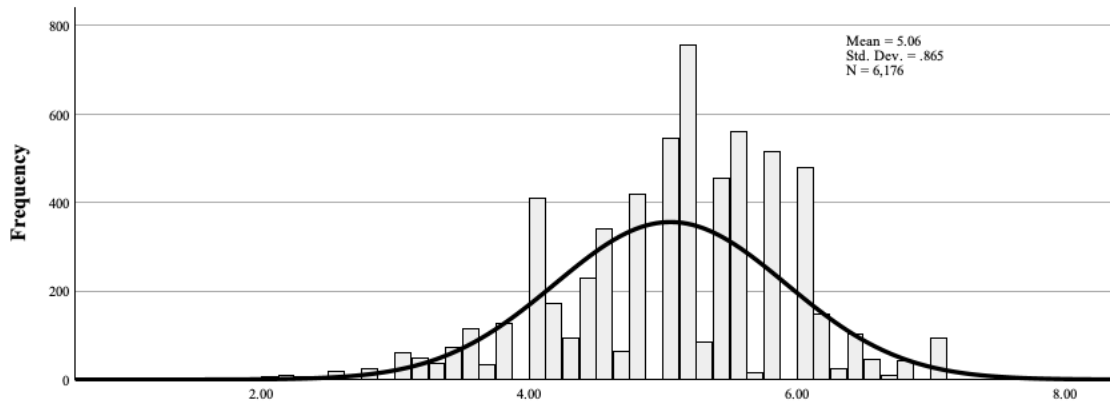


Figure 6.5 Team productivity graph

Creativity

A mean creativity score on a scale from 1 (= extremely bad) to 7 (= extremely good) of 3.58 and a standard deviation of .76 was found, as can be seen in Table 6.4. Figure 6.6 shows the graph of the creativity values. Furthermore, a skewness of $-.843$ was noted. As this value was smaller than -1 , it was determined that this variable was suitable for parametric tests.

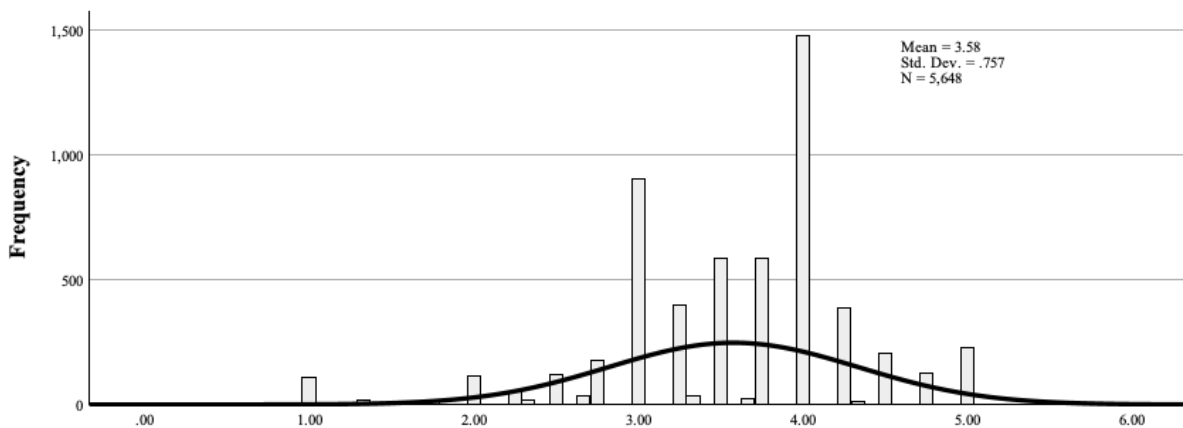


Figure 6.6 Creativity graph

Collaboration

A mean collaboration score on a scale from 1 (= completely disagree) to 5 (= completely agree) of 3.69 and a standard deviation of .61 was found, as can be seen in Table 6.4. Figure 6.7 shows the graph of the collaboration values. Furthermore, a skewness of $-.606$ was noted. Based on this, it was determined that this variable was suitable for parametric tests.

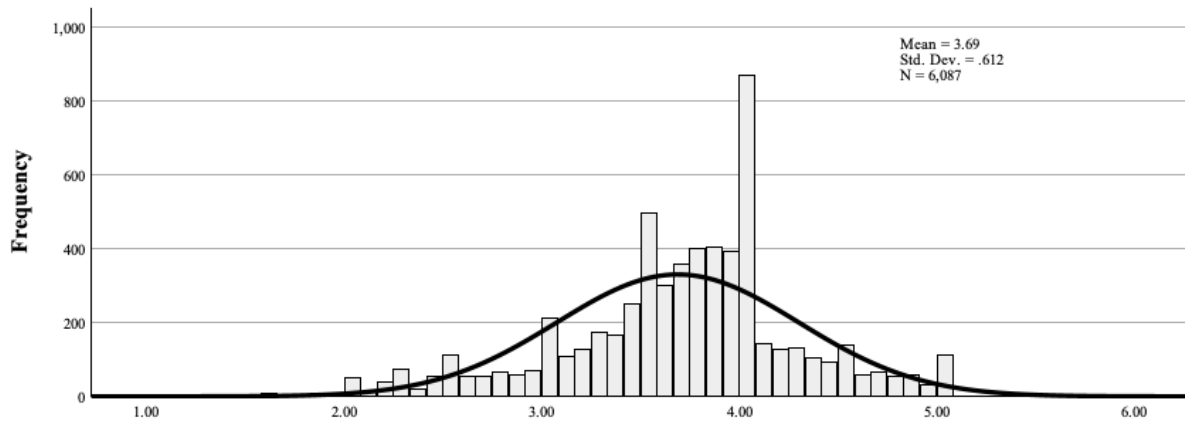


Figure 6.7 Collaboration graph

6.5.2. Organizational identification

A mean organizational identification score on a scale from 1 (= strongly disagree) to 7 (= strongly agree) of 4.82 and a standard deviation of 1.23 was found (N = 6030). Furthermore, a Kurtosis value of .113 and a Skewness of -.658 was noted, indicating that the data is slightly skewed to the right-side. Figure 6.8 shows the graph of the organizational identification values. In addition to this, a test of normality was performed. This resulted in a Shapiro-Wilk statistic of .960 (df = 4386, $p < .001$). As the significance of the test was < 0.05 , the variable was deemed not normally distributed. Nevertheless, taking into account the dataset's skewness and its sample size, it was concluded that parametric tests remained appropriate for this particular variable (Mishra, et al., 2019).

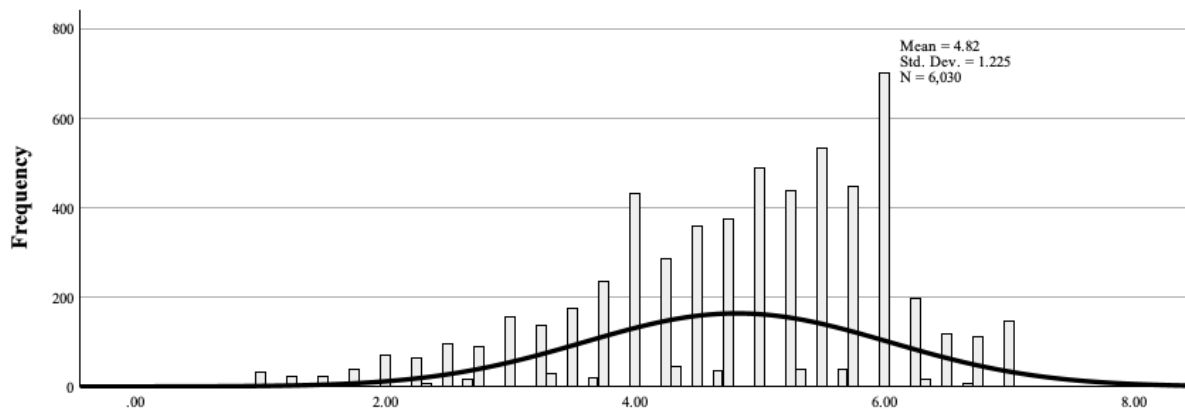


Figure 6.8 Organizational identification graph

6.5.3. Workplace cohesion

A mean workplace cohesion score on a scale from 1 (= strongly disagree) to 7 (= strongly agree) of 4.31, and a standard deviation of .60 was found (N = 6033). Figure 6.9 shows the graph of the workplace cohesion values. Furthermore, a Skewness of -.570 was noted. In addition to this, as test of normality was performed. This resulted in a Shapiro-Wilk statistic of .726 (df = 4386, $p < .001$). As the significance of the test was < 0.05 , the variable was deemed not normally distributed. Nevertheless, considering the dataset's skewness and its sample size, it was concluded that parametric tests remained appropriate for this particular variable.

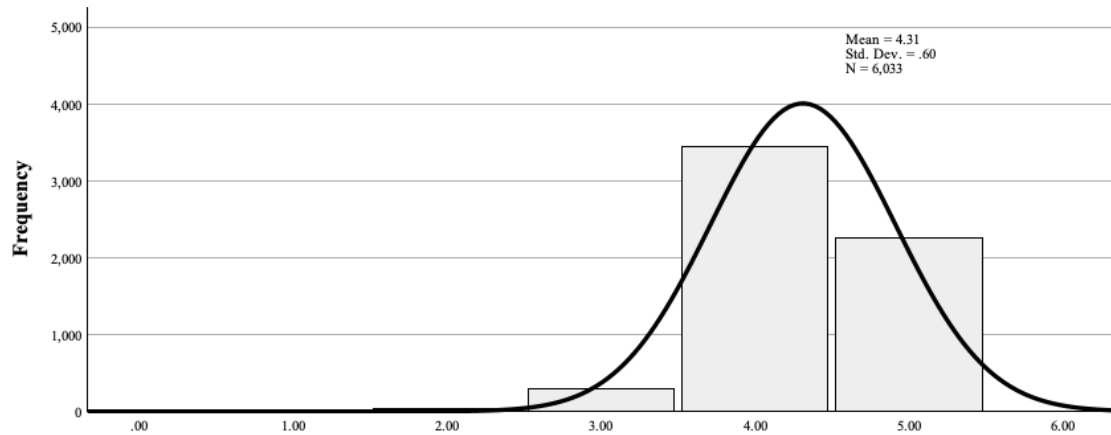


Figure 6.9 Workplace cohesion graph

6.6. Hybrid working modes

This Section concerns the descriptive analysis of the variables concerning Hybrid working modes. Table 6.6 provides an overview of all the data.

Table 6.6 Descriptive statistics: Hybrid working modes

Hybrid working modes		N	Mean	St. deviation
Workplace autonomy		6530	3.9148	.86897
		Frequency	Sample [%]	
Reasons for working at home	Save on commuting time	5138	77.2	
	Better concentration at home	4968	74.7	
	Improved work/life balance	4266	67.8	
	Performing tasks that can't be done in office	2543	38.2	
	Availability of facilities at home	2043	30.7	
	Sustainability	1505	22.6	
	Save on costs	1014	15.2	
Reasons for working in office	Interacting with colleagues	5689	84.3	
	Proximity of colleagues	4738	70.0	
	Meetings (for projects)	3531	52.3	
	Performing tasks that can't be done at home	2140	31.7	
	Availability of facilities in office	1948	28.9	
	Division between work and private	1201	18.8	
	Better concentration in office	416	6.2	
	Saving costs	145	2.1	
Time per location	[1] Office, home, other	558	16.6	
	[2] Office, other, home	183	5.5	
	[3] Home, office, other	1835	54.7	
	[4] Home, other, office	552	16.5	
	[5] Other, office, home	68	2.0	
	[6] Other, home, office	156	4.7	
Day preference	Monday	358	5.5	
	Tuesday	926	14.1	
	Wednesday	914	14.0	
	Thursday	2795	42.7	
	Friday	1306	20.0	
	Weekend	247	3.8	
Time preference	Morning	1114	17.0	
	Afternoon	5432	83.0	

Workplace autonomy

A mean workplace autonomy score on a scale from 1 (= completely disagree) to 5 (= completely agree) of 3.91 and a standard deviation of .87 was found, as can be seen in Table 6.6. Furthermore, a Kurtosis value of 2.062 and a Skewness of -1.190 was noted. Figure 6.10 shows the graph of the workplace autonomy values. In addition to this, a test of normality was performed. This resulted in a Shapiro-Wilk statistic of .960 (df = 4386, $p < .001$). As the significance of the test was $< .05$, the variable was deemed not normally distributed. Due to this, non-parametric tests will be performed on this variable.

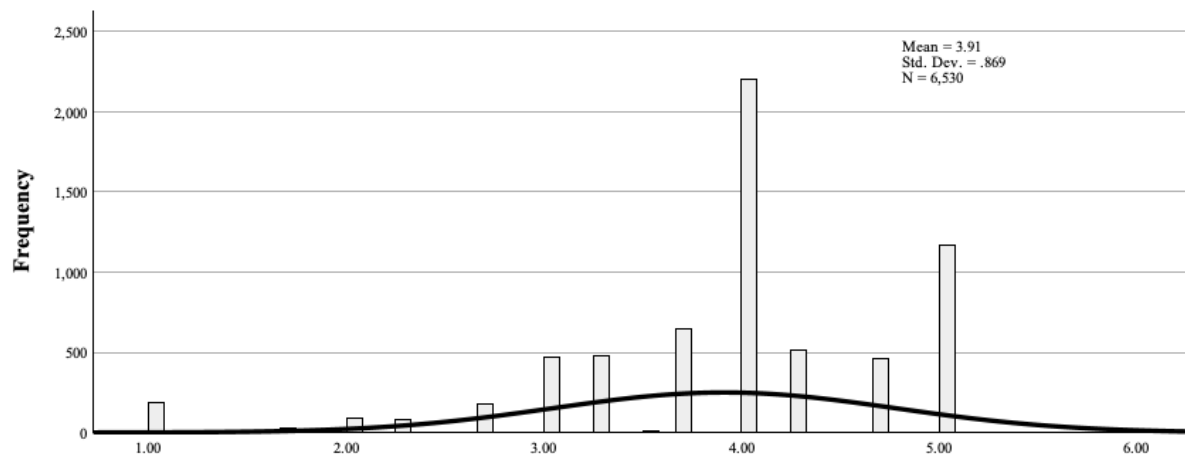


Figure 6.10 Workplace autonomy graph

Time per location

This variable originally had five separate questions that each contained a time percentage for specific locations. This variable was recoded into a new variable in order to combine all five separate questions and indicated a time division for each location. This allows for easier analysis in Chapter 7. Appendix C. includes an overview of the recoding process. As can be seen in Table 6.6 most respondents spend the most time working at home, then in the office and then in other places (54.7%; $N = 1835$). The second most time division (16.6%; $N = 558$) for the time spent is working at the office, then at home and then at other places. The third most popular time division (16.5%; $N = 552$) is where respondents spend the most time at the office, then at other places and the least time at home. The hugely popular time division where the most time is spent at home was expected since the change to WfH or hybrid working since the COVID-19 pandemic. As options [2], [5] and [6] have extremely low frequencies, they were recoded into missing values.

Reasons for working at home

According to the data in Table 6.6, most respondents indicated to work from home in order to save on commuting time (77.2%; $N = 5138$), having a better concentration time at home (74.7%; $N = 4968$) and having an improved work/life balance (67.8%; $N = 4266$). Performing tasks that cannot be done in the office (38.2%; $N = 2543$) and availability of facilities at home (30.7%; $N = 2043$) were indicated by about a third of the respondents. Only a small number of respondents indicated to work from home for sustainability reasons (22.6%; $N = 1505$) or to save on costs (15.2%; $N = 1014$).

Reasons for working in the office

According to the data in Table 6.6, most respondents indicated to work at the office to be able to interact with colleagues (84.3%; $N = 5689$) or to be in proximity of colleagues (70.0%; $N = 4738$). Meetings (for projects) (52.3%; $N = 3531$), performing tasks that cannot be done at home (31.7%; $N = 2140$) and the availability of facilities at the office (28.9%; $N = 1948$) were regularly chosen as reasons as well.

While division between work and private (18.8%; N = 1201), better concentration at the office (6.2%; N = 416) and to save costs (2.1%; N = 145) were only chosen by a small number of respondents.

Day preference

As can be seen in Table 6.6 43% (N = 2795) of the respondents has indicated to have a clear preference for the Thursday as an office day. Other days such as Tuesday, Wednesday, and Friday saw preferences between 15 and 20%, while the Monday has a preference of 5.5% (N = 358). Despite being the closest to the weekend, Friday saw a preference of 20% (N = 1306), which was the second highest.

Time preference

This variable indicates whether respondents preferred to start working in the morning (8 hour – 12 hour) compared to the afternoon (12 hour – 18 hour). Table 6.6 provides a clear image that the respondents preferred the afternoon over the morning as the time to come into the office as 83% indicated to prefer the afternoon and only 17% preferred the morning.

6.7. Conclusion

In this chapter, the dataset was described and compared to the general population of Dutch office workers. After recoding and data-cleaning, the number of valid responses in the current sample was 6,414. It was found that the dataset significantly differed from the CBS data of Dutch office workers as regards age and education. These differences were in line with findings by Hulzebosch et al. (2017), who stated that employees of Dutch governmental organizations tend to be old, male, and highly educated in general. Most variables were found to be roughly normally distributed, except for workplace autonomy. This indicates that all respondents tended to score their workplace towards the higher side.

7. Bivariate analysis

In the previous chapter, a detailed overview of the used data was provided by elaborating on the data of the individual and environmental characteristics, individual and team productivity, organizational identification, workplace cohesion, and hybrid working characteristics. Furthermore, data that needed further recoding for a bivariate analysis was modified.

This chapter aims to uncover the significant relationships between variables. In this study, relationships are considered statistically significant when associated with a p-value of .01 or lower, which is the same as a 99% confidence interval. This was chosen over the usual 95% interval (p-value of .05 or lower) because, given the dataset's size, relationships will become significant more quickly. Additionally, it allows for more confidence that the true value in the population is represented in the interval (University of Southampton. (n.d.), 2014).

The results are presented according to the hypotheses presented in the beginning of Chapter 5. Figure 7.1 represents a graphical overview of the model, including the section numbers corresponding to the tests associated with each set of hypotheses. In Section 7.1. the inter relatibility of the organizational outcomes is tested, which includes hypotheses 1a-c.

Section 7.2. represents the tests associated with hypotheses 2a-c, which concern the correlation between hybrid working and the organizational outcomes. In Section 7.3, the correlations between the antecedents and the organizational outcomes will be discussed (hypotheses 3, 5, and 8) and Section 7.4 focuses on the correlation between the antecedents and hybrid working (hypotheses, 4, 6, and 9). Lastly, in Section 7.5, the correlation between individual characteristics and workplace characteristics as well as job characteristics and workplace characteristics will be elaborated (Hypotheses 7 and 10). Section 7.6 includes as an overview of all the effect sizes of each variable while Section 7.7 and 7.8 include an elaboration on the effect sizes and a brief conclusion of the chapter.

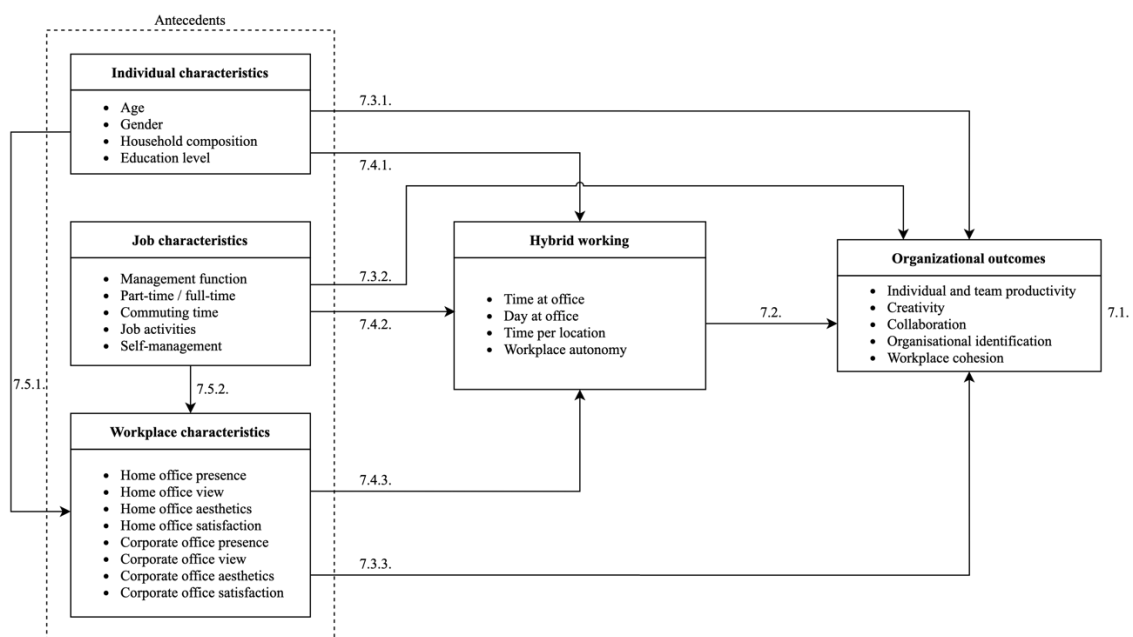


Figure 7.1 Conceptual model including section number for bivariate tests per set of hypotheses

7.1. Organizational outcomes

In this section, the relationships between the various organizational outcomes were tested. The results of these tests were used to answer main research question number V.

V: How do individual employee productivity, team productivity, organizational identification and workplace cohesion relate to each other?

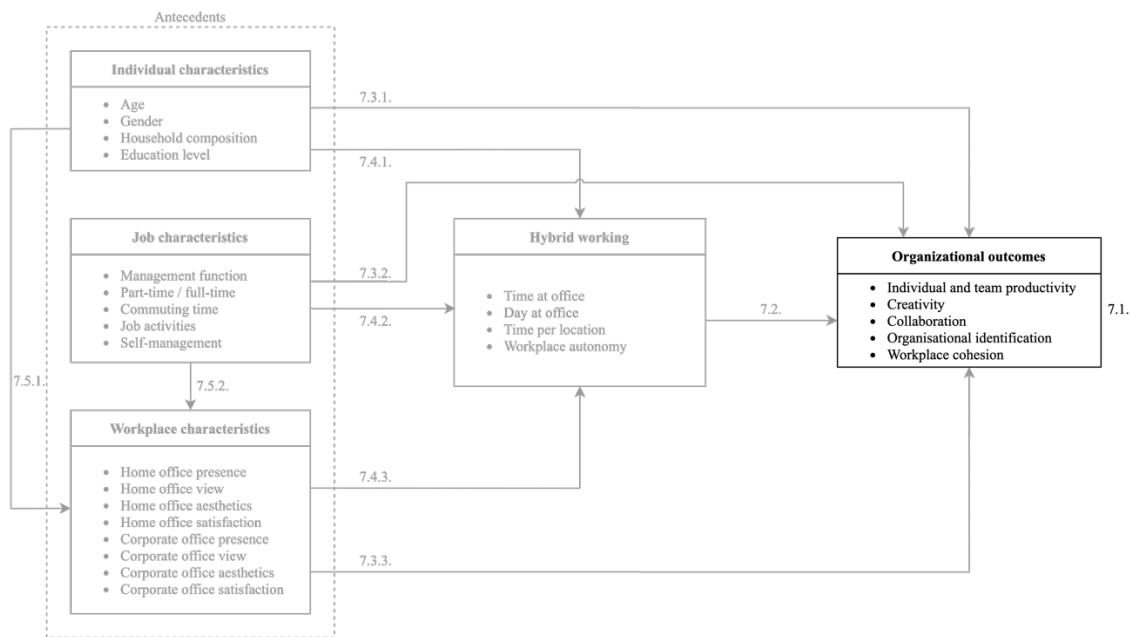


Figure 7.2 Bivariate tests among Organizational outcomes

Figure 7.2 includes a visual overview of the relations tested in this Section. All organizational outcomes were measured on an interval scale with normally distributed data; therefore, all tests were based on Pearson's correlations. The test results, as shown in Table 7.1, indicate that significant relations were found between all organizational outcomes. The largest positive correlation was found between creativity and collaboration, meaning that people scoring themselves high on creativity also indicated high perceived collaboration. Other large significant correlations were found between collaboration and the other organizational outcomes. Thus, people that rated themselves high on collaboration also rated themselves high on individual productivity, organizational identification, and workplace cohesion. Furthermore, high correlations were also found between team productivity and creativity, meaning that people that scored themselves high on team productivity also indicated high perceived creativity.

Table 7.1 Organizational outcomes Pearson results

Independent variable	Individual productivity	Team productivity	Creativity	Collaboration	Organizational identification	Workplace cohesion
<i>Individual productivity</i> sig. (2- tailed)	1	.290** <.001	.290** <.001	.385** <.001	.198** <.001	.193** <.001
<i>Team productivity</i> sig. (2- tailed)	.290** <.001	1	.354** <.001	.369** <.001	.182** <.001	.284** <.001
<i>Creativity</i> sig. (2- tailed)	.290** <.001	.354** <.001	1	.558** <.001	.273** <.001	.297** <.001
<i>Collaboration</i> sig. (2- tailed)	.385** <.001	.369** <.001	.558** <.001	1	.331** <.001	.355** <.001
<i>Organizational identification</i> sig. (2- tailed)	.198** <.001	.182** <.001	.273** <.001	.331** <.001	1	.223** <.001
<i>Workplace cohesion</i> sig. (2- tailed)	.193** <.001	.284** <.001	.297** <.001	.355** <.001	.223** <.001	1

7.2. Hybrid working

In this section, the bivariate analyses that were performed to investigate the relationships between hybrid working and the organizational outcomes are discussed. The variables of hybrid working include a non-normally distributed variable, two nominal variables and a dichotomous variable. The dependent variables (the organizational outcomes) are all measured on an interval scale.

Based on the measurement scales of the independent and dependent variables, the bivariate tests made use of Spearman (for workplace autonomy), One-Way ANOVA and independent t-test tests. Insignificant results were included in grey. Figure 7.3 shows an overview of which part of the model was tested in this section.

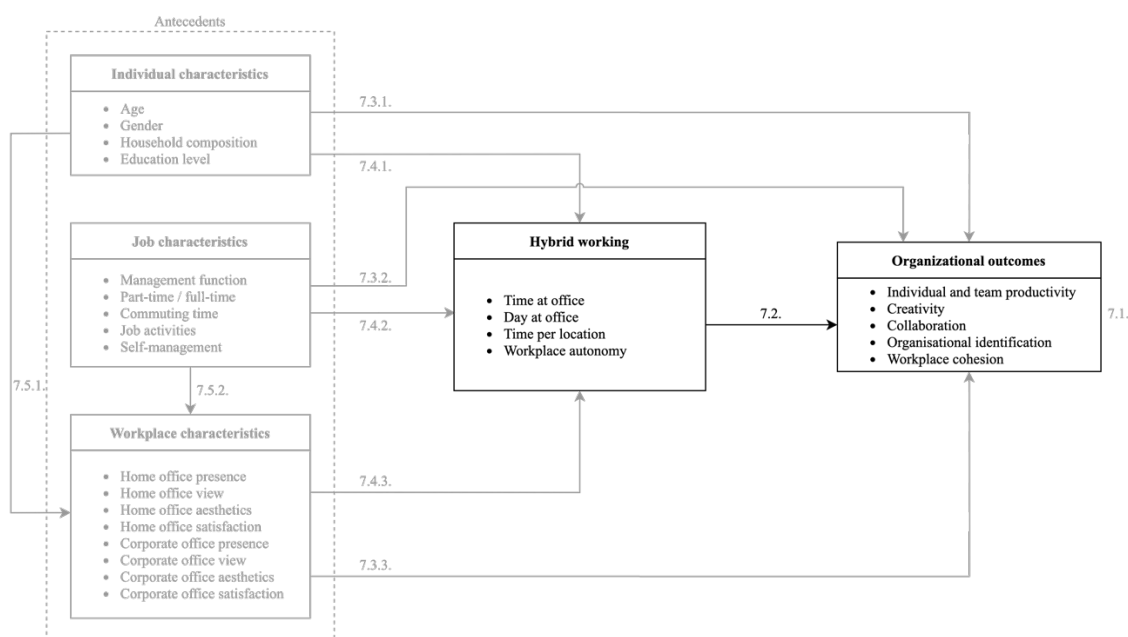


Figure 7.3 Bivariate tests among Hybrid working and Organizational outcomes

To test the correlation between *Workplace autonomy* and the organizational outcomes, Spearman tests were performed. Based on the results of the Spearman tests, included in Table 7.2, it was concluded that *Workplace autonomy* had significant correlations at the .001 level with all organizational outcomes. In all cases, an increase in workplace autonomy also related to an increase in the organizational outcomes. The largest correlation was found for collaboration ($\rho = .207$) while both individual productivity and creativity had a correlation of $\rho = .163$ and $\rho = .170$ respectively. Thus, people that scored themselves higher on workplace autonomy also indicated to have higher perceived individual and team productivity, creativity, collaboration, and workplace cohesion.

Table 7.2 Workplace autonomy and Organizational outcomes Spearman results

<i>Independent variable</i>	<i>Individual productivity</i>	<i>Team productivity</i>	<i>Creativity</i>	<i>Collaboration</i>	<i>Organizational identification</i>	<i>Workplace cohesion</i>
<i>Workplace autonomy</i>	.163**	.135**	.170**	.207**	.140**	.146**
sig. (2- tailed)	<.001	<.001	<.001	<.001	<.001	<.001

** Significant at the 0.00 level (2-tailed)

* Significant at the 0.01 level (2-tailed)

To test the correlation between *Time per location*, (order of time spent at locations) and the organizational outcomes, One-Way ANOVA tests were performed. Table 7.3 includes an overview of the resulting data. The results of the One-Way ANOVA tests showed a significant difference between time per location and individual productivity, team productivity, and organizational identification. Respondents that spent more time at home than at the office also tended to have the highest perceived individual productivity and team productivity. The highest organizational identification was noted among respondents that spent more time at the office than at home with the second highest being among those who spent the second most time at the office.

Table 7.3 Time per location and Organizational outcomes One-Way ANOVA results

<i>Time per location</i>	<i>Individual productivity</i>					<i>Team productivity</i>					<i>Creativity</i>				
	<i>Mean</i>	<i>St. dev.</i>	<i>F</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>St. dev.</i>	<i>F</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>St. dev.</i>	<i>F</i>	<i>Sig.</i>	<i>df</i>
<i>df = 2</i>			7.808	<.001	2904			4.667	.009	2615			2.242	.048	2517
[1] Office, Home, Other	3.779	.523				5.023	.837				3.606	.660			
[2] Home, Office, Other	3.913	.554				5.154	.825				3.652	.655			
[3] Home, Other, Office	3.915	.565				5.133	.883				3.688	.694			

<i>Time per location</i>	<i>Collaboration</i>					<i>Organizational identification</i>					<i>Workplace cohesion</i>				
	<i>Mean</i>	<i>St. dev.</i>	<i>F</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>St. dev.</i>	<i>F</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>St. dev.</i>	<i>F</i>	<i>Sig.</i>	<i>df</i>
<i>df = 2</i>			1.303	.272	2636			8.402	<.001	2722			.185	.831	2730
[1] Office, Home, Other	3.779	.494				4.999	1.142				4.303	.551			
[2] Home, Office, Other	3.768	.531				4.871	1.175				4.317	.597			
[3] Home, Other, Office	3.745	.581				4.695	1.294				4.324	.605			

To test the correlation between *Day preference* (preferred day to work at the office) and the organizational outcomes, One-Way ANOVA tests were performed. Table 7.4 includes an overview of the resulting data. The test results showed that Day preference was found to be significantly correlated to all organizational outcomes except for workplace cohesion. Overall, individuals who displayed a particular preference for specific days tended to report higher values for these outcomes in general. In general, employees who favoured coming into the office on Mondays and Tuesdays tended to report higher perceived individual productivity and team productivity. Noticeably, respondents that preferred to come into office on Fridays also tended to have the lowest perceived team productivity overall. Respondents that preferred to come into office on Wednesdays tended to have noticeably lower collaboration scores in general than those who preferred any of the other days. The highest perceived

organizational identification were found among people who preferred to come into office on Thursdays and Fridays. The opposite results were noted for workplace cohesion, which decreased overall for those who preferred to come into office later in the week.

Table 7.4 Day preference and Organizational outcomes One-Way ANOVA results

Day preference <i>df</i> = 4	Individual productivity					Team productivity					Creativity				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
			122.174	<.001	6357			30.113	<.001	5723			71.931	<.001	5257
Monday	3.937	.645				5.184	.799				3.682	.679			
Tuesday	3.942	.594				5.163	.860				3.651	.720			
Wednesday	3.813	.650				5.047	.866				3.507	.850			
Thursday	3.864	.545				5.103	.837				3.614	.679			
Friday	3.836	.583				4.993	.892				3.585	.695			

Day preference <i>df</i> = 4	Collaboration					Organizational identification					Workplace cohesion				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
			51.851	<.001	5840			18.050	<.001	5771			3.577	.003	5783
Monday	3.727	.575				4.671	1.219				4.374	.644			
Tuesday	3.745	.567				4.690	1.270				4.361	.603			
Wednesday	3.596	.676				4.746	1.206				4.322	.608			
Thursday	3.770	.526				4.900	1.187				4.294	.584			
Friday	3.728	.562				4.936	1.210				4.276	.603			

To test the correlation between *Time preference* and the organizational outcomes, independent t-tests were performed. Table 7.5 includes an overview of the resulting data. The results of the independent t-test revealed that individuals who expressed a preference for morning office hours indicated higher levels of perceived individual productivity.

Table 7.5 Time preference and Organizational outcomes independent t-test results

Time preference	Individual productivity				Team productivity				Creativity			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
		6.277	<.001	6361		-.679	.497	5727		-.451	.652	5261
Morning	3.941				5.043				3.566			
Afternoon	3.810				5.064				3.578			

Time preference	Collaboration				Organizational identification				Workplace cohesion			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
		1.029	.303	5844		-1.382	.167	5775		1.643	.101	5787
Morning	3.709				4.782				4.339			
Afternoon	3.687				4.844				4.303			

7.3. Antecedents and Organizational outcomes

In this section, the bivariate analyses that were performed to investigate the relationships between the three groups of antecedents and the organizational outcomes are discussed. The three groups of antecedents include individual characteristics, job characteristics and workplace characteristics. The dependent variables (the organizational outcomes) are all measured on an interval scale. Figure 7.4 shows an overview of which part of the model was tested in this section.

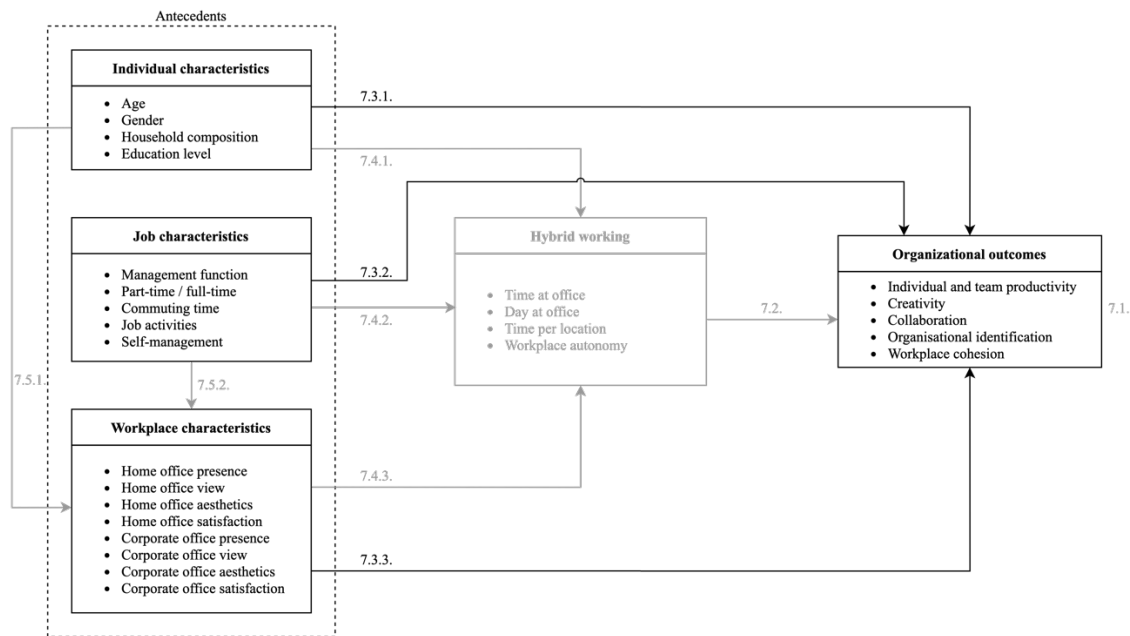


Figure 7.4 Bivariate tests among antecedents and Organizational outcomes

7.3.1. Individual characteristics

In this Subsection, the individual characteristics (*independent variables*) were tested against the organizational outcomes (*dependent variables*).

To test the correlation between *Age* and the organizational outcomes variables, Pearson tests were performed. Table 7.6 includes an overview of the results. The Pearson tests show that *Age* has a significant correlation with all organizational outcomes. Older respondents tended to have higher perceived individual productivity, team productivity, creativity, collaboration, and workplace cohesion. Only the perceived organizational identification showed a tendency to decrease for older respondents. The correlations for organizational identification and workplace cohesions were relatively small while for individual productivity, creativity, and collaboration larger correlations were found.

Table 7.6 Age and Organizational outcomes Pearson results

<i>Independent variable</i>	<i>Individual productivity</i>	<i>Team productivity</i>	<i>Creativity</i>	<i>Collaboration</i>	<i>Organizational identification</i>	<i>Workplace cohesion</i>
<i>Age</i>	.248**	.100**	.190**	.278**	-.045**	.043**
sig. (2- tailed)	<.001	<.001	<.001	<.001	<.001	.001

** Significant at the 0.01 level (2-tailed)

* Significant at the 0.05 level (2-tailed)

To test the correlation between *Gender* and the organizational outcomes, independent t-tests were performed. Table 7.7 includes an overview of the resulting data. The independent t-tests showed that significant differences were found between being a male or female and all organizational outcomes except workplace cohesion. It was found that males tended to experience lower values for all the significant organizational outcomes compared to females.

Table 7.7 Gender and Organizational outcomes independent t-test results

<i>Gender</i>	<i>Individual productivity</i>				<i>Team productivity</i>				<i>Creativity</i>			
	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>
<i>Male</i>	3.860	-3.668	<.001	5986	5.035	-5.521	<.001	5344	3.568	-5.021	<.001	5061
<i>Female</i>	3.915				5.166				3.666			

<i>Gender</i>	<i>Collaboration</i>				<i>Organizational identification</i>				<i>Workplace cohesion</i>			
	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>
<i>Male</i>	3.713	-5.272	<.001	5609	4.775	-4.879	<.001	5787	4.309	-.529	.597	5838
<i>Female</i>	3.792				4.932				4.317			

To assess the correlation between *Household composition* and organizational outcomes, independent t-tests were conducted. Table 7.8 provides a summary of the obtained data. Based on the results of the independent t-test, it was found that respondents with children tended to have slightly higher creativity, collaboration, and organizational identification.

Table 7.8 Household composition and Organizational outcomes independent t-test results

<i>Household composition</i>	<i>Individual productivity</i>				<i>Team productivity</i>				<i>Creativity</i>			
	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>
<i>Children</i>	3.872	.785	.433	6115	5.107	2.141	.032	5483	3.633	3.085	.002	5107
<i>No children</i>	3.860				5.057				3.571			

<i>Household composition</i>	<i>Collaboration</i>				<i>Organizational identification</i>				<i>Workplace cohesion</i>			
	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>	<i>Mean</i>	<i>t-value</i>	<i>Sig.</i>	<i>df</i>
<i>Children</i>	3.778	6.317	<.001	5738	4.906	4.15	<.001	5848	4.298	-1.631	.103	5857
<i>No children</i>	3.682				4.778				4.324			

To test the correlation between *Education level* and the organizational outcomes, One-Way ANOVA tests were performed. Table 7.9 includes an overview of the resulting data. It was found that respondents who attended secondary vocational education and higher professional education or university perceived lower individual productivity and lower workplace cohesion compared to respondents that attended other types of education. For creativity, respondents that attended secondary vocational education were found to have higher means compared to respondents that attended other education. Higher perceived collaboration was found for respondents that attended secondary vocational education and higher professional education or university compared to those who attended other education. It should also be noted, that across all the significant correlations, respondents that attended other types of education tended to have the highest standard deviations among their scores meaning that their perceived scores varied the most.

Table 7.9 Education level and Organizational outcomes One-Way ANOVA results

Education level	Individual productivity					Team productivity					Creativity				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
df = 2			16.310	<.001	6166			3.250	.039	5529			14.552	<.001	5120
Other	3.881	.699				5.023	.935				3.532	.805			
Secondary vocational education	3.880	.562				5.094	.833				3.651	.709			
Higher professional education, University	3.786	.588				5.080	.827				3.539	.733			

Education level	Collaboration					Organizational identification					Workplace cohesion				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
df = 2			19.183	<.001	5791			3.932	.020	5847			11.164	<.001	5851
Other	3.629	.660				4.791	1.267				4.356	.634			
Secondary vocational education	3.747	.564				4.887	1.194				4.321	.591			
Higher professional education, University	3.721	.578				4.800	1.213				4.263	.579			

7.3.2. Job characteristics

In this Subsection, the job characteristics (*independent variables*) were tested against the organizational outcomes (*dependent variables*).

To test the correlation between *Management function* and the organizational outcomes, independent t-tests were performed. Table 7.10 includes an overview of the resulting data. The independent t-tests revealed significant differences in individual productivity, collaboration, organizational identification, and workplace cohesion among respondents having a management function or not. Having a management function was found to result in higher perceived collaboration and organizational identification but lower perceived individual productivity and workplace cohesion.

Table 7.10 Management function and Organizational outcomes independent t-test results

Management function	Individual productivity				Team productivity				Creativity			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
Management function	3.834	-2.561	.010	6639	5.077	-.562	.574	5801	3.558	-2.406	.016	5505
No management function	3.896				5.097				3.633			

Management function	Collaboration				Organizational identification				Workplace cohesion			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
Management function	3.868	5.332	<.001	5728	5.072	4.848	<.001	5884	4.218	-4.119	<.001	5988
No management function	3.751				4.820				4.321			

To test the correlation between *Worked hours* and the organizational outcomes variables, Pearson tests were performed. Table 7.11 includes an overview of the resulting data. The Pearson tests revealed that respondents who worked more hours experienced higher individual productivity, team productivity, creativity, collaboration, and organizational identification.

Table 7.11 Worked hours and Organizational outcomes Pearson results

Independent variable	Individual productivity	Team productivity	Creativity	Collaboration	Organizational identification	Workplace cohesion
Worked hours	.095**	.120**	.074**	.158**	.048**	-.020
sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	.118

** Significant at the 0.01 level (2-tailed)
 * Significant at the 0.05 level (2-tailed)

To assess the correlation between *Part-time / Full-time* and organizational outcomes, independent t-tests were conducted. Table 7.12 provides a summary of the obtained data. Based on the independent t-tests, it was found that respondents that worked part-time experienced lower individual productivity, creativity, collaboration, and organizational identification compared to those who worked full-time. These results were mostly in line with the results of the previous Pearson test between worked hours and the organizational outcomes, except that no significant differences were found between respondents that worked part-time or full-time concerning team productivity.

Table 7.12 *Part-time / Full-time and Organizational outcomes independent t-test results*

Part-time / Full-time	Individual productivity				Team productivity				Creativity			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
		-7.147	<.001	6930		-1.850	.064	6098		-5.083	<.001	5594
Part-time	3.755				5.032				3.500			
Full-time	3.881				5.076				3.621			

Part-time / Full-time	Collaboration				Organizational identification				Workplace cohesion			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
		-11.364	<.001	6017		-3.712	<.001	5979		1.564	.118	5996
Part-time	3.558				4.735				4.330			
Full-time	3.762				4.862				4.304			

To assess the correlation between *Commuting time* and organizational outcomes, One-Way ANOVA tests were conducted. Table 7.13 provides a summary of the obtained data. The One-Way ANOVA tests revealed that respondents who had a short commuting time (<30 minutes) experienced higher individual productivity and collaboration than those who had to travel between 31–60 minutes. Furthermore, respondents that had to travel the longest (>60 minutes) tended to have high perceived individual productivity, creativity, and collaboration and even the highest perceived team productivity. Those who had an average commuting time (31-60 minutes) tended to have the lowest perceived team productivity.

Table 7.13 *Commuting time and Organizational outcomes One-Way ANOVA results*

Commuting time	Individual productivity					Team productivity					Creativity				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
df = 2			16.111	<.001	6990			7.405	<.001	6155			27.517	<.001	5633
0 – 30 minutes	3.876	.5865				5.062	.870				3.563	.710			
31 – 60 minutes	3.787	.6704				5.019	.876				3.518	.819			
> 60 minutes	3.868	.5979				5.126	.832				3.703	.683			

Commuting time	Collaboration					Organizational identification					Workplace cohesion				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
df = 2			36.854	<.001	6065			.964	.382	6013			.130	.878	6018
0 – 30 minutes	3.727	.553				4.851	1.242				4.308	.599			
31 – 60 minutes	3.619	.658				4.800	1.214				4.316	.597			
> 60 minutes	3.777	.579				4.819	1.220				4.310	.608			

To test the correlation between the variable *Management function* and the organizational outcomes, Pearson tests were performed. Table 7.14 includes an overview of the resulting data. Based on the results of the Pearson tests, various correlations were found. The largest correlation was found between general and routine work and individual productivity. Thus, respondents that spent more time doing general and routine work also tended to have higher perceived individual productivity. Furthermore, large correlations were found between concentrated work and individual productivity, team productivity, and collaboration. Thus, people that spent more time doing concentrated work tended to perceive higher individual productivity, team productivity, and collaboration. In addition to this, more large correlations were found between planned meetings and both creativity and collaboration, indicating that people that spent more time in planned meetings also experienced higher perceived

creativity and collaboration. For active collaboration with team members and both creativity and collaboration, large correlations were found as well, showing that respondents that spent more time actively collaborating with team members also tended to have higher perceived creativity and collaboration. The last large correlation was found between unplanned meetings and collaboration, meaning that people that tended to spend more time in unplanned meetings also tended to experience higher collaboration.

Table 7.14 Job activities and Organizational outcomes Pearson results

<i>Job activities</i>	<i>Individual productivity</i>	<i>Team productivity</i>	<i>Creativity</i>	<i>Collaboration</i>	<i>Organizational identification</i>	<i>Workplace cohesion</i>
<i>Concentrated work</i> sig. (2- tailed)	.123** <.001	.034* .010	.076** <.001	.106** <.001	-.054** <.001	.003 .808
<i>General and routine work</i> sig. (2- tailed)	.201** <.001	.017 .182	-.005 .726	.056** <.001	-.038* .005	.024 .074
<i>Planned meetings</i> sig. (2- tailed)	.034* .005	-.009 .509	.128** <.001	.178** <.001	.058** <.001	-.038** .004
<i>Active collaboration with team members</i> sig. (2- tailed)	.060** <.001	.069** <.001	.122** <.001	.229** <.001	.093** <.001	.038* .005
<i>Making phone calls</i> sig. (2- tailed)	.071** <.001	.010 .464	.056** <.001	.007 .616	.031 .025	.015 .273
<i>Unplanned meetings</i> sig. (2- tailed)	-.012 .365	-.046** <.001	.044* .003	.116** <.001	.023 .117	-.045* .002

To test the correlation between *Self-management* and the organizational outcomes, Pearson tests were performed. Table 7.15 includes an overview of the resulting data. Significant correlations were found for all organizational outcomes. Respondents who perceived to have higher perceived self-management skills, also had higher perceived individual productivity, team productivity, creativity, collaboration, and organizational identification. Conversely, respondents who were found to have lower perceived self-management skills had higher perceived workplace cohesion.

Table 7.15 Self-management and Organizational outcomes Pearson results

<i>Independent variable</i>	<i>Individual productivity</i>	<i>Team productivity</i>	<i>Creativity</i>	<i>Collaboration</i>	<i>Organizational identification</i>	<i>Workplace cohesion</i>
<i>Self-management</i> sig. (2- tailed)	.237** <.001	.162** <.001	.275** <.001	.341** <.001	.402** <.001	-.230** <.001

** Significant at the 0.01 level (2-tailed)

* Significant at the 0.05 level (2-tailed)

7.3.3. Workplace characteristics

In this Subsection, the workplace characteristics (*independent variables*) will be tested against the organizational outcomes (*dependent variables*).

To test the correlation between *Home office presence* and the organizational outcomes, independent t-tests were performed. Table 7.16 includes an overview of the resulting data. Based on the independent t-tests, a significant correlation between the presence of a home office and the organizational identification was found. Employees with a dedicated home office perceived higher organizational identification than those without a dedicated home office.

Table 7.16 Home office presence and Organizational outcomes independent t-test results

Home office presence	Individual productivity				Team productivity				Creativity			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
Special home office space	3.866	-.839	.402	6431	5.086	.355	.723	5743	3.614	1.573	.116	5415
Regular space	3.881				5.076				3.576			

Home office presence	Collaboration				Organizational identification				Workplace cohesion			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
Special home office space	3.740	.674	.500	5743	4.857	3.001	.002	5821	4.316	1.146	.252	5890
Regular space	3.727				4.736				4.294			

To assess the correlation between *Home office view* and organizational outcomes, One-Way ANOVA tests were conducted. Table 7.17 provides a summary of the obtained data. It was found that home office view only had significant correlations with individual productivity, team productivity, creativity, and workplace cohesion. Respondents that had a view of nature were found to have higher perceived individual productivity, team productivity, and workplace cohesion. Respondents that had a view of urban structures tended to have slightly lower perceived individual productivity, team productivity, and workplace cohesion while respondents that had no view were found to have the lowest individual productivity, creativity, and workplace cohesion.

Table 7.17 Home office view and Organizational outcomes One-Way ANOVA results

Home office view	Individual productivity					Team productivity					Creativity				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
Nature view	3.921	.541	9.259	<.001	6330	5.117	.858	4.513	.002	5641	3.637	.662	4.680	.009	5377
Urban view	3.885	.552				5.106	.851				3.633	.680			
No view	3.806	.615				4.960	.930				3.528	.744			

Home office view	Collaboration					Organizational identification					Workplace cohesion				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
Nature view	3.769	.546	3.993	.018	5646	4.857	1.241	2.222	.109	5790	4.327	.608	7.297	<.001	5895
Urban view	3.767	.530				4.846	1.200				4.317	.584			
No view	3.528	.594				4.727	1.270				4.212	.661			

To test the correlation between *Home office aesthetics* and the organizational outcomes, One-Way ANOVA tests were performed. Table 7.18 includes an overview of the resulting data. The One-Way ANOVA revealed that respondents that had both vegetation and coloured walls tended to have the highest individual productivity and creativity while respondents that had neither vegetation nor coloured walls perceived the lowest individual productivity and creativity.

Table 7.18 Home office aesthetics and Organizational outcomes One-Way ANOVA results

Home office aesthetics	Individual productivity					Team productivity					Creativity				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
<i>df</i> = 3			4.986	.002	5982			2.002	.111	5337			9.707	<.001	5075
Vegetation	3.894	.532				5.128	.859				3.618	.686			
Colored walls	3.891	.527				5.098	.809				3.649	.644			
Vegetation and colored walls	3.923	.574				5.124	.874				3.685	.683			
None	3.853	.565				5.059	.896				3.557	.686			

Home office aesthetics	Collaboration					Organizational identification					Workplace cohesion				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
<i>df</i> = 3			2.291	.076	5334			1.708	.163	5468			1.023	.381	5557
Vegetation	3.763	.5474				4.835	1.220				4.324	.614			
Colored walls	3.774	.5125				4.920	1.193				4.336	.563			
Vegetation and colored walls	3.786	.539				4.828	1.234				4.311	.616			
None	3.738	.551				4.820	1.203				4.297	.593			

To test the correlation between *Home office satisfaction* and the organizational outcomes, Pearson tests were performed. The combined satisfaction scores were used for the tests, as these represent all individual scores of the home office satisfaction. Table 7.19 includes an overview of the resulting data. Based on the results of the Pearson test, positive relationships between home office satisfaction and all organizational outcomes were found. Meaning that respondents with higher satisfaction of their home office also experience higher scores of all organizational outcomes. The strongest relationships were found among perceived individual productivity, team productivity and collaboration.

Table 7.19 Home office satisfaction and Organizational outcomes Pearson results

Home office satisfaction	Individual productivity	Team productivity	Creativity	Collaboration	Organizational identification	Workplace cohesion
<i>Combined satisfaction</i>	.240**	.154**	.120**	.156**	.090**	.134**
sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001

** Significant at the 0.01 level (2-tailed)

* Significant at the 0.05 level (2-tailed)

The correlation between *Corporate office presence* and the organizational outcomes were assessed via independent t-tests. Table 7.20 provides a summary of the obtained data. The independent t-tests revealed that respondents who had a private workspace at their corporate office tended to have lower perceived individual productivity, creativity, and collaboration than those who had a shared workspace at their corporate office.

Table 7.20 Corporate office presence and Organizational outcomes independent t-test results

Corporate office presence	Individual productivity				Team productivity				Creativity			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
<i>Private workspace</i>		-4.910	<.001	6527		-2.373	.018	5833		-4.524	<.001	5487
Shared workspace	3.727				5.003				3.430			
	3.887				5.092				3.624			

Corporate office presence	Collaboration				Organizational identification				Workplace cohesion			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
<i>Private workspace</i>		-6.444	<.001	5854		-1.637	.102	5937		-1.608	.543	6010
Shared workspace	3.550				4.751				4.296			
	3.757				4.843				4.314			

To assess the correlation between *Corporate office view* and organizational outcomes, One-Way ANOVA tests were conducted. Table 7.21 provides a summary of the obtained data. The One-Way ANOVA revealed that for individual productivity and organizational identification, significant correlations were found. Respondents without a view from their corporate office were found to have higher individual productivity than those with a view. Respondents that had a view of urban structures tended to have higher organizational identifications with respondents that had a view of nature being in second.

Table 7.21 Corporate office view and Organizational outcomes One-Way ANOVA results

Corporate office view	Individual productivity					Team productivity					Creativity				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
<i>df = 2</i>			4.964	.007	6445			1.502	.223	5756			.488	.614	5467
Nature view	3.838	.627				5.037	.840				3.611	.769			
Urban view	3.885	.555				5.101	.861				3.621	.683			
No view	3.941	.584				5.074	.900				3.589	.733			

Corporate office view	Collaboration					Organizational identification					Workplace cohesion				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
<i>df = 2</i>			2.906	.055	5782			8.486	<.001	5914			1.353	.259	6013
Nature view	3.711	.648				4.757	1.331				4.272	.643			
Urban view	3.760	.540				4.867	1.201				4.317	.595			
No view	3.720	.561				4.656	1.303				4.308	.606			

To test the correlation between *Corporate office aesthetics* and the organizational outcomes, One-Way ANOVA tests were performed. Table 7.22 includes an overview of the resulting data. It was found that only organizational identification had a significant relationship with the corporate office aesthetics. Respondents that had both vegetation and coloured walls in their corporate office tended to have the highest perceived organizational identification while respondents that had neither vegetation nor coloured walls were found to have the lowest perceived organizational identification.

Table 7.22 Home office aesthetics and Organizational outcomes One-Way ANOVA results

Corporate office aesthetics	Individual productivity					Team productivity					Creativity				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
<i>df = 3</i>			.862	.460	6167			.953	.414	5504			1.627	.181	5240
Vegetation	3.886	.568				5.089	.865				3.637	.697			
Colored walls	3.890	.552				5.140	.814				3.610	.674			
Vegetation and colored walls	3.878	.542				5.100	.853				3.649	.661			
None	3.905	.565				5.078	.885				3.600	.694			

Corporate office aesthetics	Collaboration					Organizational identification					Workplace cohesion				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
<i>df = 3</i>			1.789	.147	5529			7.492	<.001	5670			1.696	.166	5766
Vegetation	3.723	.552				4.783	1.246				4.285	.626			
Colored walls	3.760	.558				4.909	1.164				4.336	.547			
Vegetation and colored walls	3.767	.518				4.951	1.182				4.327	.588			
None	3.765	.558				4.775	1.250				4.301	.612			

The correlation between *Corporate office satisfaction* and the organizational outcomes were assessed via Pearson tests. Table 7.23 provides a summary of the obtained data. The Pearson tests revealed that respondents with higher corporate office satisfaction tended to have higher collaboration, organizational identification, and workplace cohesion. The strongest relationship was found among the organizational identification.

Table 7.23 Corporate office satisfaction and Organizational outcomes Pearson results

Corporate office satisfaction	Individual productivity	Team productivity	Creativity	Collaboration	Organizational identification	Workplace cohesion
Combined satisfaction sig. (2- tailed)	.003 .811	.017 .190	.034 .011	.080** <.001	.204** <.001	.106** <.001

** Significant at the 0.01 level (2-tailed)

* Significant at the 0.05 level (2-tailed)

7.4. Antecedents and Hybrid working

In this section, the bivariate analyses that were performed to investigate the relationships between the three groups of antecedents and hybrid working are discussed. The three groups of antecedents include individual characteristics, job characteristics and workplace characteristics. Figure 7.5 shows an overview of which part of the model was tested in this section. As not all variables were suited to function as dependent variable, some tests were not performed.

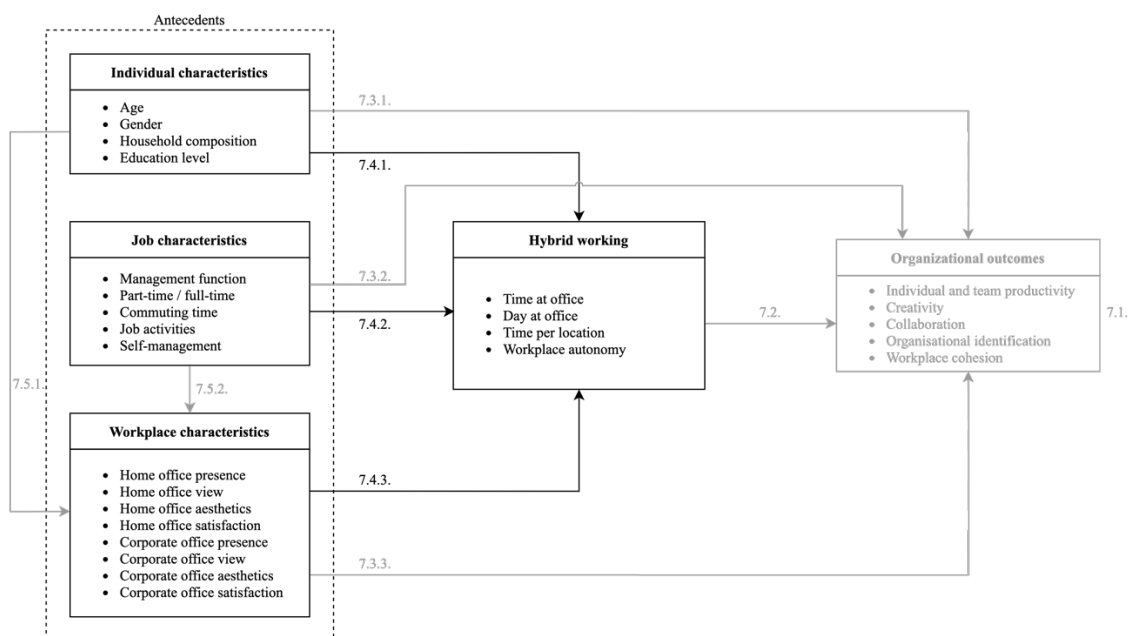


Figure 7.5 Bivariate tests among antecedents and Hybrid working

7.4.1. Individual characteristics

In this Subsection, the individual characteristics (*independent variables*) were tested against hybrid working (*dependent variables*).

To test the correlation between *Age* and *Workplace autonomy*, a Spearman test, was performed. Table 7.24 include an overview of the resulting data. Based on the results of the Spearman test, it was found that age had a positive correlation with workplace autonomy. This showed that respondents of older age rated their workplace autonomy higher than those of younger age.

Table 7.24 Individual characteristics and Hybrid working Spearman results

<i>Independent variable</i>	<i>Workplace autonomy</i>
<i>Age</i>	.071**
sig. (2- tailed)	<.001

To test the correlation between *Gender & Household composition* and the hybrid working variables, Mann-Whitney U tests, and Chi-Square tests were performed. Table 7.25 and Table 7.26 include overviews of the resulting data. Based on the results of the Mann-Whitney U tests, a significant difference between the gender of the respondent and the workplace autonomy was found. Male respondents tended to score higher on perceived workplace autonomy than female respondents.

Table 7.25 Individual characteristics and Hybrid working Mann-Whitney U test results

<i>Independent variable</i>		<i>Workplace autonomy</i>		
		<i>Mean rank</i>	<i>Mann-Whitney U</i>	<i>Sig.</i>
Gender <i>df</i> = 1	<i>Male</i>	3105.23	4158051.500	<.001
	<i>Female</i>	2888.71		
Household composition <i>df</i> = 1	<i>Children</i>	3095.29	4406172.000	.029
	<i>No children</i>	2998.73		

The results of the Chi-Square tests (Appendix E.) showed that male and female respondents both preferred to come into office on Wednesdays and Thursdays. Females however tended to prefer to come into office on Tuesdays to a larger extend than male respondents and male respondents tended to prefer to come into office on Fridays more than female respondents. Furthermore, it was found that respondents that had children tended to have a lower preference to come into office on all weekdays compared to respondents without children. Respondents with or without children were found to prefer starting in the afternoon. Respondents with children however, tended to prefer the afternoon to a larger extend than respondents without children.

Table 7.26 Individual characteristics and Hybrid working Chi-Square results

Independent variable	<i>df</i>	Time per location		Preferred day at office		Preferred time at office	
		χ^2	<i>Sig.</i>	χ^2	<i>Sig.</i>	χ^2	<i>Sig.</i>
<i>Gender</i>	1	7.880	.019	32.511	<.001	4.055	.044
<i>Household composition</i>	1	3.246	.062	74.419	<.001	17.466	<.001

To test the correlation between *Education level* and the hybrid working variables, a Kruskal-Wallis H test, and Chi-Square tests were performed. Table 7.27 and Table 7.28 include overviews of the resulting data. Based on the results of the Kruskal-Wallis H test, respondents that attended Secondary vocational education or higher tended to have higher workplace autonomy scores.

Table 7.27 Individual characteristics and Hybrid working Kruskal-Wallis H test results

<i>Independent variable</i>	<i>Workplace autonomy</i>		
	Mean rank	Kruskal-Wallis H	<i>Sig.</i>
Education level <i>df</i> = 2		78.489	<.001
<i>Other</i>	2742.68		
<i>Secondary vocational education</i>	3187.88		
<i>Higher professional education or University</i>	3157.35		

The results of the Chi-Square tests revealed that respondents that attended Higher professional education or University tended to spend the majority of their time working at the office while those who attended Secondary vocational education or lower were found to spend the most time working at home. Furthermore, the results showed that respondents that attended Secondary vocational education or higher tended to prefer to come into office on Wednesday way more than those who attended high-school or lower. In addition to this, respondents that attended Higher professional education or University tended to have the largest preference to come into the office during the afternoon while those attending high school or lower having the lowest preference for this.

Table 7.28 Individual characteristics and Hybrid working Chi-Square results

Independent variable	df	Time per location		Preferred day at office		Preferred time at office	
		χ^2	Sig.	χ^2	Sig.	χ^2	Sig.
<i>Education level</i>	2	26.087	.004	218.535	<.001	261.253	<.001

7.4.2. Job characteristics

In this Subsection, the job characteristics (*independent variables*) will be tested against hybrid working (*dependent variables*).

To test the correlation between *Management function & Part-time / Full-time* and the hybrid working variables, Mann-Whitney U tests, and Chi-Square tests were performed. Table 7.29 and Table 7.30 includes overviews of the resulting data. The results of the Mann-Whitney U tests indicated that respondents that worked on a part-time basis tended to perceive lower workplace autonomy compared to those who worked full-time. Furthermore, no significant relationship between having a management function and workplace autonomy was found.

Table 7.29 Job characteristics and Hybrid working Mann-Whitney U test results

<i>Independent variable</i>		<i>Mean rank</i>	<i>Workplace autonomy</i>	
			<i>Mann-Whitney U</i>	<i>Sig.</i>
Management function <i>df</i> = 1	<i>Management function</i>	3121.08	1516048.500	.518
	<i>No management function</i>	3173.38		
Part-time / Full-time <i>df</i> = 1	<i>Part-time</i>	2903.52	3844798.00	<.001
	<i>Full-time</i>	3392.30		

The Chi-Squared tests revealed that respondents that are a manager tended to spend more time working at the office compared to those who are not a manager. Furthermore, managers tended to have a larger preference to come into office on Thursdays and Fridays than employees without a management function. In addition to this, managers had a preference to come into office during the afternoon compared to those without a management function. Respondents that worked part-time were found to spend more time at the office compared to those that worked full-time. Employees that worked full-time preferred to come into office on Thursdays and Fridays more so compared to those that worked part-time. Both respondents that worked full-time and part-time tended to prefer to come into office the most on Wednesdays.

Table 7.30 Job characteristics and Hybrid working Chi-Square results

<i>Independent variable</i>	<i>df</i>	<i>Time per location</i>		<i>Preferred day at office</i>		<i>Preferred time at office</i>	
		χ^2	<i>Sig.</i>	χ^2	<i>Sig.</i>	χ^2	<i>Sig.</i>
<i>Management function</i>	1	218.078	<.001	72.580	<.001	9.100	.003
<i>Part-time / Full-time</i>	1	15.523	.008	313.401	<.001	2.588	.108

To test the correlation between *Worked hours* and the hybrid working variables, a Spearman test was performed. Table 7.31 includes an overview of the resulting data. The Spearman test revealed that respondents that worked more hours also tended to perceive higher workplace autonomy.

Table 7.31 Job characteristics and Hybrid working Spearman results

<i>Independent variable</i>	<i>Workplace autonomy</i>
<i>Worked hours</i> sig. (2-tailed)	.149** <.001

To test the correlation between *Commuting time* and the hybrid working variables, a Kruskal-Wallis H test and Chi-Square tests were performed. Table 7.32, and Table 7.33 includes overviews of the resulting data. Based on the Kruskal-Wallis H test, it was found that respondents with a short travel time tended to have the highest perceived workplace autonomy. Respondents with the longest travel time (> 60 minutes) tended to have a higher perceived workplace autonomy than those with a travel time between 31 – 60 minutes.

Table 7.32 Job characteristics and Hybrid working Kruskal-Wallis H test results

<i>Independent variable</i>	<i>Workplace autonomy</i>		
	<i>Mean rank</i>	<i>Kruskal-Wallis H</i>	<i>Sig.</i>
Commuting time <i>df</i> = 2		12.664	.002
0 – 30 minutes	3360.88		
31 – 60 minutes	3174.04		
> 60 minutes	3268.04		

The results of the Chi-Square tests revealed that respondents with a short to average commuting time tended to spend the most time in their home office, then in the corporate office and lastly at other places. Furthermore, it was found that respondents preferred to work in the office on Thursdays, if their commuting time was short, Fridays were more likely to be preferred. For those who had to travel an average amount (31 – 60 minutes), Thursdays were slightly less preferred compared to those who had to travel either shorter or longer to work. Respondents with a longer commuting time tended to prefer to start their working day in the afternoon rather than in the morning.

Table 7.33 Job characteristics and Hybrid working Chi-Square results

<i>Independent variable</i>	<i>df</i>	<i>Time per location</i>		<i>Preferred day at office</i>		<i>Preferred time at office</i>	
		χ^2	<i>Sig.</i>	χ^2	<i>Sig.</i>	χ^2	<i>Sig.</i>
<i>Commuting time</i>	2	120.306	<.001	132.879	<.001	32.457	<.001

To test the correlation between *Self-management* and the hybrid working variables, a Spearman test was performed. Table 7.34 includes an overview of the resulting data. The test results revealed that respondents who rated their self-management skills higher, also scored higher on perceived workplace autonomy.

Table 7.34 Job characteristics and Hybrid working Spearman results

<i>Independent variable</i>	<i>Workplace autonomy</i>
<i>Self-management</i> sig. (2- tailed)	.303** <.001

7.4.3. Workplace characteristics

In this Subsection, the workplace characteristics (*independent variables*) will be tested against hybrid working (*dependent variables*).

To test the correlation between *Home & Corporate office presence* and the hybrid working variables, Mann-Whitney U tests and Chi-Square tests were performed. Table 7.35, and Table 7.36 includes overviews of the resulting data. The results of the tests indicated that respondents that had a dedicated workplace at home experienced higher workplace autonomy than those without a dedicated home office. Furthermore, respondents with a private workspace at the corporate office tended to have lower perceived workplace autonomy than those who had a shared workspace.

Table 7.35 Workplace characteristics and Hybrid working Mann-Whitney U test results

<i>Independent variable</i>	<i>Workplace autonomy</i>		
	<i>Mean rank</i>	<i>Mann-Whitney U</i>	<i>Sig.</i>
Home office presence <i>df</i> = 1		3032666.500	.007
	<i>Special home office space</i>	3177.96	
	<i>Regular space</i>	3028.97	
Corporate office presence <i>df</i> = 1		1452371.500	<.001
	<i>Private workspace</i>	2845.50	
	<i>Shared workspace</i>	3236.09	

The Chi-Square tests, shown in Table 7.36, revealed that respondents who had a dedicated home office tended to spend more time working at home than in the office. For respondents that did not have a dedicated workplace in the office, more time was spent working at home compared to the office. Those who did not have a dedicated workplace at home tended to prefer to come into the office on Fridays more than those who did have a dedicated home-workplace. People who had their own private workplace at the corporate office tended to have a lower preference to come into the office on Thursdays than those who did have a shared workspace. Respondents that had a dedicated workplace at home tended to prefer to come into the office during the afternoon more than those who did not have a dedicated home office. For respondents that did not have a private workplace at the corporate office, the preference to come in at the afternoon was higher than for those who did have a private workplace.

Table 7.36 Workplace characteristics and Hybrid working Chi-Square results

<i>Independent variable</i>	<i>df</i>	<i>Time per location</i>		<i>Preferred day at office</i>		<i>Preferred time at office</i>	
		χ^2	<i>Sig.</i>	χ^2	<i>Sig.</i>	χ^2	<i>Sig.</i>
<i>Home office presence</i>	5	85.508	<.001	52.300	<.001	19.548	<.001
<i>Corporate office presence</i>	3	76.423	<.001	424.606	<.001	9.505	.002

To test the correlation between *Home & Corporate office view and aesthetics* and the hybrid working variables, Kruskal-Wallis H tests and Chi-Square tests were performed. Table 7.37 and Table 7.38 includes overviews of the resulting data. The Kruskal-Wallis H tests revealed that respondents that had both vegetation and coloured walls in their corporate office tended to perceive higher workplace autonomy than those who did have vegetation or coloured walls in their corporate office. Respondents that had neither in their corporate office tended to perceive the lowest workplace autonomy.

Table 7.37 Workplace characteristics and Hybrid working Kruskal-Wallis H test results

Independent variable	Workplace autonomy		
	Mean rank	Kruskal-Wallis H	Sig.
Home office view <i>df</i> = 2		8.107	.017
	Nature view	3168.58	
	Urban view	3118.25	
	No view	2918.59	
Home office aesthetics <i>df</i> = 2		7.773	.051
	Vegetation	2876.23	
	Colored walls	3004.47	
	Vegetation & colored walls	2992.39	
	None	2877.52	
Corporate office view <i>df</i> = 2		8.491	.014
	Nature view	3129.96	
	Urban view	3222.62	
	No view	3006.00	
Corporate office aesthetics <i>df</i> = 2		26.371	<.001
	Vegetation	2968.95	
	Colored walls	3128.10	
	Vegetation & colored walls	3233.24	
	None	2968.52	

Based on the results of the Chi-Square tests, it was found that employees with a view of nature had a higher preference to come into the office on Monday, Tuesday, and Wednesday. Those without a view had the lowest preference to come into the office on those days but had the highest preference to come into the office on Thursdays and Fridays. Employees with vegetation and coloured walls in their corporate office were found to spend the most time at home, while those who only had vegetation spending the second most time at home. Furthermore, respondents with vegetation, coloured walls, or both at their corporate office tended to prefer to come into office more on Mondays and Thursdays compared to those without any special aesthetics at their corporate office.

Table 7.38 Workplace characteristics and Hybrid working Chi-Square results

Independent variable	<i>df</i>	Time per location		Day preference		Time preference	
		χ^2	Sig.	χ^2	Sig.	χ^2	Sig.
Home office view	3	16.169	.095	24.639	.006	7.042	.030
Home office aesthetics	4	5.366	.498	24.341	.060	5.612	.132
Corporate office view	3	22.506	.013	21.800	.016	2.223	.329
Corporate office aesthetics	4	17.767	.007	31.139	.006	2.798	.424

To test the correlation between *Home & Corporate office satisfaction* and the hybrid working variables, Spearman tests were performed. Table 7.39 includes an overview of the resulting data. Based on the results of the Spearman tests, it was found that respondents that noted higher satisfaction with both the home office satisfaction and the corporate office satisfaction also noted higher workplace autonomy. For the corporate office satisfaction, the same results were found but with a larger correlation.

Table 7.39 Age and Hybrid working Spearman results

Independent variable	Workplace autonomy
Home office satisfaction	.087**
sig. (2-tailed)	<.001
Corporate office satisfaction	.132**
sig. (2-tailed)	<.001

7.5. Antecedents

In this section, the bivariate analyses that were performed to investigate the relationships among the three groups of antecedents are discussed. The three groups of antecedents include individual characteristics, job characteristics and workplace characteristics. Figure 7.6 shows an overview of which part of the model was tested in this section.

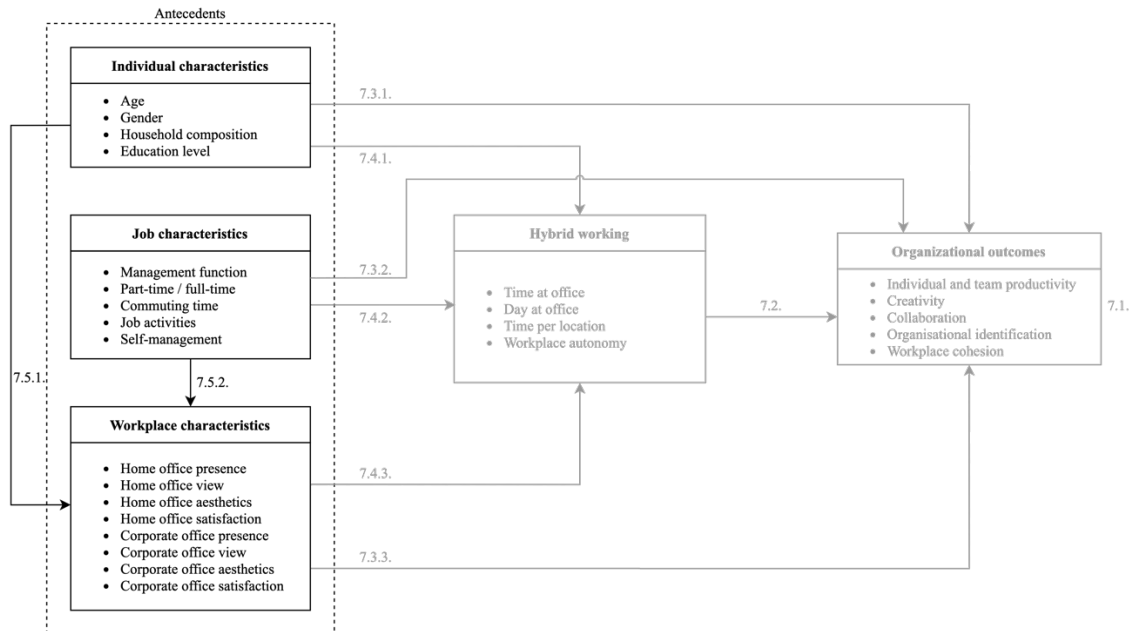


Figure 7.6 Bivariate tests among antecedents

7.5.1. Individual characteristics and Workplace characteristics

In this Subsection, the individual characteristics (*independent variables*) were tested against the workplace characteristics (*dependent variables*).

To test the correlations between the variable *Age* and the Workplace characteristics, Pearson tests were performed. Table 7.40 includes an overview of the resulting data. Based on the results of the Pearson tests, a significant correlation was found between age and both home office satisfaction and corporate office satisfaction. Respondents of older age tended to have a higher perceived home office satisfaction, but a slightly lower perceived corporate office satisfaction.

Table 7.40 Age and Hybrid working Pearson results

Independent variable	Home office satisfaction	Corporate office satisfaction
<i>Age</i>	.173**	-.063**
sig. (2- tailed)	<.001	<.001

The correlation between the other individual characteristics and the Workplace characteristics was done by performing Chi-Square tests, independent t-tests, and One-Way ANOVA tests. Table 7.41, Table 7.42, and Table 7.43 includes overviews of the resulting data. It was found that male respondents tended to have a dedicated home office more often than female respondents. In addition to this, male respondents were more likely to have an urban view compared to female respondents. Furthermore, male respondents were more likely to have neither coloured walls nor vegetation compared to female

respondents while female respondents were more likely to have vegetation in their home office than male respondents. Male respondents tended to have an urban view from their corporate office more often than female respondents. For the corporate office aesthetics, female respondents were slightly more likely to have vegetation in their office than male respondents. Respondents with no children were more likely to have a view of nature for their home office than those without children. Furthermore, respondents without children were slightly more likely to have neither vegetation nor coloured walls than respondents with children. Both respondents with and without children tended to not have a dedicated workplace in the corporate office. In addition to this, employees with a higher education or university degree tended to have a dedicated workspace at home more often than those with a different education level. They were also found to be the least likely to have a view of nature, but the most likely to have an urban view. Respondents with a higher education or university degree had vegetation or coloured walls in their home office more often than those with other education levels. Furthermore, employees with a higher education or university degree were the least likely to having a private workspace at the corporate office. They also tended to have an urban view more often than those with other education levels.

Table 7.41 Individual characteristics and Workplace characteristics Chi-Square results

Independent variable	df	Home office presence		Home office view		Home office aesthetics		Corporate office presence		Corporate office view		Corporate office aesthetics	
		χ^2	Sig.	χ^2	Sig.	χ^2	Sig.	χ^2	Sig.	χ^2	Sig.	χ^2	Sig.
Gender	1	2.449	.118	16.444	<.001	62.162	<.001	1.254	.263	26.779	<.001	25.014	<.001
Household composition	1	1.388	.239	28.346	<.001	53.943	<.001	15.742	<.001	3.735	.155	.466	.962
Education level	2	31.899	<.001	25.049	<.001	23.300	<.001	77.960	<.001	44.654	<.001	15.893	.014

The relationship between *Gender & Household composition* and the organizational outcomes was assessed. Via independent t-tests. Table 7.42 provides a summary of the obtained data. Based on the results of the independent t-tests, significant differences were found between gender and both perceived home office satisfaction and corporate office satisfaction. Males were found to perceive lower home office satisfaction, but higher corporate office satisfaction. For household composition, no significant differences were found with both perceived home office satisfaction and corporate office satisfaction.

Table 7.42 Individual characteristics and Workplace characteristics independent t-test results

Independent variable	Home office satisfaction				Corporate office satisfaction			
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df
Gender df = 1								
Male	4.248				3.354			
Female	4.346				3.130			
Household composition df = 1								
Children	4.265				3.256			
No children	5.293				3.254			

Based on the results of the One-Way ANOVA, it was found that respondents with higher education (*Secondary vocational education or Higher professional education or University*) had a lower perceived home office satisfaction compared to those who attended other types of education. The opposite results were found for corporate office satisfaction, where higher education levels resulted in higher perceived corporate office satisfaction.

Table 7.43 Home office aesthetics and Organizational outcomes One-Way ANOVA results

Education level	Home office satisfaction				Corporate office satisfaction			
	Mean	St. dev.	F	Sig.	Mean	St. dev.	F	Sig.
df = 3			31.218	<.001			36.632	<.001
df				6115				6243
Highschool or lower	4.351	.640			3.147	.755		
Secondary vocational education	4.309	.669			3.267	.731		
Higher professional education or University	4.186	.717			3.351	.746		

7.5.2. Job characteristics and Workplace characteristics

In this Subsection, the job characteristics (*independent variables*) were tested against the workplace characteristics (*dependent variables*).

To test the correlations between the variables of *Management function*, *part-time/full-time*, and *commuting time*, and the Workplace characteristics, Chi-Square tests, independent t-tests, and One-Way ANOVA tests were performed. Table 7.44, Table 7.45, and Table 7.46 includes overviews of the resulting data. Respondents without a management function were found to be more likely to have neither vegetation nor coloured walls in their corporate office. Furthermore, it was found that respondents with a full-time contract were more likely to have neither vegetation nor coloured walls in their home office, while respondents with a part-time contract tended to be more likely to have both vegetation and coloured walls in their home office. It was also found that respondents with a full-time contract were more likely to have an urban view and less likely to have a view of nature for their home office than those who worked part-time. In addition to this, part-time employees were more likely to have their own workplace in the office than those who worked full-time. It was also found that part-time employees were more likely to have vegetation in their corporate office while full-time employees were more likely to have coloured walls in their corporate office. Respondents who had to travel less than 30 minutes were less likely to have a dedicated home office. They furthermore tended to be more likely to have an urban view while those who had to travel longer (31 – 60 minutes and > 60 minutes) were more likely to have a view of nature compared to those whose travel time was 30 minutes or less. The test also revealed that respondents that had to travel 60 minutes or more were less likely to have a dedicated workplace at the office compared to those who had to commute shorter.

Table 7.44 Individual characteristics and Hybrid working Chi-Square results

Independent variable	df	Home office presence		Home office view		Home office aesthetics		Corporate office presence		Corporate office view		Corporate office aesthetics	
		χ^2	Sig.	χ^2	Sig.	χ^2	Sig.	χ^2	Sig.	χ^2	Sig.	χ^2	Sig.
Management function	2	.624	.430	2.366	.306	10.770	.013	4.865	.027	1.169	.557	21.619	<.001
Part-time / Full-time	2	.808	.369	18.523	<.001	14.283	.003	39.661	<.001	9.752	.008	19.376	<.001
Commuting time	3	27.789	<.001	18.501	<.001	16.069	.013	29.399	<.001	1.566	.815	5.169	.522

Based on the results of the independent t-tests, it was found that respondents that worked full-time perceived their corporate office satisfaction higher than those who worked part-time.

Table 7.45 Individual characteristics and Workplace characteristics independent t-test results

Independent variable	Home office satisfaction				Corporate office satisfaction				
	Mean	t-value	Sig.	df	Mean	t-value	Sig.	df	
Management function	Manager	4.241	-1.910	.028	6343	3.274	.897	.158	6425
	Not a manager	4.298				3.244			
Part-time / full-time	Part-time	4.309	2.508	.012	6655	3.219	-2.690	.007	6742
	Full-time	4.264				3.271			

Results of the One-way ANOVA tests showed that respondents who had longer commuting times tended to have higher home office satisfaction than those who had shorter commuting times.

Table 7.46 Individual characteristics and Workplace characteristics One-Way ANOVA results

Commuting time df = 2	Home office satisfaction					Corporate office satisfaction				
	Mean	St. dev.	F	Sig.	df	Mean	St. dev.	F	Sig.	df
0 – 30 minutes	4.245	.704	5.603	.004	6710	3.248	.762	.146	.864	6801
31 – 60 minutes	4.278	.682				3.258	.743			
> 60 minutes	4.321	.669				3.258	.741			

To test the correlations between the variable of *Self-management* and Workplace characteristics, Pearson tests were performed. Table 7.47 includes an overview of the resulting data. The tests showed that *Self-management* was positively correlated with both home office satisfaction and corporate office satisfaction, indicating that respondents with higher perceived self-management skills tended to have both higher perceived home office satisfaction and perceived corporate office satisfaction.

Table 7.47 Age and Hybrid working Pearson results

Independent variable	Home office satisfaction	Corporate office satisfaction
<i>Self-management</i> sig. (2- tailed)	.161** <.001	.123** <.001

7.6. Effect sizes

The relationships depicted in Table 7.48 signify the magnitude of the various relationships within the model, with coloured effect size estimates denoting stronger relationships as elucidated in the legend. First, several substantial relationships were found among the organizational outcomes. Noticeably, substantial relationships were found among team productivity and both creativity and collaboration. Individual productivity and creativity were found to have a strong relationship too. In addition to this, collaboration was found to have a strong relationship with both organizational identification and workplace cohesion. Noticeably, all found relationships were positive, meaning that all organizational outcomes strengthen each other.

Self-management played a substantial role in the creativity, collaboration, and organizational identification, as well as workplace autonomy. Autonomy as well as creativity, collaboration, and organizational identification increased with higher perceived self-management skills.

Having a shared workspace in the corporate office instead of a private workplace had a significant contribution to the preferred day to come into the office, the amount of time spent per location, and individual productivity, creativity and collaboration. Having a shared workspace increased individual productivity, creativity, and collaboration. Those who have a shared workspace at the corporate office were found to prefer working at the office on Mondays and Thursdays compared to those with a private workspace. Employees that had a shared workspace at the office also were found to spend more time working from home compared to those that had a private workspace.

Workplace autonomy also played a significant role in some of the organizational outcomes, with the perceived individual productivity, creativity and collaboration increasing with higher perceived workplace autonomy.

Having a management function was found to relate to a different perception of some of the organizational outcomes as well as the amount of time spent working from home or at the office, with managers perceiving their collaboration and organizational identification higher, but their workplace cohesion lower than those without a management function. In addition to this, managers were found spending more time working at the office compared to those without a management function.

The age of employees was found to have a role in the perception of their collaboration, individual productivity, creativity, and the satisfaction with the home office, as older employees perceived higher values.

Working part-time or full-time was found to play a substantial role in the preferred day to come into the office, individual productivity, creativity, and collaboration. Part-time working employees perceived lower individual productivity, creativity, and collaboration than full-time working employees. Part-time employees also showed a larger preference to come into office on Mondays, Tuesdays, and Wednesdays, while full-time employees showed a larger preference to come into the office on Thursdays and Fridays.

The satisfaction with the home office played a significant role in some of the organizational outcomes, with individual productivity, team productivity, and collaboration increasing for higher perceived home office satisfaction.

Males were found to have higher corporate office satisfaction compared to females. Furthermore, female employees perceived higher team productivity compared to their male counterparts.

Lastly, those who preferred to come into the office in the morning generally perceived higher individual productivity than those who preferred to come into the office during the afternoon.

Many of the other relationships were significant but weak, however, this is common among studies regarding social and behavioural sciences to find less robust results (Sanbonmatsu, Cooley, & Butner, 2021). Another explanation for this is that, with very large samples, small differences tend to transform into statistically significant differences, even when they are clinically insignificant (Faber & Fonseca, 2014).

Table 7.48 Effect sizes overview

	Individual characteristics				Job characteristics						Workplace characteristics								Hybrid working						Organizational outcomes							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Individual characteristics	1 Age	1																														
	2 Gender		1																													
	3 Household composition			1																												
	4 Education level				1																											
Job characteristics	5 Management function				1																											
	6 Worked hours					1																										
	7 Part-time / Full-time						1																									
	8 Commuting time							1																								
	9 Job activities								1																							
	10 Self-management									1																						
Workplace characteristics	11 Home office presence		-	-	.073**	-	-	.065**			1																					
	12 Home office view		.053**	.069**	.065**	-	.054**	.054**				1																				
	13 Home office aesthetics		.106**	.098**	.065**	-	.049*	-					1																			
	14 Home office satisfaction	.173**	-.147**	-	.010**			.002*		.161**				1																		
	15 Corporate office presence		-	-.051**	.113**	-	.077**	.066**							1																	
	16 Corporate office view		.067**	-	.086**	-	-	-								1																
	17 Corporate office aesthetics		.066**	-	-	.059**	.056**	-										1														
	18 Corporate office satisfaction	-.063**	.302**	-	.012**	-	-.069*	-		.123**									1													
	19 Preferred time at office		-	-.054**	.208**	.038*	-	.071**			-.056**	-	-	.039*	-	-	-	-	1													
Hybrid working	20 Preferred day at office		.074**	.112**	.134**	.109**	.220**	.101**		.092**	.045*	-	.260**	-	.042*				1													
	21 Time per location		-	-	.064*	.256**	.054*	.134**		.161**	-	-	.151**	-	.056*					1												
	22 Workplace autonomy	.071**	-.004**	-	.001**	-	.149**	.016**	.002*		.303**	.001*	-	.087**	.004**	-	.004**	.132**				1										
	23 Reasons for working at home																						1									
	24 Reasons for working at the office																								1							
Organizational outcomes	25 Individual productivity	.284**	-.095**	-	.005**	-.113*	.095**	-.203**	.005**		.237**	-	.003**	.003*	.240**	-.274**	-.026*	-	-.210**	.088**	.009**	.163**			1							
	26 Team productivity	.100**	-.152**	-	.004**	-	.120**	-	.002**		.162**	-	.002**	-	.154**	-	-	-	-.026**	.004*	.135**				.290**	1						
	27 Creativity	.190**	-.141**	.087*	.006**	-	.074**	-.163**	.010**		.275**	-.002*	.006**	.120**	-.275**	-	-	-	-.064**	-	.170**				.290**	.354**	1					
	28 Collaboration	.278**	-.142**	.166**	.007**	.217**	.158**	-.342**	.012**		.341**	-	-	.156**	-.367**	-	.002*	.080**	-	.120**	-	.207**				.385**	.369**	.558**	1			
	29 Organizational identification	-.045**	-.129**	.105**	-	.207**	.048**	-.104**	-		.402**	.099*	-	.090**	-	.003**	.004**	.204**	-	.011**	.006**	.140**				.198**	.182**	.273**	.331**	1		
	30 Workplace cohesion	.043**	-	-	.004**	-.171**	-	-	-		-.230**	-	.002**	-	.134**	-	-	-	.106**	-	.003**	-	.146**				.193**	.284**	.297**	.355**	.223**	1

** Significant at the 0.00 level (2-tailed)

* Significant at the 0.01 level (2-tailed)

	job activities					
	9a	9b	9c	9d	9e	9f
25 Individual productivity	.123**	.201**	.034*	.060**	.071**	-
26 Team productivity	-	.034*	-	.069**	-	-.046**
27 Creativity	.076**	-	.128**	.122**	.056**	.044**
28 Collaboration	.106**	.056**	.178**	.229**	-	.116**
29 Organizational identification	-.054**	-.038**	.058**	.093**	-	-
30 Workplace cohesion	-	-	-.038**	.038**	-	-.045**

Legend	
< .15	Negligible correlation; almost no relationship
.15 - .25	Low correlation; definite but small relationship
.26 - .69	Moderate correlation; substantial relationship
.70 - 1.00	(Very) high correlation; very dependable relationship

7.7. Interpretation of effect sizes

With help of the effect sizes calculated in the previous section, the hypotheses formulated in the literature review can be answered, as is done in the subsections below. If at least one moderate or strong relationship was found, the hypothesis was partially accepted. Only if for all the variables related to the hypothesis, small, moderate or strong relationships were found, a hypothesis was fully accepted. As not all variables of each aspect resulted in significant relationships, the hypotheses were not simply accepted or rejected. Rather, most hypotheses could only be partially accepted. As many of the found effect sizes are characterized by their negligible correlation, they will not be used for acceptance or rejection. Table 7.49 includes an overview of all the hypotheses, and if they were (partially) accepted or rejected, as well as the number of negligible, small, and substantial relationships. No strong relationships could be observed, as no strong effect sizes were found. Only if a hypothesis had small or moderate relationships for all the variables, it could be fully accepted.

Hypothesis 1a was accepted, as a small positive relationship was found between workplace cohesion and organizational identification. Hypothesis 1b was also accepted, because three substantial relationships were found between workplace cohesion and team productivity, creativity, and collaboration, and as a small relationship was found between workplace cohesion and individual productivity. For hypothesis 1c, two substantial relationships were found between organizational identification and both creativity and collaboration. Furthermore, two small relationships were found between organizational identification and both individual productivity and team productivity. Based on these findings, hypothesis 1c was also accepted.

Hypothesis 2a was partially accepted, as three small relationships were found between workplace autonomy and individual productivity, creativity, and collaboration. In addition to this, a small relationship with the preferred time to come into the office and individual productivity was found. As there was no small or substantial relationship with either team productivity, creativity, or collaboration, the hypothesis could not be fully accepted. Hypotheses 2b and 2c were rejected, as no substantial or small relationships were found between hybrid working and either organizational identification or workplace cohesion.

Hypothesis 3 was only partially accepted as three substantial relationships, and four small relationships were found. The three substantial relationships were between the presence of a private workspace at the office and individual productivity, creativity, and collaboration. Three small relationships were found between home office satisfaction and individual productivity, team productivity, and collaboration. The last small relationship was found between the satisfaction with the corporate office and organizational identification. For hypothesis 4, a substantial and a small relationship was found between the satisfaction with the home office and the preferred day to come into the office and the time spent per location respectively. Another small relationship was found between the presence of a dedicated workplace at home and the time spent working per location. Based on this, hypothesis 4 could partially be accepted. Furthermore, no small or substantial relationships were found between the type of office space at home and the organizational outcomes. Three substantial relationships were found between the type of office space at the office and individual productivity, creativity, and collaboration. Therefore, the type of office space does partially relate to the organizational outcomes.

For hypothesis 5, a substantial relationship and two small relationships were found between age and collaboration, individual productivity, and creativity respectively. In addition to this, a small

relationship was found between gender and team productivity. Furthermore, two other small relationships were found between the household composition and collaboration. Therefore, hypothesis 5 could only partially be accepted. Hypothesis 6 could partially be accepted, as one small relationship was found between the education level and the preferred time to come into the office. Hypothesis 7 could also only partially be accepted, as here only one substantial and one small relationship was as well. The substantial relationship was found between gender and satisfaction with the corporate office, while the small relationship was found between age and the satisfaction with the home office.

For hypothesis 8, three substantial relationships were found between perceived self-management skills and creativity, collaboration, and organizational identification. Three small relationships were found between perceived self-management skills and individual productivity, team productivity, and workplace cohesion. Furthermore, a substantial and three small relationships were found between working part-time or full-time and collaboration, individual productivity, and creativity respectively. In addition to this, additional small relationships were found between having a management function and collaboration, organizational identification, and workplace cohesion. The number of worked hours was also found to have a small relationship with collaboration. Lastly, small relationships were found between performing general and routine work and individual productivity, as well as between both planning meetings and active collaboration with team members and collaboration. These relationships allowed hypothesis 8 to be partially accepted. Hypothesis 9 was partially accepted, as substantial relationships were found between having a management function and the amount of time spent per location as well as the perceived self-management skills and workplace autonomy. A small relationship was also found between working part-time or full-time and the preferred day to come into the office. Hypothesis 10 could also only be partially accepted, as only one small relationship was found between the perceived self-management skills and the satisfaction with the home office.

Table 7.49 Hypotheses overview

Hypotheses	Accepted / rejected	# of negligible relationships	# of small relationships	# of substantial relationships
<i>H1a: Workplace cohesion is positively related to organizational identification</i>	Accepted	-	1	-
<i>H1b: Workplace cohesion is positively related to productivity</i>	Accepted	-	1	3
<i>H1c: Organizational identification is positively related to productivity</i>	Accepted	-	2	2
<i>H2: hybrid working relates to organizational outcomes</i>	Partially accepted	14	4	-
<i>H2a: hybrid working relates to individual and team productivity</i>	Partially accepted	7	4	-
<i>H2b: hybrid working relates to organizational identification</i>	Rejected	4	-	-
<i>H2c: hybrid working relates to workplace cohesion</i>	Rejected	3	-	-
Total relations with workplace characteristics	-	27	6	4
<i>H3: workplace characteristics at home and the corporate office relate to individual and team productivity, organizational identification, and workplace cohesion</i>	Partially accepted	16	4	3
<i>H4: workplace characteristics at home and the corporate office relate to hybrid working</i>	Partially accepted	11	2	1

Hypotheses	Accepted / rejected	# of negligible relationships	# of small relationships	# of substantial relationships
Total relations with individual characteristics	-	38	6	2
H5: individual characteristics relate to individual and team productivity, organizational identification, and workplace cohesion	Partially accepted	14	4	1
H6: individual characteristics relate to hybrid working	Partially accepted	8	1	-
H7: individual characteristics relate to workplace characteristics	Partially accepted	16	1	1
Total relations with job characteristics	-	52	14	6
H8: job characteristics relate to individual and team productivity, organizational identification, and workplace cohesion	Partially accepted	32	12	4
H9: job characteristics relate to hybrid working	Partially accepted	9	1	2
H10: job characteristics relate to workplace characteristics	Partially accepted	11	1	-

7.8. Conclusion

The objective of this chapter was to analyse the relationships between two variables and their statistical significance. Bivariate analysis unveiled several statistically significant relationships between individual characteristics, job characteristics, workplace characteristics, hybrid working, and the organizational outcomes. Analysis of the effect sizes, included in Table 7.48 allowed for the creation of a clear overview of the bivariate results. Finally, for almost all hypotheses posed in the literature review, relationships were found with at least one or more variables.

Especially the perceived self-management skills of an employee and having a shared workspace at the corporate office determine if hybrid working results in successful outcomes. Moreover, the workplace autonomy, as perceived by the employees was identified as a crucial element of hybrid working that ensures desired results of organizational outcomes. Furthermore, differences between the perception of managers and non-managers were found in some of the organizational outcomes and the amount of time spent working at different locations. Managers tend to perceive higher collaboration and organizational identification, but lower workplace cohesion. They also tend to spend more time working at the office where non-managers spend more time working from home. In addition to this, working full-time, as well as being older were related to higher perceived collaboration of the employees. Older employees also experienced their home office satisfaction, individual productivity, and creativity as higher. Males tended to experience higher satisfaction with their corporate office, while they also perceived lower team productivity compared to females. Last, employees who were more satisfied with their home office also indicated higher perceived productivity, specifically their perceived individual productivity, team productivity, and collaboration.

To conclude, it was found that individual, job and workplace characteristics were significantly related to hybrid working. However, the relationships were deemed to be mostly relatively weak. Relationships among the organizational outcomes were found to be relatively strong. Relationships among the antecedents of individual, job, and workplace characteristics were also found to be mostly relatively weak. It should be noted that the amount of weak, but significant results commonly happen in studies related to human behaviour (Sanbonmatsu, Cooley, & Butner, 2021).

8. Summary, Discussion & Recommendations

The previous chapter delved into the diverse relationships among variables and examined their significance through an overview of effect sizes. It furthermore discussed the found relationships and related them to the sets of hypotheses formulated in Chapters 3 and 4.

This chapter is dedicated to drawing conclusions from the research and addressing the research questions formulated in Chapter 1 and the hypotheses formulated in Chapters 2, 3 and 4. Furthermore, this chapter provides an analysis of the current study's findings in the context of existing research, identifies the study's limitations, and, finally, addresses the implications for future research.

8.1. Research questions conclusions

The primary objective of this study was to identify the relations of individual, job, and workplace antecedents and hybrid working aspects on individual and team productivity, creativity, collaboration, organizational identification, and workplace cohesion of hybrid working employees after the COVID-19 pandemic and its implications for CREM. This resulted in the research question mentioned below:

How do individual, job, and workplace characteristics and hybrid working modes relate to each other and to individual employee productivity, team productivity, organizational identification, and workplace cohesion?

To attain this goal, five sub-research questions were answered through literature review, as well as two quantitative analysis methods: descriptive analysis and bivariate analysis. In this section, all sub-research questions are discussed based on the relationships found in the previous chapter and the findings of the hypotheses formulated in Chapters 3 and 4. This provides answers to the first part of the research question. The CREM involvement will be elaborated in Section 8.3. where the implications for future research and practice will be discussed.

I. How do individual, job, and workplace characteristics relate to hybrid working modes?

Three moderate relationships were found between job and workplace characteristics and hybrid working. Managers were found to spend more time working at the office compared to those without a management function. Next, those with higher perceived self-management skills also felt that they had more autonomy to choose when and where to work. In addition to this, those who have a shared workspace at the corporate office were found to prefer working at the office on Mondays and Thursdays compared to those with a private workspace. Furthermore, four small relationships were found between individual, job, and workplace characteristics and hybrid working. Employees that attended a higher professional education or University were more likely to come into the office during the afternoon. Next, part-time employees showed a larger preference to come into office on Mondays, Tuesdays, and Wednesdays, while full-time employees showed a larger preference to come into the office on Thursdays and Fridays. In addition to this, employees who had a dedicated home office spent more time working at home than at the office. And lastly, employees with a shared workspace at the office spent more time working from home compared to those with a private workspace at the office. Figure 8.1 includes all relationships that were found.

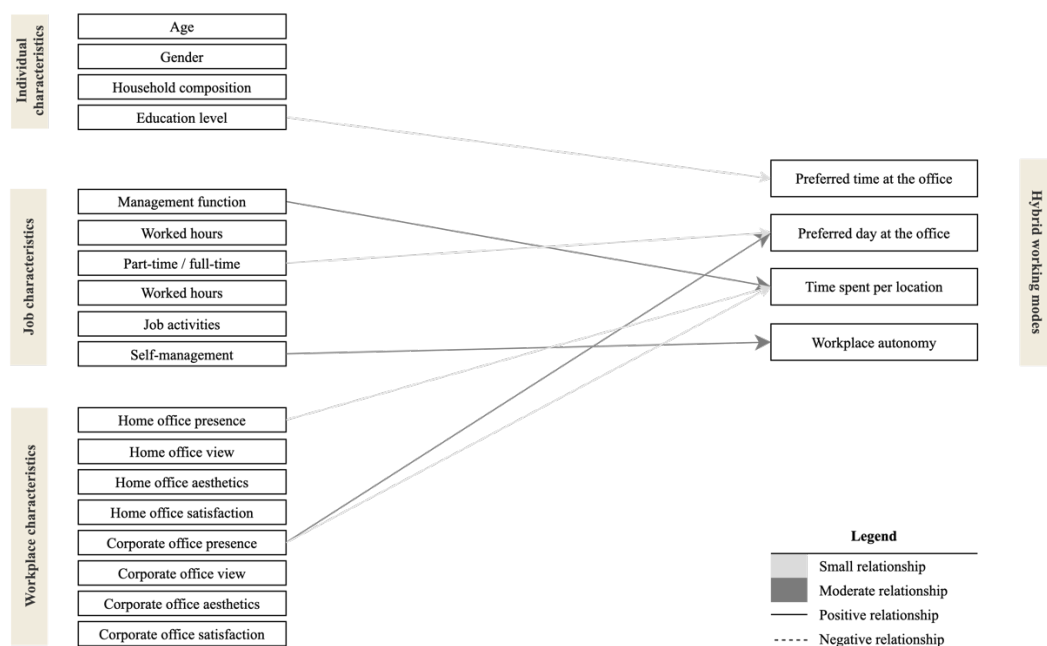


Figure 8.1 Relations between Antecedents and Hybrid working modes

II. How do individual, job, and workplace characteristics relate to individual employee productivity, team productivity, organizational identification, and workplace cohesion?

Eight substantial relationships were found between individual, job, and workplace characteristics and the organizational outcomes. Having a shared workspace in the corporate office instead of a private workspace increased the perception of individual productivity, creativity, and collaboration. Furthermore, higher self-management skills of employees related positively to perceptions of creativity, collaboration, and organizational identification. Both employees with full-time contracts and those of older age perceived higher collaboration values. In addition to this, higher scores for home office satisfaction resulted in higher perception of individual productivity, team productivity, and collaboration. Furthermore, nineteen small relationships were found between individual, job, and workplace characteristics and the organizational outcomes. Employees with higher self-management skills were found to perceive higher individual productivity and team productivity, but lower workplace cohesion. Next, employees who worked more hours, or those with children perceived higher collaboration than those working fewer hours or without children. Furthermore, managers perceived their collaboration and organizational identification more positively, but they perceived workplace cohesion to be lower than non-managers. In addition to this, older employees perceived productivity and creativity higher than younger employees. Male employees tended to experience lower team productivity than their female counterparts. Lastly, the amount of time spent doing specific tasks also played a small role in the perception of some of the organizational outcomes, with employees that spent more time doing general and routine work indicating higher perceived individual productivity. Employees that spend more time in planned meetings and actively collaborating with team members perceive higher collaboration. Figure 8.2 provides an overview of all associated relationships.

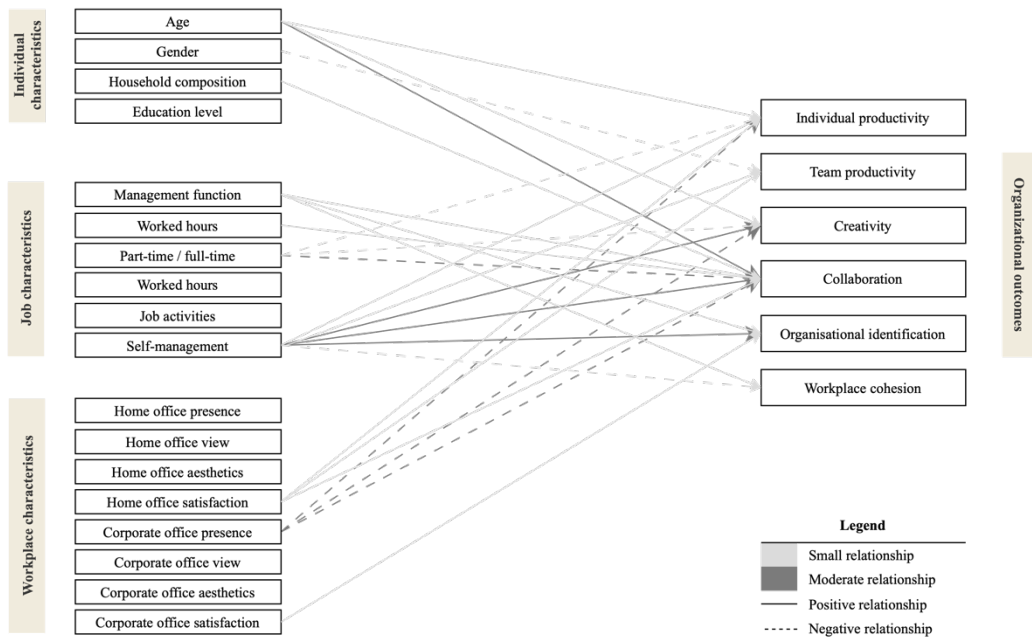


Figure 8.2 Relations between Antecedents and Organizational outcomes

III. How do different hybrid working modes relate to individual employee productivity, team productivity, organizational identification, and workplace cohesion?

Only two aspects of hybrid working modes were found to have a relationship with the organizational outcomes. The workplace autonomy played a small role in some of the organizational outcomes, with higher perceived workplace autonomy positively relating to individual productivity, creativity, and collaboration. And lastly, the preferred time at the office was found to have a small relationship with individual productivity. Here, those who preferred morning office hours showed higher perceived individual productivity. Figure 8.3 includes an overview of the found relations. As no other aspects of hybrid working modes had relationships to the organizational outcomes, it can be concluded that the way of hybrid working does not influence the organisational outcomes as much as initially anticipated.

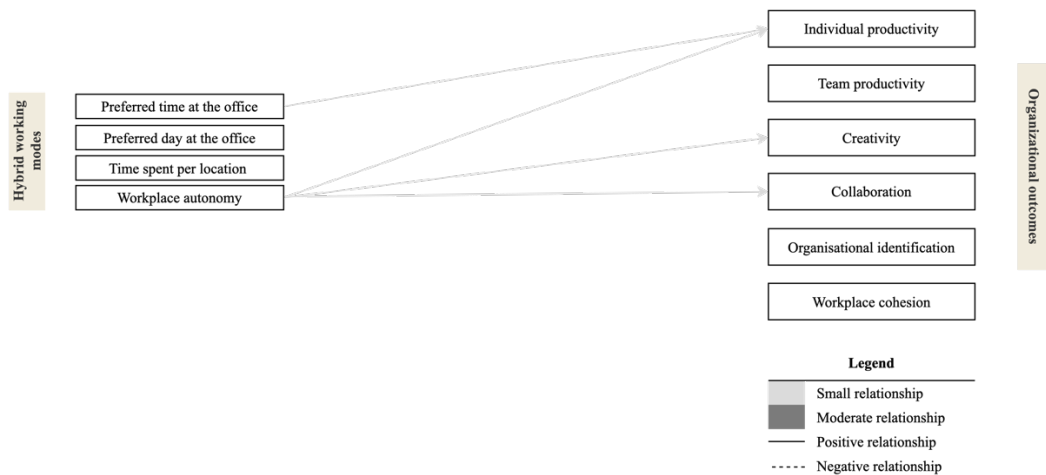


Figure 8.3 Relations between Hybrid working modes and Organizational outcomes

IV. How do individual and job characteristics relate to the characteristics of the physical workplaces at home and in the office?

Both the age of the employees and their perceived self-management played a small role in the satisfaction with the home office. Employees with higher perceived self-management skills, as well as older employees, perceived the satisfaction of their home office more positively. In addition to this, gender was found to have a moderate relationship with the satisfaction of the corporate office, where male employees perceived higher satisfaction of the corporate office. Figure 8.4 provides an overview of the found relations. Apart from this, no small or substantial relations were found between the individual and job characteristics, indicating the limited influence of both individual and job characteristics on workplace characteristics.

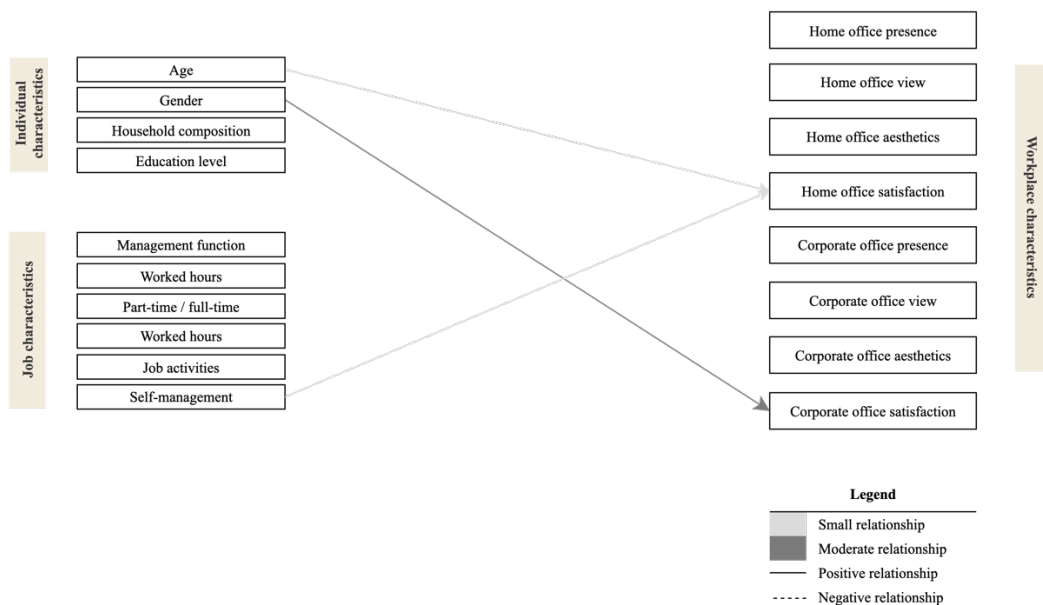


Figure 8.4 Relations between Individual & Job characteristics and Workplace characteristics

V. How do individual employee productivity, team productivity, organizational identification and workplace cohesion relate to each other?

All organizational outcomes were found to be related to each other. Most noticeably, increased perceived individual productivity of employees was found to relate to increased perceived team productivity, creativity, and collaboration. Furthermore, higher perceived team productivity was found to relate to higher creativity, collaboration, and workplace cohesion. In addition to this, increased values for creativity related to increased collaboration, organizational identification, and workplace cohesion of employees. The same goes for collaboration, which was found to increase both the organizational identification and the workplace cohesion. Furthermore, increases in both individual productivity and team productivity were found to be positively related to increases in perceived collaboration. Lastly, higher values of both individual productivity and organizational identification were found to be positively related to higher perceived workplace cohesion. Figure 8.5 includes a visualization of all relations among the organizational outcomes.

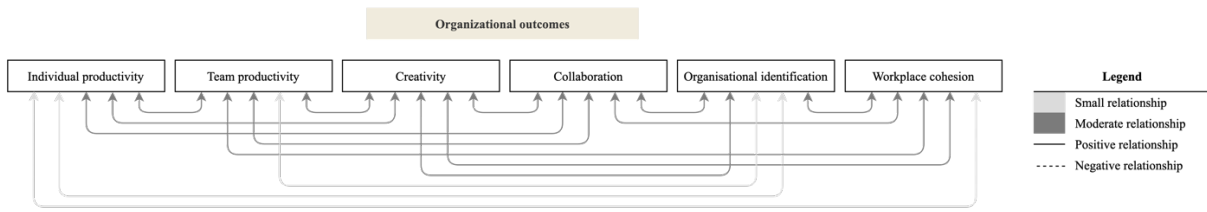


Figure 8.5 Relations among Organizational outcomes

8.2. Discussion and limitations

This section, delves into a comprehensive discussion of the findings presented in the preceding sections, addressing both their implications and limitations. This study has sought to explore the relations of hybrid working on organizational outcomes and how CREM should handle this. This section navigates through the implications and limitations inherent to this research, highlighting areas where improvements or alternative approaches might enhance the robustness of the conclusions.

The findings presented herein offer critical insights into CREM and office workspace management. They expand our understanding of how hybrid working modes and individual, job, and workplace characteristics affects organizational outcomes by the presence of shared offices, the satisfaction with the home office and the importance of sufficient self-management skills. However, it is critical to acknowledge that no research is without limitations. It is only through an honest assessment of these constraints that future studies can be refined and advance the collective knowledge in this domain.

8.2.1. Discussion

Key discussion points in this section include the usability of data, the effect size within this research context, and the divergences between current results and prior literature. This section also tries to align the findings to existing theories, discussed in the literature study. Each of these points warrants careful consideration, and the discussion begins by addressing the matter of data usability.

The data used in this study originates from the WiT monitor (Work in Transition), as developed and carried out by the CfPB (Center for People and Buildings) in collaboration with the TUE (Eindhoven University of Technology) and TUD (Delf University of Technology). As this research was performed while the collection process of the WiT monitor survey was still ongoing, only a part of the full dataset was used. Therefore, not all employees of the organization were represented in the dataset.

Findings of this thesis contribute to the growing field of knowledge surrounding hybrid working and its relation to organizational outcomes. This study has found that workplace autonomy relates positively to individual productivity, creativity, and collaboration. Existing literature states that working from home provides workplace autonomy by offering a choice for the time and place to concentrate and reduce fatigue due to less commuting time (Basile and Beauregard, 2016; Becker and Steele, 1995). This studies contribution includes insight in how workplace autonomy relates to organizational outcomes and therefore provides a broader view of the consequences of hybrid working modes.

This study advances theoretical perspectives related to the organizational outcomes within the context of hybrid working. Current research, as indicated by Maarleveld & De Been (2011) and Oseland et al. (2011), suggests that private offices could enhance individual productivity. Working in an open setting often leads to distractions and disruptions, resulting in lower perceived individual productivity (Oseland, Marmot, Swaffer, & Ceneda, 2011). However, this thesis challenges these findings by revealing lower perceived productivity in private corporate offices compared to flexible workspaces. A possible explanation for the different results of this thesis and previous research could be that due to hybrid working, the need for a private office in order to carry out concentrated work has been replaced by the home office. Another reason could be that the general preferences for work environments have changed. This also underscores the relevance of home office satisfaction in relation to organizational outcomes. With the increasing number of employees adopting WfH, the impact of their home workplace environment on organizational outcomes became more prevalent. Previous research had implied that managers could perceive higher organizational identification due to their role as mediator for organizational values to regular employees (Raghuram, 2011; Witting, 2006; Hamzagic, 2018). This thesis has proven the difference in perception of organizational identification between managers and non-managers, as a relation was found where managers perceived higher organizational identification values compared to their non-managerial colleagues. Furthermore, according to existing literature, managers were found to be less likely to WfH compared to non-managers (Bloom, Han, & Liang, 2022). Thus, this thesis emphasizes disparities in the perception of organizational identification and the preference for where to work between managers and non-managers, reinforcing existing literature on organizational values (Raghuram, 2011; Witting, 2006; Hamzagic, 2018) and working from home patterns (Bloom, Han, & Liang, 2022).

A significant influence of self-management skills on the organizational outcomes and the workplace autonomy among employees was found, which is partially supported by similar findings by Palvalin et al., (2017), who argued that self-management skills affect both individual and team productivity. The current research also supports the role that workplace autonomy plays in the perception of individual productivity (e.g., Eurofound, 2022; Banbury & Berry, 2005; Tavares, 2017; Bloom et al., 2015).

In addition to this, the current study offers additional proof supporting the relevance of workplace autonomy, establishing a positive relationship between employees perceiving higher workplace autonomy and experiencing higher individual productivity. Furthermore, the relations among the organizational outcomes found in this study are in line with findings from previous research (e.g. Wang, Albert, & Sun, 2020; Chiocchio and Essiembre, 2009; Castaño et al., 2013; Rodríguez-Sánchez et al., 2017; Van Knippenberg, 2000), emphasizing the significance of the relations between the individual organizational outcomes. In addition to this, the relations between team productivity, creativity, and collaboration, indicated that both creativity and collaboration can both be seen as team aspects that can enhance team productivity, as previous stated by Strubler & York (2007).

Furthermore, this thesis underscores the growing impact of home workplace satisfaction on organizational outcomes, especially with the rise of hybrid work. As more and more employees start to work from home, the impact of the home office on organizational outcomes becomes more apparent (Staffolani, 2019; Marzban, Durakovic, & Candido, 2021). This is emphasized by the positive relations between home satisfaction and individual productivity, team productivity, and collaboration that have been found in this study.

The findings of this study are in line with the social identity theory, as discussed by Wiesenfeld, Raghuram, & Gadur (2001). It aligns in terms of recognizing potential differences in how organizational

identification is perceived. However, as only negligible relations were found between organizational identification and the time spent per location, this thesis refrains from linking reduced organizational identification to more extensive remote work.

Next, this thesis builds on the need-to-belong theory, as discussed by Baumeister & Leary (1995), emphasizing the importance of interpersonal relationships within an organizational context (Wang, Albert, & Sun, 2020). Given that the main reasons for employees to work at the corporate office involved meeting and socializing with colleagues, it seems likely that these aspects contribute to either organizational identification or workplace cohesion. Nevertheless, it is essential to note that no specific tests were conducted to explore the direct relationships between an individual's reasons for choosing to work in the office and either organizational identification or workplace cohesion. Consequently, the confirmation of direct relationships aligned with the need-to-belong theory cannot be asserted based on the current study's scope.

The relevance to the relational cohesion theory, according to Thye, Vincent, Lawler, & Yoon (2014), was also highlighted in this study. However, where the relational cohesion theory suggests that physical isolation can have a negative impact on a teleworking employee's ability to maintain their relationships with colleagues (Thye, Vincent, Lawler, & Yoon, 2014; Golden, Veiga, & Dino, 2008), this thesis, similar to the findings by Wang et al. (2020), has found no direct relationship between the physical isolation of working from home and the workplace cohesion among employees.

This study further aligns with existing literature, showing a positive correlation between cohesion and productivity (Beal et al., 2003; Carron et al., 2002; Mullen & Copper, 1994). It acknowledges the evolving nature of the relationship between organizational identification and productivity, emphasizing that the motivation stemming from organizational identification could indeed result in increased productivity. Identification with the organization, according to Van Knippenberg (2000), is seen as a driver for increased motivation and, consequently, possible higher individual and team productivity. This is further confirmed in the findings of this study due to the positive relationships between organizational identification and both individual and team productivity. It should be noted however, that the exact role of motivation was not taken into account within this study, and therefore remains a topic of interest for further research.

In summary, this thesis advances understandings of hybrid working and its relation to organizational outcomes by comparing its findings to existing theories and challenges conventional ideas. This includes theories regarding organizational identification and workplace cohesion as well as how these theories relate to other organizational outcomes or hybrid working modes. In addition to this, the conventional ideas about workplace settings are challenged with insights of their relation to organizational outcomes within the hybrid working environment. Finally, this thesis adds insights to the complexity of the interrelatable nature of the organizational outcomes.

8.2.2. Limitations

This section discusses the limitations inherent to this study, shedding light on aspects that need to be considered when assessing the validity and applicability of the research outcomes. While the results presented in the first section offer valuable insights, it is crucial to acknowledge the boundaries and constraints of this study. In this section, the limitations of the study are discussed, including issues related to data collection, methodology, and potential sources of bias or error.

The results of this study are limited by the dataset, as during the writing of this study, the data collection process was still ongoing. Where this study has used the data that was collected from two organizations, a third organization had handed out the questionnaire, and thus their data was not collected in time to be used in this study. Furthermore, the data collection of the second organization was not finished at the time of the data analysis, which explains the low response rate of the questionnaire considering their number of employees. In addition to this, the limitations of this study arise from the possibility that its findings are only prevalent in the used dataset. Conducting a similar study among different organizations might yield divergent findings.

The generalizability of the results of this study may also be limited to Dutch public organisations, as the questionnaires were only distributed among Dutch public organisations. Research by Baarspul & Wilderom (2011), concluded that there are no sector-based differences at the individual employee level between the public and private sector. They found no consistent pattern of evidence supporting the widespread notion that employees in public-sector organizations behave differently from those employed in the private sector. As the sample varies from the general population in certain aspects, including being older, having a slight male dominance, and a higher education level compared to the broader Dutch labor force, the findings cannot be generalized to knowledge workers in the public sector with comparable job roles.

This study is also limited by the dataset itself, as not all collected data was usable in this research. For instance, as discussed in Chapter 6, the data regarding ICT facilities had resulted in only one category of suitable size to conduct further analysis, nullifying the influence this variable could have on obtaining significant results. Furthermore, the variables regarding reasons for working from home, or at the office and job activities were either too complicated in their original form, or not combinable to more optimized variables, thus limiting this study's results as their possible influence could not be accounted for. This study is further limited by the perceived nature of the outcome variables and some of the independent variables, as they are of a subjective nature rather than an objective one, which can create biased results. Respondents can feel social pressure to report desired results (Nikolopoulou, 2023).

Another limitation of this study is the categorization of workplace autonomy. Where in this study, workplace autonomy was classified as a factor of hybrid working, arguments could be made to classify workplace autonomy as a job characteristic. As this would require additional bivariate tests, future research should be conducted to provide insights into the effects this has on the relationships found regarding this variable.

Another limitation concerns the non-normal distributed nature of some of the variables used within this study. In the case of workplace autonomy, respondents consistently tended to score their workplace autonomy towards the higher side resulting in a non-normally distributed nature that could have implications for the interpretation of bivariate tests. In cases where data deviates from normal distribution, certain statistical tests may be less robust or less accurate, and thus non-parametric alternatives were applied. Additionally, limitations include non-normally distributed data across multiple variables, while exhibiting relatively large but still acceptable skewness values. This was the case for all organizational outcomes, as well as the home and corporate office satisfaction. Due to the skewness values falling within an acceptable range, the variables in question were deemed suitable for parametric tests. It is important to note that while non-normally distributed data may influence the precision of some statistical tests, it does not necessarily invalidate the findings. Robustness checks and alternative statistical approaches were applied to mitigate the potential biases associated with deviations

from normality. Ideally, despite valid arguments made in this study to apply mostly parametric tests, still non-parametric alternatives or transformations to address the non-normally distributed nature should be considered.

Lastly, many of the relations that were found, are characterized by effect sizes of negligible correlation, indicating that there is a small relationship. The finding of these significant but weak relationships is, however, common among studies regarding social and behavioural sciences (Sanbonmatsu, Cooley, & Butner, 2021). A possible explanation for this could be the complexity of human behaviour in a work environment, as it is influenced by numerous aspects such as individual differences, organizational culture, and external variables (Duong, Bui, Phung, & Venkatesh, 2005). Another reason for the large amount of negligible but significant relations could be due to the large samples size. For very large samples, small differences tend to transform into statistically significant differences, even when they are insignificant (Faber & Fonseca, 2014).

8.3. Implications for future research and practice

This section explores the implications of this study's findings in a broader context of this research field. Delving into these implications, allows for a clearer understanding of the tangible and theoretical impacts of this study's findings on various stakeholders, including professionals, organizations, researchers, and policymakers. This discussion not only underscores the practical relevance of the study but also highlights areas for further exploration in the field of office workspace and CREM.

8.3.1. Implications for future research

Future research should try and prevent the limitations of the current study, as discussed in Section 8.2.2. For this, a similar large-scale study should take place which includes employees from both public and private organisations, as well as questions that are better formulated to fit this study. This includes mainly the ICT facilities available for employees and the individual reasons for working either at home or at the office.

As the results of this study emphasize the importance of shared office designs, sufficient self-management skills, and the relevance of a suitable home workspace, additional research towards the characteristics of the physical workspace of both the home office and corporate office should be measured in more detail, providing a clearer image of the balance between these two on their impact on the organizational outcomes. Furthermore, more in depth research towards the improvements of self-management skills of employees could be beneficial in providing better support for hybrid working employees. In addition to this, aspects that, due to reasons discussed earlier, were omitted from this study should be measured in such a way that allows their integration into future research. As this study used an existing dataset, the measurement scales and types of questions included were not tailored to the current research objectives.

Next, further research is possible by conducting path analysis, as it was decided to skip this step due to time constraints. The added benefit a path analysis could have is that both direct and indirect relationships between independent and dependent variables can be tested simultaneously. As the conceptual model assumes both relations of antecedents to hybrid working and organizational

outcomes, and also relations from hybrid working to these organizational outcomes, the possibility of indirect relationships were not taken into account within this study. Future research could incorporate a path analysis to gather insights into the presence and effect of possible indirect relations. In addition to this, the results of a path analysis are more robust.

This study tried to fill the gap as indicated by Yang et al. (2021), where research with a large sample-size was stressed to allow for analysis of more accurate and specified situations regarding the effects of hybrid working in relation to both the home office and the corporate office. While this was partially achieved, future research could incorporate an even larger sample-size to study the effects on a more specified range of situations. This could allow for the creation of policies that can be optimized per organization.

8.3.2. Implications for practice

The findings from this study can offer valuable assistance to organisations in their decision-making processes regarding workplace design, home office support, and hybrid working policies. Professionals such as Corporate Real Estate Managers (CREM), Facility managers (FM), workplace managers and human resource managers can use this study to gain insights into how employees experience hybrid working. They can utilize this knowledge to update policies on hybrid working, adjustments of office design, or support programs for home offices to ensure that the organizational outcomes are maintained.

Firstly, organizations are recommended to ensure that the self-management skills of their employees are sufficient. Improvements to these skills can be made by for example providing trainings or classes where employees can improve their self-management skills. Or by supporting employees in making the right choices in when, where and how to work.

Secondly, as this is one of the first studies to indicate that shared offices can result in increased individual and team productivity, a broader mix of office workspaces may be desirable. Additionally, CREM and FM could possibly consider reorganizing the office design to accommodate more shared office spaces, as the study has proven that this results in higher perceived individual productivity, creativity, and collaboration among employees within the public office sector. While this is not a finding supported by previous literature, the changed work environment incorporating a hybrid working structure has potentially shifted the needs of office space design to more shared office designs. As discussed in Chapter 6, most employees indicated to come into the office for interactions and meetings with colleagues while wanting to work from home for better concentration and work/life balance. This shows that the role of the office might have changed and thus, restructuring the corporate office, incorporating more shared workspaces that promote interactions and meetings should be considered in future situations.

Thirdly, building on the previous advice, the importance of the satisfaction of the home office on individual productivity, team productivity, and collaboration, as proven in this study, emphasizes a need for improvements to the home office environment. The home office has assumed the role of the corporate office in terms of providing a place where tasks that require concentration can be done, as indicated in Chapter 6. While the home office comprises a workplace environment outside the corporate office, organizations could still exert influence on this. For instance, FM or workplace managers could possibly set up a support plan for home offices, as was fairly common during the COVID-19 pandemic

(Radar, 2023), or issue structured guidance on how to improve the home office, possibly improving the perceived satisfaction of the employees' home offices.

Finally, it is recommended that hybrid working should remain a choice made by the employees. The high impact of workplace autonomy on individual productivity, creativity, and collaboration proves the beneficial nature of this freedom. Allowing employees to choose when to work from home and when to come into the office enables them to optimize the benefits offered by both work locations.

Thus, it can be concluded that, the organization should take a facilitating and supportive role in addressing the individual needs and preferences of their hybrid working employees in terms of telework intensity, flexibility, and the physical workspace of both the home and corporate office. This is essential for ensuring optimal organizational outcomes.

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