Studies on Remote Work: Challenges and Implications for Hybrid Work Arrangements

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Summary

Hybrid work, a flexible work model that combines on-site and remote work, has become the "new normal." Despite the many well-known advantages of hybrid work, employees who work remotely face various challenges due to their physical separation from colleagues and supervisors. First, the physical separation reduces remote workers' accessibility. Thus, remote workers rely on information and communication technologies (ICT) to communicate and collaborate with their colleagues and supervisors who work at other locations. Communicating via ICT presupposes the remote worker to be available. Therefore, a key challenge remote workers face is the need to continuously manage their ICT-based availability in order to balance the manifold beneficial and detrimental work-related and private consequences of being available.

Second, due to being physically absent from the workplace, remote workers' effort is less transparent to their colleagues and supervisors. Stereotypes persist depicting remote workers as less dedicated, engaging in non-work activities such as leisure, childcare or household duties, instead of doing their job. To counteract such (potential) bias, remote workers might feel pressured to prove their effort, thereby engaging in proving availability and communication behavior to signal their engagement to colleagues and supervisors. This felt pressure and concomitant proving behavior might have detrimental effects on remote workers' well-being and performance.

Therefore, this dissertation aims to shed light on the three phenomena of (1) remote workers' ICT-based availability, (2) remote workers' proving availability and communication behavior, and (3) remote workers' felt pressure to prove their effort. To provide insights into these phenomena, a systematic literature review and two empirical studies are conducted.

First, a qualitative study with 21 remote workers and a systematic literature review are conducted to better understand how remote workers manage their ICT-based availability. Results show that remote workers' ICT-based availability is a complex phenomenon with manifold antecedents, that can be classified into seven categories. Merging the findings from the qualitative study with a systematic literature review reveals that research on remote workers' ICT-based availability is fragmented, offering several avenues for future research.

Second, based on the qualitative study, the construct of remote workers' proving availability and communication behavior is introduced and elaborated. Relying on the interview data, four behavioral patterns remote workers use to signal their engagement are identified. Moreover, a

five-stage model is developed explaining why remote workers engage in such behaviors and the detrimental outcomes.

Third, to examine remote workers' felt pressure to prove their effort, a two-wave quantitative study with 407 remote workers is conducted. Results of structural equation modeling show that team factors, i.e., team norms regarding remote work and felt trust by colleagues, predict presumed bias against remote work, which in turn is positively related to remote workers' felt pressure to prove their effort. Moreover, felt pressure negatively affects remote workers' well-being as indicated by increased stress and decreased psychological detachment, which both hinder job performance.

In sum, this dissertation contributes to a comprehensive and empirical understanding of the three phenomena of (1) remote workers' ICT-based availability, (2) remote workers' proving availability and communication behavior, and (3) remote workers' felt pressure to prove their effort. Findings suggest that all three may impair remote workers' well-being and performance. This dissertation suggests valuable implications for future research and practice in order to maintain the positive outcomes of remote work in hybrid work settings.

Zusammenfassung

Hybride Arbeitsformen, die die Arbeit im Unternehmen mit der Arbeit im Homeoffice kombinieren, sind zum „New Normal“ geworden. Die vielen Vorteile hybrider Arbeitsmodelle sind bekannt, doch die Homeoffice-Mitarbeitenden stehen aufgrund der räumlichen Trennung von Vorgesetzten, Kolleginnen und Kollegen vor verschiedenen Herausforderungen. Zum einen führt die räumliche Trennung dazu, dass die Homeoffice-Mitarbeitenden weniger zugänglich sind. Um mit Arbeitskontakten zu kommunizieren und zusammenzuarbeiten, sind Homeoffice-Mitarbeitende auf Informations- und Kommunikationstechnologien (IKT) angewiesen und müssen über die IKT erreichbar sein. Eine zentrale Herausforderung für Homeoffice-Mitarbeitende ist daher, unter Berücksichtigung möglicher positiver und negativer beruflicher wie privater Folgen, ihre IKT-basierte Erreichbarkeit zu steuern.

Zum anderen führt die räumliche Trennung dazu, dass die Aktivitäten von Homeoffice-Mitarbeitenden für Vorgesetzte, Kolleginnen und Kollegen weniger transparent sind. Daraus kann das Vorurteil entstehen, dass Homeoffice-Mitarbeitende weniger arbeiten und stattdessen privaten Dingen, wie Freizeitbeschäftigungen, der Kinderbetreuung oder dem Haushalt, nachgehen. Aufgrund dieser (vermuteten) Vorurteile fühlen sich Homeoffice-Mitarbeitende oftmals unter Druck, beweisen zu müssen, dass sie zuhause tatsächlich arbeiten. Sie nutzen ihre Erreichbarkeit und Kommunikation, um Vorgesetzten, Kolleginnen und Kollegen ihre Aktivität im Homeoffice zu demonstrieren. Ein solcher gefühlter Beweisdruck und das daraus resultierende beweisende Erreichbarkeits- und Kommunikationsverhalten hat jedoch negative Auswirkungen auf das Wohlbefinden und die Leistung der Homeoffice-Mitarbeitenden.

Das übergeordnete Ziel dieser Dissertation ist daher, die drei Phänomene (1) IKT-basierte Erreichbarkeit, (2) beweisendes Erreichbarkeits- und Kommunikationsverhalten und (3) gefühlter Beweisdruck von Homeoffice-Mitarbeitenden zu untersuchen. Zu diesem Zweck werden eine systematische Literaturrecherche und zwei empirische Studien durchgeführt.

Zunächst wird basierend auf einer qualitativen Interviewstudie und einer systematischen Literaturrecherche untersucht, wie Homeoffice-Mitarbeitende ihre IKT-basierte Erreichbarkeit gestalten. Die Ergebnisse zeigen, dass die IKT-basierte Erreichbarkeit ein komplexes Phänomen mit vielfältigen Einflussfaktoren ist, die sich in sieben Kategorien gliedern lassen. Durch die Zusammenführung der Ergebnisse der qualitativen Studie mit den Ergebnissen der Literaturrecherche wird deutlich, dass die Forschung zur IKT-basierten Erreichbarkeit von Homeoffice-

Mitarbeitenden fragmentiert ist, wodurch sich wichtige Ansatzpunkte für die zukünftige Forschung ableiten lassen.

Darüber hinaus wird auf Basis der qualitativen Studie das Konzept des beweisenden Erreichbarkeits- und Kommunikationsverhaltens eingeführt und ausgearbeitet. Anhand der Interviewdaten werden vier Verhaltensmuster identifiziert, die Homeoffice-Mitarbeitende nutzen, um Vorgesetzten, Kolleginnen und Kollegen ihre Aktivität im Homeoffice zu beweisen. Ein fünfstufiges Modell wird entwickelt, das die Ursachen und Auswirkungen dieser Verhaltensmuster erklärt.

Schließlich wird das Phänomen des gefühlten Beweisdrucks anhand einer quantitativen Studie mit 407 Homeoffice-Mitarbeitenden zu zwei Erhebungszeitpunkten untersucht. Die Ergebnisse der Strukturgleichungsanalyse zeigen, dass Teamfaktoren, nämlich Teamnormen bezüglich Homeoffice und das wahrgenommene Vertrauen von Kolleginnen und Kollegen, die vermuteten Vorurteile gegenüber Homeoffice beeinflussen, die wiederum den von den Homeoffice-Mitarbeitenden empfundenen Beweisdruck verstärken. Der gefühlte Beweisdruck verringert das Wohlbefinden der Homeoffice-Mitarbeitenden, indem er das Stresslevel erhöht und das Abschalten von der Arbeit behindert, was sich wiederum negativ auf die Arbeitsleistung der Homeoffice-Mitarbeitenden auswirkt.

Zusammengefasst trägt diese Dissertation zu einem umfassenden empirischen Verständnis der drei Phänomene (1) IKT-basierte Erreichbarkeit, (2) beweisendes Erreichbarkeits- und Kommunikationsverhalten und (3) gefühlter Beweisdruck von Homeoffice-Mitarbeitenden bei. Die Ergebnisse zeigen, dass sich alle drei Phänomene negativ auf das Wohlbefinden und die Leistung der Homeoffice-Mitarbeitenden auswirken können. Die Dissertation liefert wertvolle Implikationen für die zukünftige Forschung und für die Praxis, um die positiven Auswirkungen von Homeoffice in hybriden Arbeitsmodellen zu erhalten.

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List of Abbreviations

α	Cronbach's Alpha
AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CI	Confidence Intervals
CR	Composite Reliability
EFA	Exploratory Factor Analysis
df	Degrees of Freedom
H	Hypothesis
ICT	Information and Communication Technologies
M	Mean
N	Number of Cases
p	Significance Level
RMSEA	Root Mean Square Error of Approximation
SD	Standard Deviation
SEM	Structural Equation Modeling
SRMSR	Standardized Root Mean Square Residual
SST	Stereotype Threat Theory
TLI	Tucker-Lewis Index

1. Introduction

1.1 Practical Relevance

In recent years, organizations have experienced a massive shift toward hybrid work (Rapparini, 2023), a flexible work model that combines on-site and remote work (Halford, 2005). Remote work involves employees working from home or another work location, using information and communication technologies (ICT) to interact with others and perform their tasks (Allen et al., 2015). The reasons for the increased use of remote work are two-fold. First, it has multiple benefits, including increased productivity (Delanoeije & Verbruggen, 2020; Delanoeije et al., 2019; Gajendran & Harrison, 2007; Harker Martin & MacDonnell, 2012), increased flexibility and better compatibility between work and personal responsibilities (Delanoeije et al., 2019; Golden et al., 2006), reduced office costs (Deverter, 2020; Khanna & New, 2008; Kidwai, 2022), and improved employer reputation (Bloom et al., 2015). Second, during the COVID-19 pandemic, implementation of remote work was a common practice to mitigate the spread of the virus (OECD, 2020). As a result, hybrid work has become the "new normal" today (Franken et al., 2021).

Yet, the physical separation of remote workers from their colleagues and supervisors causes several challenges. First, the physical separation reduces remote workers' accessibility (Golden et al., 2006), bringing various risks for both remote workers' job performance and well-being. For example, remote workers might suffer from limited access to information, impaired knowledge transfer, social isolation, and poorer social relationships with supervisors and colleagues (Cooper & Kurland, 2002; Gajendran & Harrison, 2007; Taskin & Bridoux, 2010; van Zoonen & Sivunen, 2022). To overcome these challenges, remote workers rely heavily on ICT to communicate with supervisors, colleagues, and other work-related contacts (Gajendran et al., 2015; Thatcher & Zhu, 2006). Communicating via ICT presupposes the remote workers to be available. But ICT-enabled availability, defined as being accessible and responsive for work-related contacts via ICT (Bergman & Gardiner, 2007), comes at a price: Prior research shows that ICT-based availability is associated with detrimental outcomes such as more frequent interruptions of work processes (Jackson et al., 2003; Marulanda-Carter & Jackson, 2012), perceptions of restricted autonomy (Leonardi et al., 2010; Mazmanian et al., 2013) and telepressure (i.e., feel pressure to respond quickly to messages; Barber & Santuzzi, 2015), impaired

detachment (Arlinghaus & Nachreiner, 2013; Dettmers, 2017), or increased work-to-family conflict (Eddleston & Mulki, 2017; Golden et al., 2006).

Therefore, how remote workers manage their availability and balance its benefits and perils is critical for both work-related and personal outcomes. Remote workers continuously have to choose to which extent they are available for and responsive to supervisors, colleagues, and other work-related contacts via ICT. This raises questions such as: Which factors do remote workers consider – intentionally or more unconsciously – when managing their ICT-based availability? Which factors determine when and how remote workers are available via ICT and how fast they respond to communication from work-related contacts?

Organizations should consider such questions and aim at understanding factors that shape remote workers' ICT-based availability for several reasons. In hybrid work environments, where using ICT is the only means for on-site and remote workers to communicate and collaborate, availability is key for outcomes such as team cohesion and performance. At the same time, ICT-based availability can have detrimental effects on remote workers' well-being and individual performance. Accordingly, organizations need to establish availability guidelines for how employees should manage their availability on remote working days in order to facilitate collaboration between employees working on-site and remotely. Such guidelines bring transparency about responsiveness expectations and create a framework for managing working hours, which can both be unburdening for remote workers. When drafting availability guidelines that aim at both, enhancing work outcomes and fostering remote workers' well-being and satisfaction, it is key to consider all factors influencing remote workers' ICT-based availability. This dissertation provides a comprehensive framework of these factors, helping organizations developing availability guidelines that meet both, remote workers' professional and personal needs. Moreover, the framework can help organizations to understand how they can support employees in effectively managing their availability when working remotely, for example by providing appropriate hardware and software to foster the degree and modality of availability the organization wants to achieve or by offering trainings for remote workers or their supervisors.

Another potentially detrimental consequence of remote workers being physically absent from the workplace is that their effort, in terms of working hours and work behavior, is less transparent to their supervisors and colleagues than in traditional work (Downes et al., 2023; Felstead et al., 2003; Groen et al., 2018). Due to limited opportunities for supervisors and colleagues to observe and control remote workers, stereotypes have increased regarding remote workers' dedication and engagement. These stereotypes depict remote workers as engaging in non-work

activities, such as leisure, childcare, or household duties, instead of fulfilling their work responsibilities. These stereotypes around lack of dedication and engagement have intensified. When remote workers presume such (potential) bias, they might feel threatened to be evaluated as less engaged by their supervisors and colleagues. In response to this threat, remote workers should strive to disconfirm the negative stereotypes and protect their image as ideal workers (Acker, 1990; Kit et al., 2008; Reid, 2015), i.e., they should feel pressured to prove their effort to their supervisors and colleagues. Since interactions between remote workers on one side and supervisors or colleagues on the other side are restricted to ICT, ICT-based availability and communication become the central – if not the only – means for proving their effort when working remotely. To signal their engagement to supervisors and colleagues, remote workers might adapt their availability and communication behavior.

It is critical for organizations to understand why remote workers feel pressure to prove their effort and consequently engage in proving availability and communications behavior for several reasons. First, the felt pressure to prove one's effort as well as the concomitant proving availability and communication behavior might have detrimental effects on remote workers' well-being. Remote workers who experience pressure to prove their effort and engage in behaviors to demonstrate that they are dedicated to work, may experience higher levels of stress and impaired psychological detachment. Previous research has shown that these factors negatively impact employees' attitudes towards work, such as job satisfaction or turnover intention (e.g., Podsakoff et al., 2007; Wendsche & Lohmann-Haislah, 2017; Wright & Cropanzano, 1998). Thus, organizations should strive to understand the driving forces behind this felt pressure and proving availability and communication behavior in order to avoid negative consequences for individuals and the organization itself. Second, constantly thinking about proving one's effort may lead to a loss of concentration and distract remote workers from their task fulfilment. Rather than actually performing their job, they might spend time engaging in behaviors to demonstrate their dedication to work. The lack of concentration and the outlined consequences for remote workers' well-being might in turn negatively impact their performance (Gilboa et al., 2008; Sonnentag & Bayer, 2005; Steed et al., 2021). As almost a quarter of employees in Germany work remotely frequently (Statistisches Bundesamt, 2024), this felt pressure and concomitant proving availability behavior might become economically relevant for organizations. Thus, this dissertation provides implications for organizations to develop hybrid work settings in which employees feel confident to work remotely and measures to counteract such pressure and its behavioral consequences.

Taken together, shedding light on remote workers' ICT-based availability, proving availability and communication behavior, and felt pressure to prove effort helps organizations to avoid negative consequences on their employees' well-being and performance, and to retain the benefits of working remotely in hybrid work settings.

1.2 Empirical Relevance

Remote workers' ICT-based availability, proving availability and communication behavior, and felt pressure to prove their effort are complex phenomena with manifold antecedents and consequences. Previous research on these topics is fragmented and has several limitations.

First, with regard to ICT-based availability, we lack a comprehensive framework of factors influencing remote workers' ICT-based availability. While several studies focus on antecedents of constructs related to ICT-based availability, like technology-assisted supplemental work or media choice (e.g., Fenner & Renn, 2010; Ruppel et al., 2013), they do not explicitly examine ICT-based availability as a dependent variable. Moreover, of the few studies examining antecedents of ICT-based availability, the majority was conducted outside of remote working contexts, such that the findings are rather inconclusive for remote settings. When working remotely, the only means for employees to interact with their colleagues and supervisors is through the use of ICT. Thus, the role of ICT-based availability differs tremendously from settings where ICT-based availability is studied after hours. Only three studies have identified antecedents of ICT-based availability in a remote working context (Felstead et al., 2003; Lal & Dwivedi, 2010; Leonardi et al., 2010), elaborating on some factors that remote workers mentioned as affecting their ICT-based availability, such as their workload or boundary management preferences. Yet, ICT-based availability in remote settings is a complex phenomenon with multiple antecedents that can mutually reinforce or weaken each other. Therefore, it is crucial to identify and consider all factors that influence remote workers' ICT-based availability in order to gain a comprehensive picture of what determines ICT-based availability in remote work settings.

Second, regarding remote workers' proving availability and communication behavior and remote workers' felt pressure to prove their effort, previous research has provided some evidence for the prevalence and relevance of these phenomena. A few studies have mentioned or empirically examined behaviors employees use to signal their engagement to supervisors and colleagues (Barsness et al., 2005; Cristea & Leonardi, 2019; Elsbach, 2012; Feldmann & Mazmanian, 2020; Felstead et al., 2003). However, these studies lack a comprehensive categorization and detailed description of behaviors remote workers show to prove their effort. Further,

prior studies have mentioned the lack of visibility as a cause for remote workers' engagement in such behaviors (e.g., Feldmann & Mazmanian, 2020; Felstead et al., 2003). However, they do not systematically examine antecedents and consequences of such behaviors in a remote setting. Supporting this notion, Cristea and Leonardi (2019) emphasized that little is known about the driving forces behind such behaviors and their consequences for employees' well-being and performance. Stereotype threat theory (STT) suggests that remote workers' felt pressure to prove their effort might play a key role in determining whether remote workers engage in proving availability and communication behavior. As these two phenomena might negatively affect remote workers' well-being and performance, future research is needed to better understand the risks of remote work.

This dissertation aims to address the critical voids of prior research by systematically examining three phenomena: remote workers' (1) ICT-based availability, (2) proving availability and communication behavior, and (3) felt pressure to prove their effort. Thereby, this dissertation contributes to our theoretical and empirical understanding of these phenomena.

1.3 Research Goals and Overview of the Present Research

This dissertation pursues three overarching research goals and several sub-goals. Table 1-1 provides an overview of the phenomena under study, the corresponding research goals, and the method applied to address these goals.

The first research goal is:

Research goal 1: Identify antecedents of remote workers' ICT based availability

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To achieve the first goal, this research combines a qualitative approach and a systematic literature review. First, to (a) develop a comprehensive framework of factors that shape remote workers' ICT-based availability, a qualitative study with 21 remote workers is conducted. This explorative approach allows for a detailed understanding of remote workers' considerations about when, how, and to whom to be available via ICT. Based on the qualitative data, all factors remote workers experience as relevant for how they manage their availability are identified. Second, to (b) synthesize the current state of research regarding antecedents of remote workers' ICT-based availability and to identify critical research gaps, a systematic literature review is conducted. By contrasting the results of the qualitative study with the current state of research, categories of antecedents of ICT-based availability that have not or insufficiently been

investigated in prior empirical studies are identified, indicating promising avenues for future research. Together, this contributes to our understanding of factors that shape remote workers' ICT-based availability.

Table 1-1: Research Overview and Research Goals

Phenomenon	**(1) Remote workers' ICT-based availability**	**(2) Remote workers' proving availability and communication behavior**	**(3) Remote workers' felt pressure to prove their effort**
Research goals	(1) Identify antecedents of remote workers' ICT-based availability (a) Develop a comprehensive framework of factors that shape remote workers' ICT-based availability (b) Synthesize the current state of research regarding antecedents of remote workers' ICT-based availability and identify critical research gaps	(2) Explore remote workers' proving availability and communication behavior (a) Introduce and describe remote workers' proving availability and communication behavior (b) Explain the emergence of remote workers' proving availability and communication behavior (c) Identify potential outcomes of remote workers' proving availability and communication behavior	(3) Examine remote workers' felt pressure to prove their effort (a) Provide definition and quantitative measure of remote workers' felt pressure to prove their effort (b) Examine antecedents of remote workers' felt pressure to prove their effort (c) Investigate consequences of remote workers' felt pressure to prove their effort
Method	Qualitative study and systematic literature review	Qualitative study	Two-wave quantitative study

This dissertation's second goal is:

Research goal 2: Explore remote workers' proving availability and communication behavior

In the course of analyzing the interview data in pursuit of the first research goal, the phenomenon of remote workers' proving availability and communication behavior was discovered. The qualitative approach is used to dive deeper into remote workers' descriptions of such behavior

and explore this phenomenon further. As a result, this dissertation aims to (a) introduce and describe remote workers' proving availability and communication behavior, (b) explain its emergence, and (c) identify potential outcomes. Taken together, this dissertation provides the first holistic framework of remote workers' proving availability and communication behavior.

The third research goal of this dissertation is:

Research goal 3: Examine remote workers' felt pressure to prove their effort

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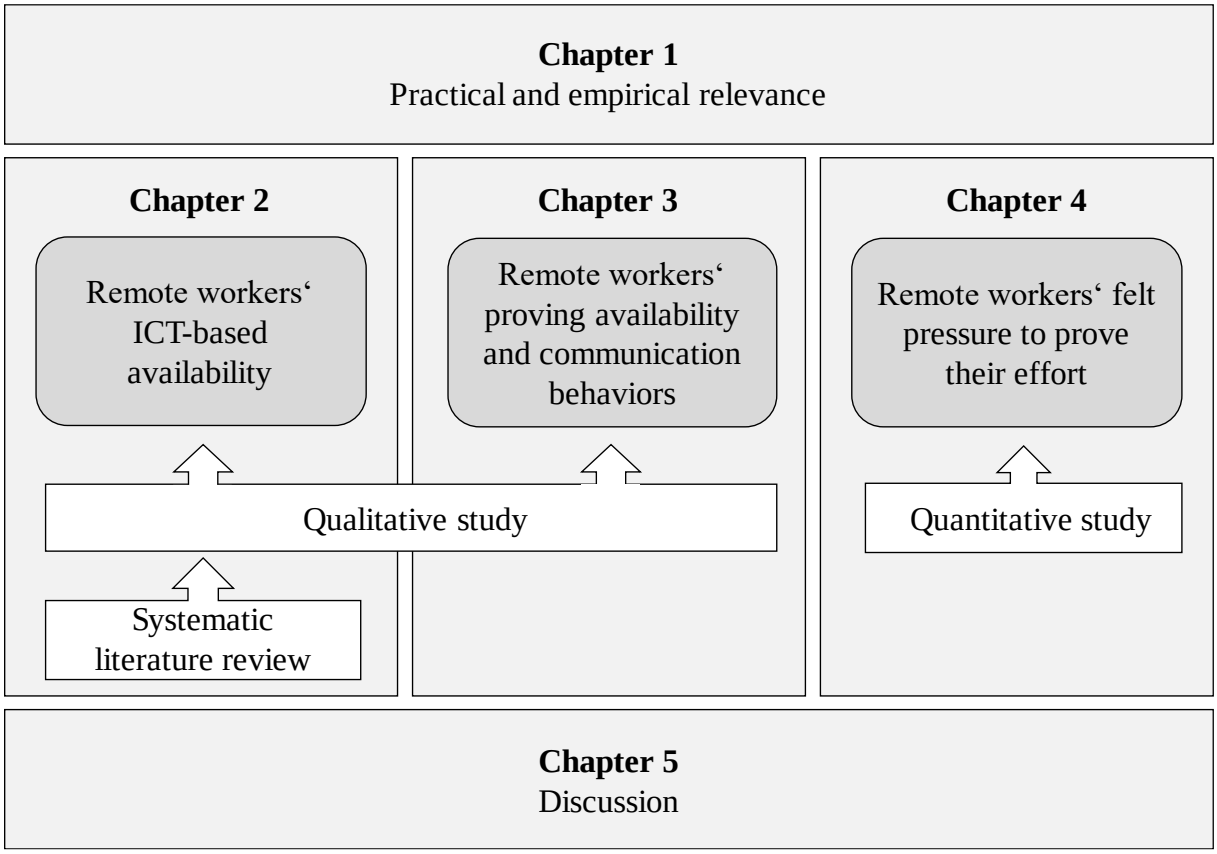
To achieve this goal, this research draws on STT and the interview data to develop the concept of remote workers' felt pressure to prove their effort. This dissertation aims to (a) provide a definition and a quantitative measure of this concept. Structural equation modeling is applied to two-wave quantitative data collected among 407 remote workers to examine (b) antecedents and (c) consequences of remote workers' felt pressure to prove their effort, as well as the mechanisms underlying these relationships. By quantitatively examining remote workers' felt pressure to prove their effort, its causes and consequences, this dissertation introduces a new, previously overlooked construct and offers novel theoretical, empirical, and practical insights.

As shown in Figure 1-1, this dissertation is divided into five Chapters. Chapter 1 describes the practical and empirical relevance of the three phenomena under study and outlines the research goals. Chapter 2, based on a manuscript co-authored by Prof. Dr. Gisela Gerlach, presents the current research on remote workers' ICT-based availability. In pursuit of research goal 2, Chapter 3 focuses on remote workers' proving availability and communication behavior. In Chapter 4, also based on a manuscript co-authored by Prof. Dr. Gisela Gerlach, remote workers' felt pressure to prove their effort is introduced and the quantitative research on its causes and consequences is presented. Finally, Chapter 5 provides an overview of the main findings and elaborates on theoretical and practical contributions. Furthermore, it illustrates limitations and offers avenues for future research.

Figure 1-1: Structure of the Dissertation



2. Remote Workers' ICT-based Availability[1]

2.1 Introduction

As a result of the COVID-19 pandemic, the relevance and prevalence of remote work strongly increased (OECD, 2021), with a large fraction of employees working a significant portion of their typical work hours away from the organizational workspace, typically at home, using ICT to interact with others and conduct their tasks (Allen et al., 2015). Yet, their physical separation reduces remote workers' accessibility (Golden et al., 2006), bringing various risks for both remote workers' job performance and well-being. For example, remote workers might suffer from limited access to information, impaired knowledge transfer, poorer social relationships with supervisors and colleagues, as well as misperceptions or mistrust regarding the effort and performance of the remote workers (Gajendran & Harrison, 2007; Taskin & Bridoux, 2010).

To overcome these challenges, remote workers rely heavily on ICT which provide them with the only possibility to communicate with supervisors, colleagues, and other work-related contacts (Gajendran & Harrison, 2007; Thatcher & Zhu, 2006). Communicating via ICT presupposes the remote worker to be available. But ICT-enabled availability comes at a price: Prior research shows that ICT-based availability is associated with detrimental outcomes such as more frequent interruptions of work processes (Jackson et al., 2003; Marulanda-Carter & Jackson, 2012), perceptions of restricted autonomy (Leonardi et al., 2010; Mazmanian et al., 2013) and telepressure (i.e., feel pressure to respond quickly to messages; Barber & Santuzzi, 2015), impaired detachment (Arlinghaus & Nachreiner, 2013; Dettmers, 2017), or increased work-to-family conflict (Eddleston & Mulki, 2017; Golden et al., 2006).

Therefore, how remote workers manage their availability and balance its benefits and perils is critical for work-related as well as individual outcomes. Remote workers continuously have to choose to which extent they are available for and responsive to supervisors, colleagues, and other work-related contacts via ICT. But which factors do remote workers consider – intentionally or more unconsciously – when managing their ICT-based availability? What influences when and how remote workers are available via ICT and how fast they respond to communication from work-related contacts? The first goal of this research is to provide a comprehensive framework of factors that shape remote workers' ICT-based availability, defined as being accessible and responsive for work-related contacts via ICT while working remotely (Bergman &

[1] Chapter 2 is based on a manuscript co-authored by Prof. Dr. Gisela Gerlach.

Gardiner, 2007). As this research will show, remote workers' availability management is a complex phenomenon with a diverse set of antecedents. Yet, prior research on precursors of ICT-based availability is fragmented, with most studies focusing on few selected antecedents and only three studies explicitly examining antecedents of ICT-based availability among remote workers. This study draws on interview data from 21 remote workers to dive into remote workers' considerations about ICT-based availability, aiming to identify all factors remote workers experience as relevant to how they manage their availability. This explorative qualitative approach allows us to develop a comprehensive categorization of factors influencing remote workers' ICT-based availability. Further, linking results of the qualitative study with propositions of the Theory of Planned Behavior (Ajzen, 1991), we contribute to a deeper understanding of how remote workers manage their ICT-based availability.

The second aim of this research is to synthesize the current state of research regarding antecedents of remote workers' ICT-based availability and identify critical research gaps. To this end, we conduct a systematic literature review. Contrasting results of our qualitative study with the current state of research, we are able to identify categories of antecedents of ICT-based availability that have not or have insufficiently been investigated in prior empirical studies, providing promising avenues for future research. Moreover, the holistic picture of drivers of remote workers' ICT-based availability we develop herein provides organizations with leverages to foster beneficial patterns of ICT-based availability in a remote setting.

Going further, we explain the methodology of both, the qualitative study and the literature review. Afterwards, we present the main findings from analyses of the qualitative data as well as the current state of the empirical literature and contrast both results. Finally, we discuss our findings and derive implications for research and practice, and present limitations of this study.

2.2 Method

2.2.1 Qualitative Study

To achieve our first research goal and obtain a comprehensive framework of factors influencing remote workers' ICT-based availability, we conducted an interview study with 21 remote workers. The qualitative approach was chosen to gain a deep understanding of remote workers' individual deliberations, decisions, and actual behaviors regarding their ICT-based availability.

The interview data were collected in 2019, before remote workers' prevalence increased significantly due to the COVID-19 pandemic. The interviews were predominantly conducted via

telephone. In total, 21 remote workers participated in the study, they were recruited through the authors' personal networks and snowball sampling technique. The sample consists of seven women and 14 men from ages 25 to 60, all living and working in Germany. 18 interviewees hold professional or managerial positions in private sector companies of different industries and sizes, three participants are employed in the public sector. 15 of the interviewees worked remotely once or twice a week, the remaining participants at least once a month. The heterogeneity of the study participants was intended to generate a comprehensive picture of factors influencing remote workers' ICT-based availability.

The interview guide was structured into two sections. The first part included questions regarding socio-demographics and occupations as well as general questions about the participants' remote setting. The second part focused on the remote workers' communication and availability behavior, as well as its antecedents and consequences. The semi-structured approach enabled us to ask in-depth follow-up questions to the interviewees' responses. The interviews were audio-recorded, their average duration was 70 minutes. All interviews were transcribed verbatim according to scientific standards.

To analyze the data, we followed the principles of qualitative content analysis suggested by Kuckartz (2014). This analytic approach allows to examine both manifest content, i.e., content that can be conceived directly from the text, and latent content that requires interpretation beyond the verbatim text (Brosius et al., 2016). This was important because we aimed to identify antecedents of ICT-based availability that are conscious to the remote workers, thus can be explicitly articulated by the participants, as well as factors that affect ICT-based availability subliminally, i.e., antecedents of which the interviewees may not be aware.

First, we conducted the case-oriented analysis of the qualitative content described by Kuckartz (2014). Hereby, each interview represents an individual unit of analysis and is examined and coded separately with respect to our research questions. Factors influencing a remote worker's availability were identified and formed inductive codes. In addition, we wrote memos to summarize each case with regard to our research goals. This case-oriented approach allowed parsing individual and situational circumstances influencing a remote workers' availability. Second, we conducted a category-based analysis to identify similarities, differences, and relations regarding antecedents of remote workers' ICT-based availability. This enabled us to develop categories of factors shaping availability. The codes and categories were described in memos to distinguish them from each other. The analysis was supported technically by the software MAXQDA (Version 2018.2).

2.2.2 Literature Review

To achieve our second goal and synthesize the current state of research regarding the antecedents of remote workers' ICT-based availability identified in the course of our qualitative study, we conducted a systematic literature review. In order to access the state of research, we followed the guidelines suggested by vom Brocke et al. (2009) and Webster and Watson (2002). The literature search was conducted in September and October 2021. First, we defined our search scope in accordance with our outlined research goal (vom Brocke et al., 2009). From this, we derived the relevant search terms for both aspects, remote work and availability. We included several synonyms of the terms based on our initial readings and experiences in this research field. To gain a comprehensive picture, we included broader search terms related to availability such as communication and types of ICT used for availability management. We then merged the identified terms into search strings outlined in Table 2-1.

Table 2-1: Search Strings for the Literature Review

Search String		
"home office" OR "working from home" OR telecommut* OR telework* OR "telework*" OR "flexible work arrangements" OR "remote work*" OR "remote employee*" OR "distributed work*" OR "home labor"	AND	availability OR accessibility OR reachability OR attainability
		response OR responsiveness OR answer
		communicat*
		email OR "e-mail" OR mail or "electronic mail"
		handy OR phone OR smartphone OR mobile
		skype OR FaceTime OR video OR zoom OR "microsoft teams"

The next step was to define the search outlets and criteria. The cross-disciplinary research topic combines research in the fields of information systems, management, and psychology. To cover each of these research fields we decided to use the following outlets: the AIS eLibrary and all journals contained in the Senior Scholar's Basket of Eight (information systems), Business Source Premier via EBSCO (management), and APA PsycArticles via EBSCO (psychology). Within these outlets we applied further inclusion and exclusion criteria. In the AIS eLibrary we searched within the conference proceedings of ICIS, ECIS and AMCIS. For APA PsycArticles and Business Source Premier we included only peer-reviewed journals to ensure a high quality of the papers. Due to language restrictions we only included documents written in English or German language. In alignment with our research goal we focused on empirical research (qualitative or quantitative studies). No restrictions were made regarding year of publication.

We then applied our search string for titles, abstracts and keywords within the three outlets with one exception: 'communication' was only searched in titles due to the enormous bandwidth of the term. Searching 'communication' in abstracts and keywords as well brought about hundreds of publications irrelevant to our research goal, which is why we opted against doing so. In addition to application of the search strings in literature databases, we used snowball technique and backward search (vom Brocke et al., 2009; Webster & Watson, 2002) to identify further relevant publications. In total, this multistage search yielded 799 publications. To identify those articles that actually report on empirical investigations of antecedents of remote workers' ICT-based availability, we screened all 799 articles' title, abstract, and, if necessary, full text. This selection process resulted in a final sample of 25 publications.

2.3 Analyses and Results

2.3.1 Qualitative Study

In this section, we present the results with regard to our first research goal. The content analysis of the qualitative data resulted in 17 antecedents of remote workers' ICT-based availability. These antecedents can be classified into seven superordinate categories: ICT-related, organizational, job-related, interpersonal, individual, and communication-specific antecedents of remote workers' ICT-based availability. The categories with their subcodes are described in detail in Table 2-2, including exemplary interview codes to illustrate each antecedent.

Table 2-2: Antecedents of Remote Workers' ICT-based Availability Derived from Qualitative Data

Antecedents	Explanation of antecedents and exemplary interview quotes
ICT-related antecedents (3): characteristics of the ICT used by remote workers	
ICT functionality	Functionality of ICT determines remote workers' technical capacity to be available *Exemplary quote: "I get annoyed if, for example, the VPN connection […] is not working well […], and so I am not available for technical reasons" (P4)*
ICT synchronicity	Remote workers provide higher availability for synchronous ICT compared to asynchronous ICT *Exemplary quote: "For me, there's not such a thing as 'the availability', like I am available via email within a minute. […] If he has something that important and needs an answer right away, he has to call me. Otherwise, if he doesn't [call], answering after an hour is fine with me." (P15)*
ICT settings	Remote workers use availability-related settings of ICT (e.g., push notifications) to manage their availability *Exemplary quote: "I have Outlook open all the time. And there, incoming emails pop up at the bottom right. So I see that anyway, even though I have a Powerpoint window in front, the email pops up at the bottom right and I look at it immediately." (P21)*

Table 2-2: Antecedents of Remote Workers' ICT-based Availability Derived from Qualitative Data

Antecedents	Explanation of antecedents and exemplary interview quotes
Organizational antecedents (2): characteristics of the remote workers' employing organization	
Availability regulation	Remote workers align their availability with the explicit availability rules that are in place in their organization and/or team *Exemplary quote: "We have the rule: When one gets called while working remotely, it is important. Hence, I am available. Normally I answer directly. Or I call back within the next five minutes." (P15)*
Availability norms	Remote workers align their availability with the (implicit) availability norms and expectations held by their organization, team, or individual work contacts *Exemplary quote: "I think you should always have Skype open while you are working and be available via Skype and also check your emails regularly, but that wasn't explicitly said. I believe it is expected." (P21)*
Job-related antecedents (3): characteristics of the remote workers' tasks	
Job-specific availability necessities	Remote workers align their availability with what they perceive is necessary to fulfil their job. Depending on the job-specific demands, it can either be necessary or counterproductive (e.g., tasks that require concentration) to be extensively available *Exemplary quote: "[First], I have a job description. I just have to do my job. And my job requires that I am available and that my colleagues are available as well, so that I can solve topics and issues." (P12)*
Current work activity	The work-related tasks remote workers are currently occupied with affect their ability and/or willingness to be available *Exemplary quote: "Well, this actually depends on what I am doing at the moment. If I am in a two-hour web conference while working remotely, […] where you […] discuss things […], I might not look in my email inbox during these two hours and only open the email inbox afterwards." (P6)*
Workload	Remote workers reduce their availability if heavy workload requires that *Exemplary quote: "Well generally, I am available for colleagues, but one factor of course is the workload that I face at the moment." (P5)*
Interpersonal antecedents (2): characteristics of the remote workers' communication partners and their relationship	
Felt pressure to prove effort	Remote workers use their availability to signal their work contacts that they are engaged in work. Thereby, remote workers aim to overcome suspicion regarding their effort that might result from their work behavior being invisible *Exemplary quote: "Because you want to demonstrate your availability when working remotely. […] Your supervisor doesn't […] see that you are working. Yet, you somehow want to make and maintain the impression that you are diligent and working." (P21)*
Priority of communication partner	Remote workers adapt their availability depending on the importance of the communication partner *Exemplary quote: "But of course, I am always available for my boss. He has, let's say, first priority. When I am doing something, I would always answer his calls. With colleagues I would just ponder if it could be important or if this colleague is important to me." (P9)*

Table 2-2: Antecedents of Remote Workers' ICT-based Availability Derived from Qualitative Data

Antecedents	Explanation of antecedents and exemplary interview quotes
Individual antecedents (5): remote workers' personal characteristics	
Personality and work-related attitudes	Remote workers' personality (e.g., conscientiousness) and work-related attitudes (e.g., job involvement) can induce an urge to be available and, thus, a tendency toward higher availability *Exemplary quote: "When it comes to emails, I'm just curious. I'm interested in what is happening right now. It's more about information. I think I couldn't spend half a day working remotely without checking my emails. For me it's more about curiosity. That I simply want to be informed, simply to be in the loop." (P15)*
Work practices	Remote workers' work habits and self-imposed work structures set boundaries for their availability *Exemplary quote: "I usually have a plan in mind and say, okay, […] in the morning I first take an hour or two for answering my emails […]. And then I turn off my phone, when there is nothing going on at all." (P3)*
Boundary management	The degree to which remote workers want to integrate/separate work and private life sets boundaries for their availability *Exemplary quote: "Emails may get in during a break, but I will answer them later. While I am cooking something, I am not looking at the laptop at the same time, but take care of the spaghetti […]." (P17)*
Private obligations	Private obligations and activities (e.g., doctor's appointments, sport activities) can limit remote workers' capacity to be available *Exemplary quote: "Let's say, I have a dentist appointment that I couldn't reschedule. Then I would note in my calendar […] that I am not available for one or one and a half hour because I am at the dentist." (P20)*
ICT knowledge	Lack of knowledge in handling the ICT limits remote workers' capacity to be available *Exemplary quote: Interviewee: "I think, some folks don't communicate as stringently while working remotely as they would do [in the office]." Interviewer: "And what do you think, is the reason for that?" Interviewee: "I think it's more a technical thing, maybe some can't really handle our new tools, Office 365 and Teams yet." (P1)*
Communication-specific antecedents (2): characteristics of the specific communication remote workers are involved in	
Urgency of communication	Remote workers differentiate their availability according to the (perceived) urgency of specific communication requests *Exemplary quote: "It always depended on the urgency. For instance, when I knew that I had a very difficult, dicey case and I was waiting for an answer, I checked [my phone] until 10pm. Otherwise the latest was 8 pm." (P13)*
Communication effort	Remote workers differentiate their availability according to the time they expect the response to require *Exemplary quote: "But it's possible that if it's a longer email that I have to write back or I have to do some research first, then I put it off a little bit." (P5)*

To further explain why the antecedents identified in the course of our qualitative study affect remote workers' choices regarding their ICT-based availability, we link the interview data with the Theory of Planned Behavior (Ajzen, 1991, 2002). The Theory of Planned Behavior

distinguishes three drivers of individuals' intention to engage in a specific behavior: attitude toward the behavior, subjective norm, and perceived behavioral control. Intention to engage in a behavior, in turn, is proposed to be directly related to individuals' actual behavior. As we will discuss in the following, the three drivers of individual behavior suggested by Ajzen (1991) can be applied to our qualitative data to develop a deeper understanding of the theoretical mechanisms underlying the relationship between the antecedents we identified and remote workers' ICT-based availability. Hereby, the various antecedents can be grouped into three categories: factors that influence (a) remote workers' attitude toward being available via ICT, (b) remote workers' perception of others' norms regarding ICT-based availability, and (c) remote workers' perception of the extent to which they have control over their ICT-based availability.

The first driver of individuals' intention to engage in a particular behavior discussed by Ajzen (1991) is an individual's attitude toward the behavior, that is, the degree to which a person evaluates the behavior as (un)favorable. This attitude results from individuals' beliefs about the likely consequences of performing the behavior (Ajzen, 2002). Transferred to our research context, remote workers should have a more positive (negative) attitude toward ICT-based availability and increase (decrease) their availability if they expect positive (negative) consequences from being available. Remote workers' attitude toward engaging in ICT-based availability behavior might stem from presumed work-related as well as personal consequences. For example, if being available is necessary to fulfil one's job role (job-specific availability necessities) or due to urgent communication requests (urgency of communication), remote workers might expect negative consequences of not being available and, thus, engage in higher ICT-based availability. Or, due to their personality, some remote workers might anticipate that being available results in feeling calm or satisfied, such that they develop a positive attitude toward ICT-based availability and therefore engage in ICT-based availability behaviors. As one interviewee puts it: "I find it calming to see what's on or […] what's waiting for me the next day" (P2).

The second driver of individuals' behavioral intentions suggested by the Theory of Planned Behavior is subjective norm, which refers to other individuals' normative expectations and, thus, the perceived social pressure to engage in a certain behavior (Ajzen, 1991, 2002). Transferred to ICT-based availability, remote workers' intention to be available should be influenced by their assumptions about what extent and kind of ICT-based availability others expect from them. This mechanism applies to several antecedents of remote workers' ICT-based availability we identified. For example, we find that remote workers align their availability to the availability rules and norms held by their organization and/or team (availability regulation and availability norms) to fulfill their work contacts' normative expectations. This is reflected in the

following interview quote: "I think the expectation surely was, to almost always be available. […] I adapted and adopted that" (P13). Moreover, due to the lack of visibility of one's engagement and performance in remote settings, it seems important for remote workers to demonstrate that their work behavior is in line with what their work contacts expect. Thus, remote workers intentionally use their ICT-based availability to signal their work contacts that they fulfill their expectations and work engaged (felt pressure to prove effort).

The third driver discussed by Ajzen (1991) is perceived behavioral control, which "refers to the perceived ease or difficulty of performing the behavior" (Ajzen, 1991, p. 188) and comprises factors that support or hinder showing a specific behavior (Ajzen, 2002). The possibility to actually engage in a certain behavior depends on the resources and opportunities available to a person. In line with this reasoning, some antecedents of ICT-based availability behavior we identified determine whether it is possible for remote workers to be available, such as their workload or private obligations. Further requirements for enabling ICT-based availability are the functionality of the ICT itself and remote workers' knowledge regarding how to use ICT to be available (ICT knowledge).

Some antecedents we identified appear to affect ICT-based availability through more than one mechanism suggested by the Theory of Planned Behavior. For example, the effect of the factor communication effort depends on whether a remote worker has the time to be available and responsive (i.e., perceived behavioral control) as well as on whether the remote workers expects (un)favorable consequences when being available and responsive, such as having too less time for other tasks (i.e., attitude toward the behavior). Together, by combining insights from the qualitative data with propositions of the Theory of Planned Behavior (Ajzen, 1991), we can provide a theoretical framework to explain why the antecedents we derived in our qualitative study affect remote workers' ICT-based availability behavior.

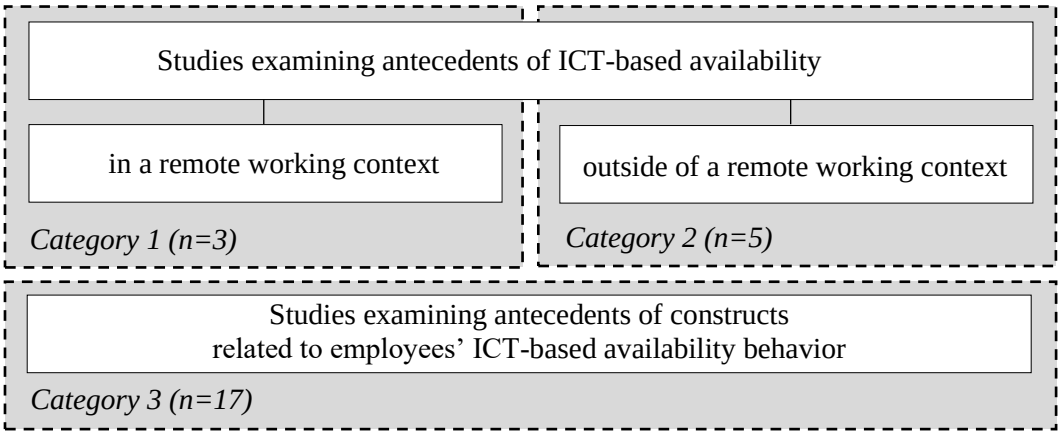
2.3.2 Literature Review

In this section, we address our second research goal by presenting the findings of our literature review regarding antecedents of remote workers' ICT-based availability and identifying critical research gaps. Generally, the studies merging from our literature search can be classified into 3 different categories (see Figure 2-1).

As studies in Categories 1 and 2 investigate ICT-based availability as the dependent variable, they are highly relevant to our second research goal. Thus, we report their findings regarding antecedents of ICT-based availability in detail in the following. We then give an overview of

insights provided by studies in Category 3 which focus on constructs that just are related to ICT-based availability.

Figure 2-1: Categories of Studies Included in the Literature Review



Category 1 encompasses the only three studies we could identify that examine antecedents of ICT-based availability among samples of remote workers. All three studies are based on qualitative data, collected by interviewing remote workers. Even though the studies focus on other research questions, they also describe individual factors mentioned by remote workers as affecting their ICT-based availability. Lal and Dwivedi (2010) investigate remote workers' experiences of using their mobile phone for work purposes. They find that, despite most remote workers' desire to keep work and home domains separate, they stayed available for work purposes via mobile phones during non-work time. To limit undesired work spillovers into the home domain, remote workers limit their availability via mobile phones by putting the phone away or switching it off during certain times. Even though the authors do not explicitly examine reasons why remote workers remain available during non-work hours, their findings indicate that remote workers react to incoming messages from certain senders after work hours. Together, while solely investigating availability via mobile phones, the study by Lal and Dwivedi (2010) supports the relevance of two antecedents we identified: 'boundary management' and 'priority of communication partner'.

Felstead et al.'s (2003) study focuses on problems resulting from lack of visibility and presence in a remote working context and strategies to deal with these. The authors find that remote workers perceive lack of visibility as problematic because it hampers showing one's reliability and productivity. Their interviewees also state that work contacts see remote work as a handle to engage in private activities instead of working. Underlining our insights regarding remote workers' felt pressure to prove their effort, Felstead et al. (2003) briefly elaborate on remote

workers' strategy to continuously be available via ICT in order to overcome the invisibility and its consequences. Other antecedents of ICT-based availability are not mentioned in this study.

While Leonardi et al. (2010) investigate ICT usage in distributed work settings, they include remote workers in their interview sample. The authors postulate a connectivity paradox, such that ICT-based connectivity is needed to conduct work but at the same time it hinders successful performance of work tasks by facilitating interruptions and impairing focus on the task at hand. One strategy interviewees in the sample use to avoid distractions and focus on their current task is to disconnect from ICT. This underlines our findings regarding the antecedents 'current work activities' and 'workload', stressing that remote workers might reduce their ICT-based availability to be able to get work done.

Together, the three qualitative studies in Category 1 underpin our propositions regarding five of the 17 antecedents of remote workers' ICT-based availability we identified in our qualitative study. Yet, the studies are far from providing a comprehensive picture of what drives remote workers' ICT-based availability. Further, our literature search resulted in no quantitative study in Category 1, indicating a lack of quantitative insights on antecedents of remote workers' ICT-based availability.

For the second category, our literature search brought out three quantitative and one qualitative ability behavior during or after work hours. These studies cover two topics: email response behavior as a specific manifestation of ICT-based availability and telepressure, which has been found to be a direct correlate of employees' actual availability.

While most studies on email response behavior focus on its outcomes, such as email-related stress (Hair et al., 2007) and interruptions (Jackson et al., 2003), some also shed light on factors influencing this behavior. For example, Hair et al. (2007) show that two personality traits, self-esteem and locus of control, are associated with different types of what they call email orientations, i.e., whether employees perceive incoming email as a stressor and how quickly they tend to respond. So, Hair et al.'s findings (2007) support the relevance of the antecedent 'personality and work-related attitudes'. Consistent with the antecedent 'work practices' identified in our qualitative study, Kalman and Ravid (2015) find that employees who attend to their inbox more often had shorter response times. They further provide evidence that employees who have to deal with a high number of incoming messages have slightly shorter response times. This finding supports our qualitative data in proposing that remote workers align their availability with 'job-specific availability necessities'. Tyler and Tang (2003) examine email responsiveness and rhythms in a qualitative study. In line with the results from Lal and Dwivedi (2010) and our

own qualitative study regarding the antecedent ‘priority of communication partner’, Tyler and Tang (2003) find that response time depends on the sender.

As telepressure, defined as the perceived pressure to respond quickly to messages from work contacts (Barber & Santuzzi, 2015), has been shown to be an immediate precursor of email response frequency and response time (Barber & Santuzzi, 2015; Grawitch et al., 2017), we include studies on antecedents of telepressure in Category 2 as well. These studies support the relevance of several factors we identified as impacting remote workers’ ICT-based availability. In their 2015 study, Barber and Santuzzi find public self-consciousness, techno-overload, and response expectations to be moderately associated with telepressure. Grawitch et al.’s (2017) study indicates that work demands (in particular, work overload, response and availability expectations) and personality traits (in particular, neuroticism, self-control, and workaholism) explain a significant amount of variance in telepressure. Together, the studies on antecedents of telepressure, while not conducted in a remote working context, indicate support for our insights regarding the factors ‘personality and work-related attitudes, ‘availability norms’ and ‘workload’.

Studies in Category 3 examine antecedents of constructs related to ICT-based availability behavior. In particular, we found studies investigating work-related ICT use (which includes but is not limited to using ICT for communication purposes), technology-assisted supplemental work, and media choice as dependent variables.

The first stream of research in Category 3 subsumes studies that investigate employees’ use of ICT for work purposes. Because work-related ICT use might encompass using ICT to be available, we now provide an overview of these studies’ results regarding drivers of employees’ ICT use. Yet, when interpreting these findings with regard to our research interest, it is important to note that ICT use is distinct from ICT-based availability: Using ICT to get work done might but does not necessarily include being available for work contacts.

A major theme of studies on work-related ICT use is the relevance of individual-level antecedents. For example, Boswell and Olson-Buchanan (2007) quantitatively investigate employees’ ICT use to perform their job after hours and find that employees with higher ambition and job involvement were more likely to use ICT beyond normal work hours. Consistent with these findings, Park et al. (2011) find in their quantitative study that job involvement is positively related to work-related technology use at home. The influence of individual characteristics on ICT use was further investigated in several qualitative studies (e.g., Barley et al., 2011; Matusik & Mickel, 2011; Mazmanian et al., 2013). These studies point to the relevance of employees’

desire to feeling connected and to staying in the loop as well as their fear of falling behind and missing important information. Summarized, these studies support the relevance of the antecedent 'personality and work-related attitudes' we found in our qualitative study.

Besides these individual-level antecedents of work-related ICT use, several qualitative and quantitative studies indicate that social norms are associated with work-related ICT use. In particular, employees seem to use ICT because they feel the pressure to be available and responsive (e.g., Ramsay & Renaud, 2012), because of perceived expectations of others regarding their availability (e.g., Matusik & Mickel, 2011; Mazmanian et al., 2013; Piszczek, 2017), and because of the social pressure to align their behaviors with the actions of others (Mazmanian, 2013). These findings can be linked to the antecedent 'availability norms' we found in our qualitative study and confirm the influence of subjective norms on employees' behavior.

Another stream of research in Category 3 investigates technology-assisted supplemental work (TASW) at home, i.e., full-time employees using ICT to work from home after regular working hours (Fenner & Renn, 2004). Summarized, these quantitative studies identify several technology-related, work-related and organizational factors that are associated with TASW (Fenner & Renn, 2010; Towers et al., 2006; Venkatesh & Vitalari, 1992). For example, Fenner and Renn (2010) show that climate for TASW (i.e., organizational expectations to perform TASW) is positively related to TASW – a finding that is parallel to the antecedent 'availability norms' identified in our qualitative study. Vankatesh and Vitalari's (1992) study indicates that employees with children tend to exhibit lower levels of TASW. Pointing in a similar direction, our qualitative data show that private obligations lead to reduced availability.

Finally, several studies contained in Category 3 examine antecedents of media choice, i.e., employees' decisions regarding what medium to use to communicate with others. Key determinants of media choice are media richness, social presence, characteristics of individuals' social environment, the task at hand, as well as the medium itself (Rice et al., 1992; Sitkin et al., 1992; Straub & Karahanna, 1998). Several of the studies on media choice have been conducted in a remote working context (e.g., Higa et al., 2000; Ruppel et al., 2013; Scott & Timmerman, 1999). Yet, media choice is less a form of availability behavior, but rather a characteristic of employees' communication behavior. As such, we consider transferability of insights from studies on media choice to our research context as limited.

Together, our literature review points to several critical research gaps. First, we found only three studies explicitly examining antecedents of remote workers' ICT-based availability (Category 1) and five studies that investigate ICT-based availability outside of a remote working

context (Category 2). This indicates that research on drivers of employees' ICT-based availability is scarce – be it within a remote working context or beyond.

Second, our review of research on ICT-based availability and related constructs shows that our knowledge about factors that might influence remote workers' ICT-based availability is very fragmented. Several antecedents we identified in the course of our qualitative study (including the ICT-related and communication-specific antecedents, 'private obligations' and 'ICT knowledge' at the individual level and 'availability regulation' at the organizational level) have not been studied in preceding research on remote workers' availability nor in related fields and need empirical validation, particular so in quantitative studies within a remote working context. Further, those antecedents that have been studied have mostly been investigated in isolation or in combination with only one or two other antecedents. Therefore, as well as due to the omission of several factors we identified as relevant in preceding research, we know very little about the relative importance of the various antecedents and their potential interaction effects on remote workers' ICT-based availability.

Another limitation of the studies we reviewed is that many focus on one specific ICT, such as mobile phones. Yet, our interviews indicate that remote workers purposefully make use of different ICT to manage their availability. Similarly, it is problematic that prior studies use quite distinct conceptualizations of ICT-based availability. Some studies use measures of responsiveness, such as response times or frequency. Other studies measure the frequency and extent of work-related ICT use, many of them focusing on ICT use after hours. As stated above, these constructs are distinct from availability as such, as using ICT to get work done does not necessarily include being accessible and responsive for work contacts.

2.4 Discussion

In this section we first discuss our findings to derive implications for further research and practice and, lastly, we present limitations and a conclusion.

2.4.1 Contributions and Implications for Future Research

This research examines antecedents of remote workers' ICT-based availability. Based on a qualitative study, we provide the first comprehensive framework of 17 antecedents of remote workers' ICT-based availability, structured into seven categories. Drawing on the interview data as well as the Theory of Planned Behavior (Ajzen, 1991, 2002), we provide theoretical explanations of why the 17 factors affect remote workers' ICT-based availability. Based on a

systematic literature review, we synthesize the current state of research regarding antecedents of remote workers' ICT-based availability and studies in two related research fields that match our search strings. Contrasting the current state of research with results of our qualitative study shows that many of the factors we identified as drivers of remote workers' ICT-based availability in the qualitative data have not been investigated in prior research. Accordingly, future research should investigate all ICT-related and communication-specific antecedents contained in our framework, as well as the antecedents 'availability regulation', 'private obligation', and 'ICT knowledge'.

Moreover, what is missing or sparse in prior research are (a) quantitative studies on drivers of employees' ICT-based availability, (b) studies that simultaneously investigate distinct antecedents of ICT-based availability to shed light on their relative importance and potential interaction effects, and (c) studies that explicitly investigate antecedents of availability in a remote working context. Accordingly, we suggest that future research uses quantitative approaches to determine the effect sizes of the 17 antecedents on remote workers' ICT-based availability. Including different categories of the antecedents we present in our comprehensive framework in quantitative studies would allow for determining the relative impact of these antecedents. While it might be difficult to investigate all 17 factors in one study, researchers could apply a multilevel design and, for example, focus on antecedents that vary intraindividually (e.g., private obligations, communication effort, workload) while controlling for stable factors (e.g., personality and work-related attitudes, availability regulation). Further, future research could investigate moderating effects in order to understand which antecedents amplify or attenuate each other in their effect on remote workers' ICT-based availability. Moreover, quantitative studies could be used to test whether the antecedents we identified are specific for a remote working context or if they are transferable to employees' ICT-based availability in general. Finally, quantitative studies are needed to identify differences in the effects of the various antecedents among heterogenous samples, such as employees with or without care or managerial responsibilities.

As a final implication for future research, a holistic conceptualization and validated measure of ICT-based availability is needed. Instead of focusing on a specific availability behavior (e.g., email response time) and/or one specific ICT (e.g., mobile phone) as current studies often do, a holistic conceptualization and measure should cover all ICT and all manifestations of availability behaviors that are relevant when working remotely. This would help to increase comparability of studies and to achieve a holistic picture of antecedents (and outcomes) of the complex phenomenon of remote workers' ICT-based availability.

2.4.2 Practical Implications

As shown by previous studies, ICT-based availability is a prerequisite to interact with work contacts and to overcome various challenges that arise from the physical separation in a remote working context, such as limited access to information and impaired knowledge transfer (Gajendran & Harrison, 2007; Taskin & Bridoux, 2010). However, extensive availability also bares various detrimental effects, such as interruptions of work processes (Marulanda-Carter & Thomas, 2012; Jackson et al., 2003) and impaired detachment (Arlinghaus & Nachreiner, 2013; Dettmers, 2017). To balance these beneficial and detrimental effects, companies and remote workers alike need to determine the right amount of ICT-based availability that enables frictionless work processes and collaboration, while at the same time maintaining remote workers' individual performance capacity and well-being.

The findings provide practical implications for both, organizations and remote workers to help them establish the necessary level ICT-based availability and combat the detrimental effects of "under-" as well as "overavailability". Above all, supervisors need to discuss and clarify the crucial level of ICT-based availability in their teams with remote workers and their colleagues. In aiming to achieve the necessary level of availability, it is important to consider the comprehensive framework of factors that influence remote workers' availability. Several of these factors can be influenced by the company itself, thus this is where organizations should focus on. In particular, companies should establish organization-wide availability regulations that provide a general framework for ICT-based availability when working remotely. It is crucial that this policy provides freedom to consider team-level availability necessities as well as individual-level antecedents of remote workers' ICT-based availability. Moreover, companies should foster team-level agreements on what availability norms every team member needs to comply with. Such agreements need to reflect actual availability needs, be developed jointly by all team members, and be maximally transparent for all team members in order to ensure that remote workers' perceptions of others' availability expectations are in line with the actual team norms. As a recent study shows, individuals often overestimate expectations regarding their availability in terms of response times (Giurge et al., 2021).

In applying all these measures, companies, supervisors, and colleagues alike need to account for individual-level as well as situative factors that drive remote workers' ICT-based availability. All regulation and norms need to give remote workers a certain degree of flexibility to adapt their availability to individual needs and should allow for exceptions if specific situations require so.

Finally, companies should consider factors that influence remote workers' capability to purposefully manage their availability. For example, they can offer trainings to foster remote workers' competencies regarding how to use and set up different ICT to achieve the needed level of availability and avoid "over-availability" (referring to the antecedent 'ICT knowledge' and 'ICT settings'). Beyond that it is important, that companies supply functioning ICT systems (referring to the antecedent 'ICT functionality').

2.4.3 Limitations and Conclusion

As all research, the present study has several limitations. First, our qualitative study is limited in that the interviews were conducted before the COVID-19 pandemic. Conducting more interviews now would allow for a more diverse sample that includes remote workers who have less experience in working remotely or remote workers who are forced to work remotely, even if they did not prefer to do so. While we do not expect that a different sample would have resulted in additional antecedents not included in our framework, it is very likely that a more diverse sample would contribute to a better understanding of how individual-level factors such as remote workers' care responsibilities drive the relative importance of the antecedents of remote workers' ICT-based availability we identified. For example, especially since the COVID-19 pandemic, we assume the antecedent 'private obligations' to be more relevant for remote workers with care responsibilities, as some employees were required to supervise their children and engage in home schooling while working remotely.

Second, although we conducted a broad, structured literature search, our literature review entails several limitations. It is possible that some relevant articles were not identified due to search criteria restrictions. For instance, after identifying and screening relevant publications, we realized that the term "connectivity" might have led to more results, as it is often used in the context of ICT-based availability. Moreover, the results of our literature review only entail studies found by combining availability-related search terms with remote work-related search terms and results from using snowball technique and backward search. Therefore, Category 2 and 3 of our literature review do not represent a complete picture of the current state of research in these categories.

Despite these limitations, this research offers a comprehensive framework of antecedents of remote workers' ICT-based availability and therefore helps to better understand their decisions and behaviors in this regard. Moreover, we synthesize the current state of research regarding remote workers' ICT-based availability and suggest avenues for further research by contrasting the results of our qualitative study with the current state of research.

3. Remote Workers' Proving Availability and Communication Behavior[2]

3.1 Introduction

With the constant development of ICT, employees are no longer restricted to work at the company office (Khanna & New, 2008). Instead, they can rely on ICT to work remotely and conduct their work activities at other locations, for example at home. A survey of around 16,000 companies conducted by the Institute for Employment Research shows that companies report the increased flexibility and work-life balance for employees as a key benefit of remote work (Grunau et al., 2019). Additionally, two meta-analyses found positive effects on employee performance among remote workers (Gajendran & Harrison, 2007; Harker Martin & MacDonnell, 2012). One possible explanation for the improved performance is that remote workers may work in a more focussed manner at home, as they are not subjected to the typical distractions of the office, such as colleagues passing by or higher noise levels (Bailey & Kurland, 2002; Bloom et al., 2015). However, working remotely also brings various challenges due to the physical separation of remote workers from their colleagues and supervisors. For example, the physical separation may lead to social isolation, which can negatively impact remote workers' motivation and job satisfaction (Golden et al., 2008). Another challenge is monitoring remote workers, as the instrument of observation is no longer available (Kurland & Cooper, 2002). The lack of transparency and the limited opportunities to monitor remote workers can lead to the assumption that remote workers take advantage of these circumstances and engage in non-work activities instead of working (Felstead et al., 2003; Kaplan et al., 2018; McCloskey & Igbaria, 2003; Peters et al., 2010). The following quote from a remote worker who participated in the interview study conducted for this research supports this notion:

> "Because maybe there is a bit of a myth that people who work remotely are lazy [...] We have a few colleagues who seem like they are not really accessible [...] And if they do not reply to emails, you think, well, are they even working at all?" (P3)

[2] Chapter 3 is based on the following article: Schuster, M. (2020). Gefühlter Beweisdruck im Homeoffice: Mit angepasster Erreichbarkeit und Kommunikation gegen Vorurteile. *Zeitschrift Führung + Organisation*, *89*(6), 364–371.

The interview study revealed that remote workers often try to prove that they are actually working at home by changing the way they manage their availability and communication. The present research aims to introduce and describe the concept of remote workers' proving availability and communication behavior. Further, this research explains the emergence of such proving behavior and identifies potential outcomes. The findings contribute to literature and practice by shedding light on this phenomenon, thereby providing implications to avoid its negative consequences and maintain the benefits of remote work.

3.2 Method

The results are based on the interview study with 21 remote workers described in Chapter 2.2.1. The goal of this study was to explore remote workers' availability and communication behavior. A qualitative research design was chosen to capture remote workers' subjective perceptions, feelings and considerations when managing their availability and communication. Thereby, individual patterns of remote workers' availability and communication behavior, as well as its antecedents and consequences, were explored. The sample descriptive and data collection procedure are outlined in Chapter 2.2.1.

To address the second research goal of this dissertation and explore remote workers' proving availability and communication behavior, the interviews were analyzed using grounded theory method (Glaser & Strauss, 1967). This method can be used to holistically examine the phenomena under study and to develop a theory derived from the empirical data (Corbin & Strauss, 2015). Accordingly, this research relies on grounded theory to develop comprehensive explanations regarding remote workers' proving availability and communication behavior. The three-stage coding technique of Corbin and Strauss (2015) was applied and supported technically by the software MAXQDA (Version 2018.2). As a first step, initial *open coding* was conducted, in which the interview transcripts were read and coded line by line. Each code represents a summary of that piece of data, whereby the initial codes remain close to the participants' depiction. Examples of initial codes used in this study are 'continuous availability', 'non-availability', 'expectations of others', or 'signaling engagement'. Next, the process of *axial coding* involved comparing the initial codes to refine and aggregate them into meaningful broader categories. For example, the initial codes 'continuous availability' and 'non-availability' were aggregated into the broader category 'availability and communication patterns', whereas the initial codes 'expectations of others' and 'signaling engagement' were merged into a category named 'antecedents of availability and communication behavior'. The third step, *selective*

coding, involved integrating and refining the previous codes and categories into core concepts, that consider relationships between the emerging themes. An example of a concept developed during this step is ‘continuous availability to signal engagement’. Such overarching concepts synthesize and conceptualize the data as a whole and serve as the basis to develop a grounded theory.

All three coding stages followed an iterative process, moving back and forth between the data and the codes, categories, and concepts. Constant comparison of the working theory, the data and emerging codes, categories, or concepts was used to verify initial interpretations and to suggest possible relationships between the data. Throughout the data analysis, memos were written to capture thoughts about the constructs and their relationships, or to summarize key findings. Coding all 21 interview transcripts resulted in a total of 4.157 codes and 255 memos.

Finally, based on the initial codes, broader categories, core concepts, and written memos, an overarching framework consisting of “boxes” and “arrows” was developed to visualize the underlying relationships of remote workers’ proving availability and communication behavior. The boxes represented the constructs derived from the codes, categories, or concepts, whereby the arrows represented how these constructs relate to each other (Murphy et al., 2017). The framework included interview quotes underpinning the proposed relationships, thereby providing data-driven explanations of how and why the boxes relate to one another. Based on this framework, the phenomenon of proving availability and communication behavior was developed and summarized in a five-stage model.

3.3 Analyses and Results

The five-stage model illustrated in Figure 3-1 explains the phenomenon of remote workers’ proving availability and communication behavior with both its causes and outcomes.

Figure 3-1: Model of Remote Workers' Proving Availability and Communication Behavior

In the following, the five stages of the model are explained in detail.

3.3.1 Lack of Visibility and Transparency

The first stage of the model describes the lack of visibility and transparency during remote work as the cause of the phenomenon. During an office working day, supervisors and colleagues can usually observe whether (and to what extent) an employee is working for the company (Fairweather, 1999). However, if an employee is working remotely, they are not physically present or visible to supervisors and colleagues (Kurland & Egan, 1999). Therefore, it is less transparent whether, and how, remote workers are actually working (Felstead et al., 2003).

In previous research, the lack of transparency was predominantly described from the perspective of supervisors, who find it more difficult to control and monitor remote workers' activities (Groen et al., 2018; Kossek & Thompson, 2016). However, remote workers themselves are also aware of this lack of transparency:

> "To a certain extent, I put it down to working remotely, [...] to the issue of transparency. [...] I am physically present in the office. [...] If I have a physical presence, then I simply feel more comfortable as an employee. Because I am actually there. My boss sees that I am there. So I am probably working too. That is perhaps the conclusion. When I am working remotely, he does not even know what I am doing." (P15)

It is important to consider that the degree of transparency may vary depending on the nature of the work tasks. Some types of tasks lead to directly measurable and visible work results, which increases the level of transparency. In particular, repetitive and standardized tasks give supervisors greater opportunity for monitoring remote workers (Dimitrova, 2003). However, as one interviewee summarizes, for the majority of activities conducted remotely, it is "elusive [...] whether you are really working engaged" (P21).

3.3.2 Fear of Bias Against Remote Work

Due to the lack of visibility and transparency, many interviewees fear that there exists bias against remote workers, and that colleagues and supervisors may be skeptical about whether they are actually working at home. Colleagues and supervisors may assume that remote workers laze around or engage in private activities instead of working. As illustrated in Table 3-1 the interviewees perceived such bias against remote workers from supervisors, colleagues, and management.

An interview study on the implementation of remote work also found supervisors to be skeptical about whether remote workers are actually working at home or whether they engage in other (private) things (Peters et al., 2010). However, empirical studies regarding the prevalence and

causes of such skepticism (and the corresponding bias) are missing. Yet, the decisive factor for the phenomenon of proving availability and communication behavior seems to be whether remote workers perceive such a bias, rather than whether it actually exists among their colleagues and/or supervisors.

Table 3-1: Bias Against Remote Work Among Various Stakeholder

Supervisors	Colleagues	Management
"If a supervisor is skeptical about remote work, then the employee will also tend to see [...] how they can [...]be more visible when working remotely. [...] Because the employee thinks it [...] will be viewed with skepticism that they are working remotely." (P6)	"This skepticism definitely exists. [...] With other people, you get the feeling [...] that maybe the laptop is just lying on the sofa. And if an email comes in, then it will be looked at and answered. And, otherwise, they might be busy with other things. [...] My friend's colleagues have already requested to work remotely for following reason: 'I have to do the Christmas decorations'. [...] This is just a sign that they see working remotely as partially free time." (P8)	"I think, [...] our management is still a bit conservative [...]. Furthermore, I believe that trust [...] of the employees does not really exists. That it is essentially being exploited if you work remotely by doing several private things besides working." (P18)

3.3.3 Felt Pressure to Prove Effort

As research on impression management has shown, it is important to many people how they are perceived by others (Gardner & Martinko, 1988; Leary & Kowalski, 1990). Impression management theory describes why and how individuals try to create their desired impression (Gardner & Martinko, 1988). According to theory, individuals are particularly motivated to manage others' impression when they fear being perceived differently than they desire (Leary & Kowalski, 1990).

If remote workers perceive that people in their work environment are skeptical about their engagement, they fear that others will have a negative impression of them. In line with the mechanisms discussed in impression management research, the interviewees describe that this leads to the feeling of having to prove their effort when working remotely. Remote workers are concerned about the impression they make on their supervisors and colleagues, i.e., they want to avoid the (latent) suspicion that they laze around when working remotely.

> "Everyone has this feeling that when working remotely, it is somehow, how should I put it? […] I have to prove – or the other way around – I do not want to give the impression [...] that I am just lazing around." (P15)

The intensity of feeling pressure to prove one's effort when working remotely may vary and depends on various factors. Among interviewees whose work is characterized by a high degree of responsibility and autonomy, such as those in managerial positions, this feeling is less pronounced. On the other hand, some interviewees who feel insecure about working remotely report this feeling more frequently. This may be the case, for example, for employees who have only recently started working remotely, or whose supervisors or colleagues express or imply bias against remote workers.

3.3.4 Proving Availability and Communication Behavior

Since remote workers conduct their tasks outside of the office, they have no opportunity to prove their effort by being physically present for supervisors and colleagues. The only means of contact between employees working remotely and their supervisors or colleagues is via electronic ICT – such as laptops and smartphones. Remote workers can actively manage their availability and communication via such ICT. Therefore, they need to decide how they want to be available to, and communicate with, supervisors and colleagues.

Some interviewees report that their availability and communication behavior is perceived as a central, if not the only, means to prove their effort when working remotely. Accordingly, felt pressure to prove their effort leads to an adjustment in their availability and communication behavior. Thus, remote workers' proving availability and communication behavior describes the extent to which remote workers adjust their availability and communication in order to signal to supervisors and colleagues that they are actually working. The interviewees describe the following behavioral patterns:

Continuous availability. A key determinant of proving availability and communication behavior is to be continuously available to supervisors and colleagues when working remotely. Thereby, some interviewees want to ensure that they can always respond to incoming communications from supervisors and colleagues to avoid the impression that they are not working at home:

> "It is one of those things, of course, I also want to be available. This is because [...] colleagues [...] could think that I am taking advantage of [working remotely], and of course I do not want that. Not that it comes across that way. And that is why I am always willing to be as available as possible." (P18)

Some interviewees use the availability status of instant messaging applications such as Skype or Microsoft Teams to demonstrate their continuous availability. The availability status of an

employee is displayed to other people by means of color coding. Several interviewees report that they ensure to be shown as "available" when working remotely, and that the status does not change to "offline" when their laptop is inactive. Although some work activities can be conducted without a laptop, they are concerned that displaying an "offline" status could give the impression that they are not working:

> "When working remotely, I also find it annoying [...] because nobody sees me there. [...] I think [...], after 2 or 3 minutes, my status turns yellow, meaning that I have not done any more work [...] For example, if I am [...] working on a concept without the laptop, the status turns yellow. And, of course, then you think, I will just move my mouse so that everyone knows that I am still there [...] I actually do that [...] because then I can be sure that, okay, everyone still knows that I am available." (P18)

Prompt response. Moreover, some interviewees report that they "tend to answer all emails [...] more quickly when working remotely to demonstrate their availability" (P21). Such a prompt response to incoming communication is intended to prove to supervisors and colleagues that they are actually active and working at home.

Demonstrating communication. Additionally, some interviewees state that they consciously use their communication in form of emails or phone calls as evidence. The only reason they contact their supervisors or colleagues is to demonstrate their effort while working remotely. Beyond that, the communication itself adds no value in terms of content:

> "Then you think [...]: 'Now you have just finished that. Now you write another quick email to your boss so that he can see that you got some work done at home. [...] You try to show them that I'm doing something. I am there. And then you usually send out an email. [...] Or sometimes you call [...] and then you tell something [...] that really was not that valuable." (P15)

Problematization of non-availability. Furthermore, interviewees report to feel uncomfortable when they are not available to supervisors or colleagues while working remotely, regardless of whether their non-availability is caused by personal, professional or technical reasons. As they see no other means to prove their effort while working remotely, they fear that their non-availability may give the impression that they are taking advantage of the lack of transparency:

> "You [...] try to answer every inbound call. And you also get annoyed when, for example, the VPN connection is not working as well as it should for whatever reason. And then you might not be available for technical reasons at some point. It is a bit more

> stressful than when you are in the office. This is because you have no other way of signaling to your colleagues that you are actually working." (P4)

Accordingly, some interviewees state that they inform their supervisors and colleagues if they are not available for a certain period of time while working remotely. This is to avoid false suspicions:

> "Of course, [...] you get the impression that you should be present during [...] core working hours. And if you are not, you inform your colleagues. I will be away for two hours as I have an appointment. Because, otherwise there is always [...] this latent suspicion that the person might have just, perhaps, fallen asleep and just opened their laptop, as the person does not answer the phone." (P8)

The following quote underlines the lack of visibility and transparency while working remotely as a reason for feeling the need to explain your own non-availability:

> "When you work remotely, it is just like when you are [...] on a conference call, at the end of the day, nobody sees that you have been on a conference call for the last three hours and they might think: 'OK, what is he doing, as he does not call back.' That is why I sometimes feel a bit of a conflict and have to justify myself [...] and say: 'I had an appointment beforehand'. And it is much easier to handle in the office, because everyone can see [...] he is busy at the moment or he is doing something else or is in a conference call. And, of course, they do not see that when working remotely." (P9)

The interviewees hope that these behaviors will be perceived by supervisors and colleagues as an indication of their effort when working remotely, and that they will be able to prove that they are actually working at home.

3.3.5 Outcomes

The interviewees engage in such behaviors in the expectation to prove their effort while working remotely, thus avoiding situations where supervisors or colleagues have a negative impression of them. However, the interview data shows that proving availability and communication behavior leads to negative outcomes for remote workers themselves, which are explained in the following.

Limited flexibility. As described in the introduction, remote work should offer employees greater flexibility and improve their work-life balance. Most of the tasks typically performed remotely can usually be conducted autonomously, allowing remote workers to schedule their work flexibly and independently of regular working hours (Biron & van Veldhoven, 2016;

Delanoeije et al., 2019). However, felt pressure to prove effort and concomitant proving availability and communication behavior may lead to a perceived reduction in remote workers' scheduling flexibility:

> "Remote working is actually something that offers you a lot of flexibility [...], but you are very limited in this flexibility by the fact that you want to be available, because then you are trying not only to have your business mobile phone with you during normal business hours, but also to be at the laptop, and to leave the laptop on." (P21)

Trying to be constantly available when working remotely and responding quickly to messages from supervisors or colleagues reduces the ability to organize the working day flexibly and reconcile it with personal commitments. This is how one interviewee describes it:

> "It is [...] about this constant availability [...] that it is not necessary all the time. That it is actually accepted to not be available for ten minutes [...]. This would give you [...] more freedom to spread your eight hours of work over the day. This is not possible at the moment. It would have [...] advantages because you could, for example, work your eight hours in [...] twelve hours. And you use the rest of the time to pick up the children from daycare, to go to Ikea, [...] to do things that you cannot do otherwise [...] And not just things where you have appointments where you have a reason, but also things where you just say: "Oh, I just feel like going there. I will just continue to work in two hours." (P8)

However, integrating private commitments while working remotely might cause an uncomfortable feeling, as supervisors or colleagues may recognize such interruptions of work: "I notice that I have a guilty conscience and think, well, now Skype was off as I went to the gym for 2 hours, and now someone can see that my status was offline" (P14).

The restriction of flexibility is also reflected in how remote workers manage their breaks. One interviewee reports the following situation: "If I wanted to take my lunch break now and someone called, I would still answer [...] because you want to demonstrate your availability while working remotely." She describes the reason for this as being "that the supervisor does not physically see that you are working and [you] still want to give the impression [...] that you are diligent and working" (P21).

Disruptions of concentration. Another advantage of working remotely is the ability to work concentrated. Some interviewees report that they retain some tasks specifically for remote working days, so that they can work on them without being disrupted or disturbed.

However, proving availability and communication behavior can have a negative impact on concentrated work. As the following quote shows, some interviewees interrupt their actual work as soon as they receive a message from supervisors or colleagues, in order to respond immediately:

> "I also let myself be interrupted [...] by definitely checking an email [...] as soon as it comes in. [...] Maybe a bit more than in the office, because at home others cannot see that you are working, and communication is the only point where you can show that you are working. [...] You get distracted from the actual activity you are doing by such communication [...] because you definitely want to answer it." (P21)

Pressure and stress. Additionally, constantly engaging in proving availability and communication behavior may lead to feelings of pressure and stress, as illustrated by the following quotes:

> "When you work remotely, you no longer have the excuse of not answering incoming messages because you were in a meeting for an hour and a half or two hours. Thus, if you do not react immediately, it may be perceived negatively by others. That is why [...] the pressure may be even higher." (P13)

> "When I am reading a paper and I see new messages coming in [...] that you could actually answer quickly, I feel a bit under pressure. Simply because colleagues know that the answers could be given quickly, and then this suspicion may arise: 'What is he doing at home right now? The email is not that difficult after all. Why is he not responding?'" (P8)

3.4 Conclusion

This study describes the phenomenon of proving availability and communication behavior for the first time, explains its causes and outlines its possible outcomes. Although some aspects of such proving behavior are mentioned in previous research (Barsness et al., 2005; Cristea & Leonardi, 2019; Elsbach, 2012; Feldmann & Mazmanian, 2020; Felstead et al., 2003), this interview-based study systematically categorizes and describes the various patterns of proving availability and communication behavior. Moreover, a five-stage model was developed to explain the causes and outcomes of such behaviors.

Several practical implications can be derived (see Table 3-2) to reduce the tendency to engage in proving availability and communication behavior, thereby avoiding its negative outcomes while retaining the benefits of remote work. To summarize, organizations should aim to

counteract remote workers' felt pressure to prove their effort and to create awareness of the phenomenon of proving availability and communication behavior.

Table 3-2: Practical Implications to Counteract Proving Availability and Communication Behavior

Measures to avoid remote workers' proving availability and communication behavior	
Establish a result-oriented culture	Organizations should establish a results-oriented culture in which actual work results count as a performance indicator rather than proving availability and communication behavior.
Create a supportive remote working culture	Top management should create a supportive remote working culture throughout the organization and actively communicate positive attitudes towards remote workers.
Communicate trust	Supervisors should proactively communicate their trust in remote workers and express that proving availability and communication behavior is not necessary.
Act as role models	Supervisors may act as role models and signal their team members that they are allowed to schedule their working hours flexibly when working remotely.
Discuss availability and communication expectations	Teams should openly discuss availability and communication expectations for remote workers and establish corresponding guidelines to provide transparency.

In addition to the measures for organizations and supervisors, remote workers should have confidence in their performance and release themselves from feeling pressure to prove their effort. Consequently, they can manage their availability and communication according to their professional and personal needs, as one interviewee summarizes:

> "I can release myself from this feeling of guilt by saying that I have trust in myself, and free myself a little from the burden of how I want to appear to others, and instead take care of myself and work remotely with absolute self-confidence." (P14)

4. Remote Workers' Felt Pressure to Prove Their Effort[3]

4.1 Introduction

Hybrid work, a work model where employees work partly in the office and partly remotely, has become the "new normal" today (Franken et al., 2021; Halford, 2005). However, stereotypes persist depicting remote workers as less dedicated, engaging in non-work activities such as leisure, childcare or household duties, instead of doing their job. Although the prevalence of these stereotypes has not been quantified in prior research, they are extensively discussed in contemporary discourse. Several studies mention the existence of bias against the effort and productivity of remote workers (Felstead et al., 2003; Kaplan et al., 2018; McCloskey & Igbaria, 2003; Peters et al., 2010). Burbano and Chiles (2022) also suggest strategies for organizations to mitigate employee misconduct in gig and remote work environments. Bias against remote workers is also prevalent in press articles discussing remote workers' misconduct and measures taken for their surveillance (Christian, 2022; Marks, 2022; Satariano, 2020). Additionally, memes and videos circulate online ridiculing remote workers for their alleged lack of effort, showing them, for example, attaching their mouse to a fan to trick the system into showing "online" as their status while they are actually sleeping.

As research on stereotypes suggests, remote workers should sense these stereotypes as being "in the air" (Steele, 1997, p. 617), even if they do not personally believe in them (Kit et al., 2008). Based on Stereotype Threat Theory (STT; Kit et al., 2008; Steele, 1997), we propose that remote workers who perceive they might be the target of bias, feel threatened to be evaluated as less engaged by their supervisors and colleagues. In response to this threat, remote workers should feel pressure to refute the negative stereotypes and demonstrate their effort, striving to protect the image of being an "ideal worker" (Acker, 1990; Reid, 2015). Such pressure can harm individuals' well-being and performance (Kit et al., 2008), hence the need to shed light on this under-studied phenomenon.

Some early and indirect evidence for the relevance of stereotype threat in remote work settings can be derived from studies that mention or empirically examine the behaviors remote workers

[3] Chapter 4 is based on a manuscript co-authored by Prof. Dr. Gisela Gerlach.

use to signal their effort to others. Barsness et al. (2005) conducted a quantitative study on impression management tactics used by remote workers to prove their effort to supervisors, although they did not explicitly study stereotype threat. The authors suggested that, due to limited visibility, remote workers were "strongly motivated to manage others' impressions of them because they may fear that others are unaware of their efforts and performance" (Barsness et al., 2005, p. 402). Two qualitative studies have supported the notion that remote workers try to compensate for lack of visibility by engaging in behaviors demonstrating their reliability and productivity, such as responding quickly to email or answering calls during work breaks (Cristea & Leonardi, 2019; Felstead et al., 2003). Similarly, two management-oriented publications have discussed remote workers' tactics to counteract the lack of visibility, like sending emails early or late in the day to demonstrate their work activity (Elsbach, 2012; Feldmann & Mazmanian, 2020). As Cristea and Leonardi (2019) have emphasized, however, the motives behind these behaviors and their impact on remote workers' well-being remain unclear. Our research aims to fill this critical void by systematically examining why remote workers feel pressured to prove their effort and how this affects their well-being and job performance.

Our study makes three contributions to research on remote work. First, we examine the relevance of stereotype threat in the context of remote work by introducing the construct of remote workers' felt pressure to prove their effort. Drawing on STT, we define this as the extent to which employees feel they need to show they are dedicated to work while working remotely. We developed a quantitative measure and conducted a pre-test with 122 remote workers to examine construct validity. Second, we identify antecedents of remote workers' felt pressure to prove their effort to better understand the circumstances under which this feeling arises. We investigate antecedents on three levels: the organizational level (i.e., organizational norms regarding remote work), the team level (i.e., team norms regarding remote work), and the interpersonal level (i.e., felt trust by supervisor and colleagues). Third, we examine how felt pressure to prove effort affects well-being and job performance of remote workers. Drawing on the principles of STT, we contend that remote workers facing pressure to demonstrate dedication to work might be sidetracked from completing tasks and would experience increased stress and impaired psychological detachment. To examine the hypothesized antecedents and outcomes of remote workers' felt pressure to prove their effort, we conducted a two-wave survey with 407 remote workers and used structural equation modeling (SEM) to test our hypotheses.

Our study contributes to a comprehensive understanding of remote workers' felt pressure to prove their effort, its causes, and consequences, providing novel theoretical, empirical, and practical insights. In analyzing this pressure, we introduce a new, previously neglected

construct, and propose several valuable avenues for future research on remote work. Regarding antecedents, our empirical findings indicated that team factors, particularly team norms regarding remote work and felt trust by colleagues, were related to presumed bias against remote work, which in turn was positively related to remote workers' felt pressure to prove their effort. Regarding consequences, our research showed that this pressure negatively affected their well-being as shown by increased stress and decreased psychological detachment, which both hindered job performance. From these findings, we were able to derive implications for how organizations, supervisors, and colleagues could counteract this pressure, thereby maintaining employees' well-being and performance in a hybrid work environment.

4.2 Theory and Hypotheses Development

4.2.1 Stereotype Threat Theory

Stereotype threat is one of the most extensively studied social psychological concepts (Schmader & Inzlicht, 2012), and stems from studies assessing the impact of stereotypes on stigmatized group members (Kit et al., 2008; Steele, 1997; Steele & Aronson, 1995). Stereotypes are defined as "exaggerated belief[s] associated with a [social] category" (Allport, 1954, p. 191) and can either have a positive or a negative connotation (Wheeler & Petty, 2001). In our study, we focus on negative stereotypes of remote workers. According to STT, individuals who presume others hold negative stereotypes about the social group they identify with, should experience stereotype threat, meaning that they fear confirming or being reduced to those stereotypes (Kit et al., 2008; Steele, 1997). STT further contends that individuals who experience stereotype threat feel pressure to refute negative stereotypes, which can have detrimental effects on their internal state and performance (Kit et al., 2008; Steele, 1997).

STT discusses various preconditions of stereotype threat. First, stereotype threat can be triggered by any cue that "signal[s] a risk of being judged based on a negative stereotype" (Swab et al., 2022, p. 535). The way in which individuals perceive and interpret these cues determines whether or not they feel threatened (Finkelstein et al., 2015; Swab et al., 2022). Blatant cues increase the likelihood of triggering stereotype threat, but subtle cues are sufficient for individuals to experience stereotype threat (Logel et al., 2009; Steele, 1997). For some individuals, a single, but strong, situational cue, such as a negative comment from another person, may be sufficient to trigger stereotype threat, whereas others may only experience threat "when multiple cues converge" (Murphy & Taylor, 2012, p. 19). Second, STT suggests that the mere worry of being stereotyped may trigger stereotype threat, even if external cues are absent (Finkelstein

et al., 2015; Steele, 1997). Finally, stereotype threat can occur regardless of whether individuals themselves believe in negative stereotypes about their social group (Kit et al., 2008; Steele, 1997). However, individuals who do not believe a stereotype applies to them are most vulnerable to stereotype threat (Swab et al., 2022; Wheeler & Petty, 2001).

4.2.2 Antecedents of Remote Workers' Felt Pressure to Prove Effort

In our study, we draw on STT to explain why remote workers feel pressured to prove their effort. As explained in the introduction, due to the limited visibility and transparency of remote workers' work behavior, negative stereotypes about their dedication and engagement persist. Prior research has confirmed that employees are cognizant of such bias. For instance, research on the adoption of flexible work practices has shown that employees were reluctant to participate in flexible work arrangements due to concerns about how it would impact perceptions of their engagement and commitment (Anderson et al., 2002; Blair-Loy & Wharton, 2002; Gonsalves, 2020). Other studies have indicated that employees face bias against remote work in their work environment (Felstead et al., 2003; Peters et al., 2010; PricewaterhouseCoopers, 2018). For instance, when colleagues joke about working from home as an opportunity to "watch television, sunbathe [or] paint the house" (Felstead et al., 2003, p. 245). In line with STT, both blatant remarks and remote workers' vague impression that colleagues and supervisors may hold negative attitudes about remote workers' effort should trigger stereotype threat and the fear of being judged negatively.

In organizational contexts, negative evaluations by supervisors and colleagues can have significant consequences for job assignments, promotions and so on. Therefore, employees strive to cultivate a favorable impression and avoid unfavorable assessments (Chawla et al., 2021; Klotz et al., 2018; Long et al., 2015; Wayne & Ferris, 1990). As a result of the perceived risk of receiving negative evaluations, remote workers should feel pressured to disprove negative stereotypes by demonstrating to their supervisors and colleagues that they are working diligently off-site. So, our study investigates presumed bias against remote work as an antecedent of remote workers' felt pressure to prove their effort. We define the presumed bias as the extent to which remote workers believe their supervisors and colleagues hold unfavorable attitudes about remote workers' effort. Hence:

> *Hypothesis 1. Remote workers' presumed bias against remote work is positively related to remote workers' felt pressure to prove effort.*

As STT suggests, various cues can be perceived as implying negative bias and trigger stereotype threat. In the work context, these cues may be perceived on three different levels:

organizational, team, and interpersonal. Our study investigates antecedents of remote workers' presumed bias across these three levels.

On the organizational and team level, shared norms and values can convey cues that trigger stereotype threat (Kray & Shirako, 2012). Norms are (unwritten) rules (Kaplan et al., 2018) shared by most employees in an organization or team, that define appropriate attitudes and behaviors (Chatman & Cha, 2003). In our study, organizational and team-level norms regarding remote work should be particularly relevant. These norms refer to the degree to which remote workers perceive that their organization or team endorses remote work. Our focus on norms regarding remote work is supported by several studies showing that not only formal policies, but also social norms reflected in organizational and managerial support, played a critical role in the successful adoption of remote work (Blair-Loy & Wharton, 2002; Mäkikangas et al., 2022; Paczkowski & Kuruzovich, 2016; Taskin & Edwards, 2007).

We suggest that negative stereotypes regarding remote work are present in both distal and proximal work environments and assessed differently based on the cues provided by organizational and team norms regarding remote work. Although the two types of norms are interrelated, it is critical to differentiate them and compare their significance. Team norms reflect the values and attitudes of individual team members and are developed through their interactions (Feldman, 1984; Taggar & Ellis, 2007). As a result, team norms may differ from organizational norms, which are ingrained in the more stable organizational culture shared by most members of the organization (Chatman & Cha, 2003). Accordingly, we study both organizational and team-level norms regarding remote work, and test their relative importance.

If an organization or team encourages remote work, remote workers may perceive this as a favorable evaluation of remote work, indicating that stereotypes are less prevalent. Conversely, if employees perceive that their organization or team does not support remote work, they may interpret it as a signal that remote work is frowned on and associated with negative stereotypes. In line with this notion, Choi (2018) concluded that employees who perceived their organization supported remote work, were less apprehensive of negative repercussions and less worried about reduced visibility. We therefore hypothesize:

> *Hypothesis 2a and 2b. Organizational norms (H2a) and team norms (H2b) regarding remote work are negatively related to presumed bias against remote work.*

On the interpersonal level, the quality of relationships and interactions with others may be interpreted as signals of bias, posing stereotype threat (Murphy & Taylor, 2012). Relationships and interactions with supervisors and colleagues play pivotal roles in employees' daily work.

Frequent interaction with supervisors is necessary for coordinating tasks, establishing goals and deadlines, and exchanging information and feedback (Dulebohn et al., 2012). Due to developments like flatter organizational structures or more complex and collective tasks (e.g., Chiaburu & Harrison, 2008; de Jong et al., 2005), accomplishing tasks and achieving goals also relies heavily on having frequent, direct, and intensive interactions with colleagues (Chiaburu & Harrison, 2008).

An indicator of the quality of relationships and interactions between two parties is their mutual trust. Accordingly, this study analyses how remote workers' felt trust by their supervisor and colleagues affects presumed bias against remote work. Felt trust refers to the remote workers' assessment of their supervisor's or colleagues' willingness to be vulnerable by assuming that the remote workers have favorable intentions and conduct (Nerstad et al., 2018). Trust is a subjective experience, so remote workers may feel mistrusted, even if others trust them (Lanaj et al., 2018). Therefore, we study remote workers' perceptions of the level of trust their supervisor or colleagues have in them.

Both supervisors' and colleagues' trust in remote workers have been identified as a significant factor for successful remote work (Gohoungodji et al., 2023; Kaplan et al., 2018; Lembrechts et al., 2018). In our study, we suggest that remote workers might interpret trust from their supervisor or colleagues as cues of confidence in their engagement and commitment while working off-site. As trust involves assuming that the other party has positive intentions and will act accordingly (Lewicki et al., 1998), remote workers who generally feel trusted by their supervisor or colleagues should also assume that their supervisor or colleagues trust them to give their best effort while working remotely. A felt lack of interpersonal trust may be perceived by remote workers as a signal that their supervisor or colleagues are not confident that they approach work with the same level of commitment as they would when working on-site (Kaplan et al., 2018). Remote workers may generalize this to assume that supervisors and colleagues who mistrust them hold unfavorable attitudes toward remote workers in general, that is, to their social group. Taken together, we propose that:

> *Hypothesis 2c and 2d. Remote workers' felt trust by their supervisor (H2c) and by their colleagues (H2d) are negatively related to presumed bias against remote work.*

4.2.3 Consequences of Remote Workers' Felt Pressure to Prove Effort

Previous research on STT has consistently shown the detrimental effects of stereotype threat for test performance. Therefore, it can be argued that "why it happens rather than if or when" (Mendes & Jamieson, 2012, p. 51) needs to be the focus of further research (Pennington et al.,

2016). Given the notion that stereotype threat has detrimental effects on both internal states and performance (Kit et al., 2008), several authors have called for the integration of outcomes beyond performance, such as well-being (Hoyt & Blascovich, 2010; Miller, 2019; Spencer et al., 2016). Following these recommendations, we include both well-being and job performance in our model. With respect to well-being, we examine remote workers' stress, defined as the extent to which remote workers feel emotionally nervous and anxious while working remotely (Motowidlo et al., 1986; Netemeyer et al., 2005), and psychological detachment, defined as the extent to which remote workers are able to mentally disengage from work during non-work time (Sonnentag & Fritz, 2007). These two indicators of well-being are proposed as having an impact on their job performance or, more specifically, on the extent to which remote workers perceive themselves as effective while working remotely.

The STT literature has consistently argued that stereotype threat elicits increased stress, which in turn impairs performance (Mendes & Jamieson, 2012; Schmader et al., 2008). Similarly, general stress theory suggests that the experience of pressure produces stress (Lazarus & Folkman, 1984). Accordingly, we argue that remote workers who feel pressured to prove their effort and threatened with negative judgments from supervisors or colleagues would experience this as a taxing situation, resulting in feelings of stress. This stress, in turn, could impair job performance by diverting effort away from focusing on work tasks and toward coping with stress (Gilboa et al., 2008; Sullivan & Bhagat, 1992). In particular, the constant thought of proving one's effort and the resulting stress might distract remote workers from their actual task performance. Therefore, we hypothesize:

> *Hypothesis 3a and 3b. Remote workers' felt pressure to prove effort is positively related to their stress level (3a), which in turn is negatively related to their job performance (3b).*

Finally, we expect that the pressure remote workers feel to prove their effort will affect their psychological detachment, which in turn will be negatively related to their job performance. Psychological detachment implies that remote workers are able to mentally disconnect and leave work behind during breaks and after hours (Sonnentag & Bayer, 2005). But remote workers who feel pressured to prove their effort to supervisors and colleagues may worry that missing phone calls or delating response to emails during breaks or after hours might confirm others' bias. Consequently, instead of detaching during breaks and after hours, they might ruminate on the impression they give and keep being accessible to supervisors and colleagues. In other

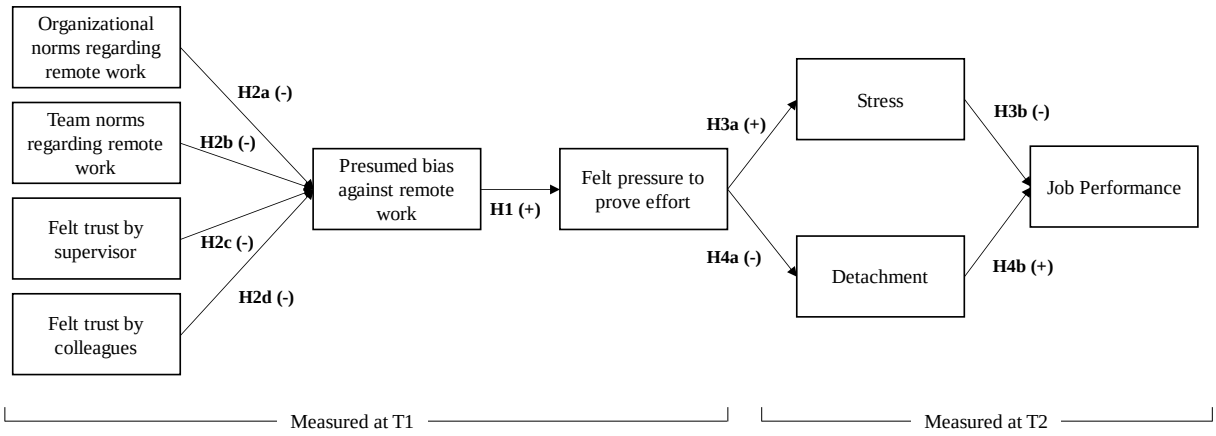
words, the more remote workers feel pressured to demonstrate effort, the less they should be able to mentally detach from work during breaks and after hours.

Psychological detachment has been found to be important for resource replenishment and recovery, and thus a prerequisite for performance (Binnewies et al., 2009; Sonnentag & Bayer, 2005; van Laethem et al., 2018). If remote workers are unable to detach during breaks and after hours, they cannot recover from work and replenish resources during downtime, which in turn is likely to impair their job performance (C. L. Cooper & Lu, 2019). Given these arguments, we propose the following hypotheses:

> *Hypothesis 4a and 4b. Remote workers' felt pressure to prove effort is negatively related to their psychological detachment (4a), which in turn is positively related to their job performance (4b).*

Figure 4-1 gives an overview of the hypothesized research model.

Figure 4-1: Proposed Model



4.3 Method

4.3.1 Procedure and Sample

To test our hypotheses, we sampled remote workers from two automotive and telecommunications companies in Germany. We collected data between June and August 2021, in the midst of the COVID-19 pandemic. In both companies, remote working was mandatory in June 2021 and strongly recommended in July and August 2021. The companies informed their employees about the study in all-hands meetings and via the intranet. They invited people to participate in the study via email. Anonymity and confidentiality were assured for all participants. As an

incentive, each participant received a data-based feedback report with recommendations for managing remote work.

To reduce common method bias (Podsakoff et al., 2012) and to capture lasting effects on remote workers' well-being (i.e., stress and psychological detachment) and job performance, we collected data through online surveys at two data points in time with a two-week lag. Data from T1 and T2 were matched through personalized survey links. The first survey (T1) was completed by 759 remote workers who were contacted two weeks later. Of these, 53.6% completed the second survey (T2), resulting in a final sample of N = 407. Participants' mean age was 41.7 years (SD = 9.7), and 32.9% identified as female. Participants worked in a variety of departments, including research and development (19.4%), IT (13.3%), and customer service (11.8%). Average organizational tenure was 9.0 years (SD = 8.1). The majority of participants (89.7%) worked at least 30 hours per week. Approximately 60.2% of the participants worked remotely full-time, 27.3% three to four days a week, 8.6% one to two days a week, and 3.9% less frequently than once a week. 59.7% of the participants had two years or more of experience working remotely, i.e., had been working remotely prior to the COVID-19 pandemic, whereas 40.3% began working remotely less than two years ago.

4.3.2 Measurements

All items, time of measurement, factor loadings, Cronbach's alpha (α), composite reliability (CR), and average variance extracted (AVE) are presented in the Appendix A. All items were measured on a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

No established scale was available to measure remote workers' *felt pressure to prove effort*. To operationalize the construct, we followed three steps (Hinkin, 1995, 1998). First, based on the construct definition and interviews with 21 remote workers, we developed a pool of seven items as reflective indicators to measure the construct (MacKenzie et al., 2011). We considered simple statements and wording that was familiar to the respondents (Hinkin, 1995). Second, we conducted a pre-test with 122 remote workers. Participants were recruited through the authors' personal and professional network. Finally, we used the pre-test data to validate the scale. We conducted exploratory factor analysis (EFA) on the original seven items. The principal axis factor analysis suggested a single factor solution, with all items showing similar factor loadings. To eliminate redundancies and reduce scale length while retaining good measurement properties, the list of items was narrowed to the following three items, that began with "When I work remotely, …," followed by "I feel the need to prove that I am actually working," "it is important to me to show that I am actually working," and "I feel the pressure to prove that I am diligent."

Using data from our main study, we conducted a confirmatory factor analysis (CFA) with the remaining three items. The results supported a one-factor solution, with 79.8% of the variance explained by one factor and all factor loadings above .68. Cronbach's α was .87, indicating that shortening the scale did not affect the quality of the measurement.

Because no scale was available to assess *presumed bias against remote work*, we developed a measure using the same procedure as described above. We initially developed six items and evaluated them in the same pre-test. The EFA suggested a one-factor solution. As all items showed similar factor loadings, we dropped two items to shorten the scale. All items began with "I have the feeling that my colleagues/supervisors…," followed by "fear that people loaf around when working remotely," "have a bias that remote workers do personal things instead of working," "think that people would work less when working remotely," and "assume that people are less engaged when working remotely." The CFA for these four items, conducted with data from our main study, showed that 91.9% of the variance was accounted for by the first factor, with all factor loadings above 0.90. Cronbach's α was .97, again indicating that shortening the scale did not affect the quality of the measurement.

Organizational norms regarding remote work and team *norms regarding remote work* were each measured by adapting Kaplan et al.'s (2018) two-item scale to refer to the organization and team, respectively, and adding a self-developed item to each scale. Cronbach's α was .89 for both organizational norms and team norms regarding remote work.

To assess remote workers' *felt trust by their supervisor* and *felt trust by their colleagues*, we used four items from Nerstad et al. (2018), asking participants to indicate the extent to which they felt their supervisor or colleagues trusted them. Cronbach's α was .94 for felt trust by supervisor and .91 for felt trust by colleagues.

To measure remote workers' *stress* at T2, we used two items from Netemeyer et al. (2005) and two items from Motowidlo et al. (1986). We adapted the items to measure the extent to which remote workers feel emotionally nervous and anxious while working remotely. Cronbach's α was .89.

Psychological detachment was measured at T2 using four items from Sonnentag and Fritz (2007). We adapted the items to a remote work context by beginning with "During my non-work time on days I work remotely, …" followed by the original wording, e.g., "I forget about work." Cronbach's α was .96 for this scale.

To measure remote workers' job performance at T2, we used four items from Staples et al. (1999), adding "when working remotely" to adapt the items to a remote work context. Cronbach's α of this scale was .96.

Control Variables

We included gender (1 = male, 2 = female, 3 = non-binary) as a control variable. As gender is often associated with typical role ascriptions, especially in a remote work context, we expect it to influence the dependent variables (Kossek et al., 2006; Kossek & Thompson, 2016; Perry et al., 2022; Wang et al., 2021). We also controlled for remote work tenure (1 = more than two years, 2 = one to two years; 3 = six to twelve months, 4 = less than six months), as we expect that employees with more experience of working remotely might feel less pressure to prove their effort. Consistent with previous research, we controlled for remote workers' managerial responsibilities (0 = no managerial responsibilities, 1 = managerial responsibilities), as these are associated with higher levels of demand and are therefore expected to increase stress (e.g., Harms et al., 2017) and impair detachment (Sonnentag & Fritz, 2007). We also controlled for remote workers' ambition (Hansson et al., 1983; Rothwell et al., 2008). Ambitious employees strive for success and achievement (Judge & Kammeyer-Mueller, 2012), so we expect them to feel more pressure to prove their effort and make their commitment transparent to others. Finally, we included initiated interdependence as a control variable, which refers to the extent to which others rely on the focal remote worker's progress to perform their tasks (Morgeson & Humphrey, 2006). We expect that remote workers might feel increased pressure to prove their effort when others are directly dependent on their performance.

4.4 Analyses and Results

4.4.1 Measurement Model

The means, standard deviations, and correlation coefficients for all measures are presented in Appendix B.

We assessed the construct validity of the nine latent model variables and two latent control variables, using CFA with maximum likelihood estimation. To evaluate the model fit, we analyzed Chi-square statistics ($\chi 2$) and $\chi 2$/df ratio, along with root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR) indices. An acceptable and good model fit is indicated by values of $\leq .08$ and $\leq .06$, respectively (Hu & Bentler, 1999). We also assessed the comparative fit index (CFI) and Tucker-Lewis Index (TLI), where values

above .90, preferably above .95, indicate a good model fit (Hu & Bentler, 1999; Kelloway, 2015). CFA findings exhibited factor validity for every scale. All factor loadings exceeded .68 (see Appendix B), where values exceeding .50, ideally above .70, are recommended (Hair et al., 2019). The model fit indices indicated that the model fit the data well ($\chi 2$ [610, N = 407] = 1678.78, $p < .001$; CFI = .93; TLI = .92; RMSEA = .07; SRMR = .04).

To ensure internal consistency and convergent validity, we conducted tests for CR and AVE, which should respectively exceed .70 and .50 (Hair et al., 2019). The results shown in the Appendix B indicate that the CR for each scale was greater than .81 and the AVE was greater than .69 for all scales except for ambition with a value of .59. The findings also exhibited discriminant validity as the square root of the AVE surpassed the correlation estimates of the constructs (Fornell & Larcker, 1981).

To address the empirical distinctiveness of the self-developed scales, we evaluated two models: (1) a one-factor model where the indicators of remote workers' felt pressure to prove their effort and of presumed bias against remote work were loaded onto one factor, and (2) a two-factor model where the indicators of these two latent variables were loaded onto their respective factors. The two-factor solution displayed a superior fit ($\chi 2$ [13, N = 407] = 165.69, $p < .001$; CFI = .95; TLI = .92; RMSEA = .17; SRMR = .04) in comparison to the one-factor solution ($\chi 2$ [14, N = 407] = 781.75, $p < .001$; CFI = .76; TLI = .64; RMSEA = 0.37; SRMR = .17). This indicated that the variables reflected distinct constructs, hence, we proceeded with our proposed model.

4.4.2 Hypothesis Testing

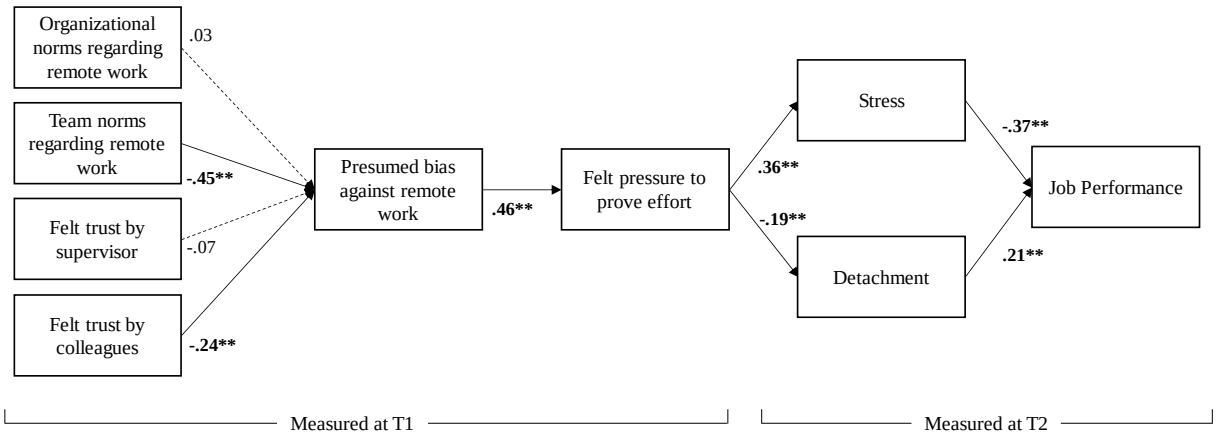
To investigate the proposed model and examine our hypotheses, we used SEM with MPlus 8.7. We included paths from each control variable to each endogenous variable and allowed covariation between exogenous latent variables and control variables. The SEM results shown in Figure 4-2 indicated good model fit ($\chi 2$ [730, N = 407] = 1941.31, $p < .001$; CFI = .92; TLI = .91; RMSEA = .06; SRMR = .08).

Supporting Hypothesis 1, remote workers' presumed bias against remote work was positively related to their felt pressure to prove effort ($\beta = .46$; $p < .001$).

To investigate antecedents of remote workers' felt pressure to prove effort, Hypotheses 2a–d were examined. Contrary to Hypothesis 2a, the relationship between organizational norms regarding remote work and presumed bias against remote work was not significant ($\beta = .03$; $p = .617$). Supporting Hypothesis 2b, team norms regarding remote work was negatively related to presumed bias against remote work ($\beta = -.45$; $p < .001$). Hypothesis 2c was not supported, as

the relationship between remote workers' felt trust by their supervisor and presumed bias against remote work was not significant (β = −.07; p = .195). Supporting Hypothesis 2d, remote workers' felt trust by colleagues was negatively associated with presumed bias against remote work (β = −.24; p < .001).

Figure 4-2: Results of SEM



Note. n = 407.

** p < .01.

Regarding the consequences of remote workers' felt pressure to prove effort, the results supported Hypotheses 3a and 3b. Felt pressure to prove effort was positively related to stress (β = .36; p < .001), which in turn was negatively associated with job performance (β = −.37; p < .001). Supporting Hypotheses 4a and 4b, remote workers' felt pressure to prove effort was negatively related with psychological detachment (β = −.19; p < .001), which in turn exhibited a positive relationship with job performance (β = .21; p < .001).

4.4.3 Supplemental Analysis

To further explore the connections among the model variables, we analyzed potential indirect effects. We performed mediation analyses using the MODEL INDIRECT function in MPlus, implementing the bootstrapping technique with disaggregated data and 10,000 draws and maximum likelihood estimator, following Zhao et al. (2010), and inspected the corresponding 95% confidence intervals (CI).

First, we examined whether the four endogenous variables had an indirect effect on remote workers' felt pressure to prove effort, via presumed bias against remote work. Our results indicated that two constructs, team norms regarding remote work (indirect effect: −.21; p < .001;

95% CI [−.27, −.15]) and felt trust by colleagues (indirect effect: −.11; p < .001; 95% CI [−.16, −.06]), exerted a significant indirect effect on felt pressure to prove effort through presumed bias against remote work. No mediation was found for organizational norms regarding remote work (indirect effect: .01; p = .761; 95% CI [−.03, .05]) and felt trust by supervisor (indirect effect: −.03; p =.326; 95% CI [−.09, .02]). This finding was consistent with results for the direct effects, as neither variable was directly related with presumed bias against remote work.

Second, we analyzed the indirect effect of felt pressure to prove effort on job performance, via stress and psychological detachment. The results indicated that remote workers' felt pressure to prove effort and job performance were indirectly related, as stress (indirect effect: −.13; p < .001; 95% CI [−.18, −.09]) and psychological detachment (indirect effect: −.04; p = .013; 95% CI [−.07, −.02]) both mediated their relationship.

4.5 Discussion

Our study presents a pioneering analysis of the pressure that remote workers experience to demonstrate their efforts, along with the causes and consequences of this phenomenon. Our findings contribute to research and theory on remote work in three important ways.

First, we introduced the concept of remote workers' felt pressure to prove their effort, which allowed us to examine the relevance of stereotypes regarding remote working. In accordance with STT, our study revealed that remote workers who assume others hold negative stereotypes about their commitment and work ethics are susceptible to experiencing stereotype threat and, consequently, feel pressured to prove their effort. These findings endorse the notion that individuals' perceptions of the existence of stereotypes are pivotal for stereotype threat to occur (Finkelstein et al., 2015; Swab et al., 2022). By developing scales to measure remote workers' felt pressure to prove effort and presumed bias against remote work, we lay the foundation for further exploration of the salience, sources, and consequences of stereotypes in remote work environments.

Second, we identified cues that trigger stereotype threat in remote work environments. Whereas previous studies have described behaviors that remote workers exhibit to prove their effort (e.g., Barsness et al., 2005; Cristea & Leonardi, 2019; Felstead et al., 2003), we followed Cristea and Leonardi's (2019) call to examine the underlying factors that drive remote workers to feel the need to showcase such behaviors as proof of their effort. Our study revealed that remote workers interpret cues from their team and peers as indicators for the prevalence of bias against remote work in their work environment. Specifically, team norms that support remote work and felt

trust by colleagues are associated with lower levels of presumed bias against remote work and indirectly reduce remote workers' felt pressure to prove their effort. Contrary to our hypotheses, organizational norms regarding remote work and felt trust by supervisor, were not found to be directly related to presumed bias against remote work or indirectly related to felt pressure to prove effort.

Plausible explanations for the insignificance of organizational norms regarding remote work may lie in their limited relevance to the everyday work experience of remote workers. Whereas team norms are expected to be experienced in daily interactions with supervisors and colleagues, organizational norms may have a more abstract meaning in the employee's workday. Thus, remote workers may be more likely to perceive indications of bias against remote work in their team's norms.

The insignificance of felt trust by a supervisor may be attributed to their role. As supervisors frequently decide whether employees are permitted to work remotely, remote workers may interpret this permission as a strong signal that their supervisor is not biased against remote work. Conversely, if supervisors had reservations about remote workers' effort, they would not approve remote work arrangements for their subordinates. In the presence of such a blatant signal, felt trust by supervisor may be too subtle to have a significant impact on presumed bias against remote work.

Together, these findings suggest that the team climate plays an important role in determining remote workers' perception of bias against remote work and their sense of pressure to prove their effort. Previous studies have mostly focused on the relevance of supervisors and management for successful remote work and its adoption, for example in the context of managing and controlling remote workers, the role of attitudes and support toward remote work, and the role of trust etc. (e.g., Chambel et al., 2023; Gohoungodji et al., 2023; Kaplan et al., 2018). Our study, however revealed the importance of team factors for remote workers. Therefore, future research on remote work should incorporate team-related predictors in conjunction with organizational and supervisor-related antecedents to build a comprehensive understanding of remote workers' experiences.

Third, we followed calls to investigate the outcomes of stereotype threat beyond performance (Hoyt & Blascovich, 2010; Miller, 2019; Spencer et al., 2016). Our research illustrates that remote workers' felt pressure to prove their effort has detrimental consequences for their well-being, as reflected in increased stress and impaired psychological detachment, ultimately leading to lower job performance. These findings suggest that experiencing pressure to demonstrate

dedication adversely affects remote workers over time, compromising their well-being and, consequently, their performance. Although this pressure is an imperceptible and subjective experience, it carries significant implications for remote workers, and warrants exploration in future research. For instance, felt pressure to prove effort could be examined as an antecedent of employees' extended availability (e.g., C. L. Cooper & Lu, 2019; Dettmers et al., 2016) to better understand why employees are accessible to their supervisors and colleagues during off-time. Further studies could also investigate relations between remote workers' felt pressure to prove their effort and (scheduling) flexibility. Remote workers who constantly feel pressured to prove their effort and demonstrate that they are actually working at home, may not dare take advantage of the flexibility that remote work is supposed to offer them (e.g., Golden, 2006; Kossek et al., 2006). In this way, one key benefit of working remotely may be undermined by the pressure remote workers feel to prove their effort.

4.5.1 Limitations and Future Research

Our study yields important insights into the experiences of remote workers, although some limitations need to be considered. Our study design involved collecting data at two points in time, which allowed us to investigate the repercussions of remote workers' felt pressure to prove their effort within a two-week period. However, we could not explore the intra-individual variability of this pressure. Using experience sampling, future research could identify triggers for short-term fluctuations in remote workers' felt pressure to prove their effort and investigate the consequences.

Although we collected triangulated data from remote workers, their supervisors and their colleagues, we had to exclude supervisors' and colleagues' assessments of remote workers' performance due to low response rates. As a result, our model relied on remote workers' self-assessments of their job performance. Subsequent studies should include peer-measures, if they achieve higher response rates, or employ objective performance measures instead.

To extend the present findings, future research could investigate additional antecedents and consequences of remote workers' perceived stereotype threat. We examined antecedents of presumed bias against remote work on three levels: organizational (i.e., organizational norms regarding remote work), team (i.e., team norms regarding remote work), and interpersonal (i.e., felt trust by supervisor and colleagues). Expanding our framework, future research could examine the direct antecedents of remote workers' felt pressure to prove their effort. Specifically, individual-level factors like agreeableness and conscientiousness may heighten remote workers' tendency to feel the need to prove their engagement. Similarly, remote workers with high

self-enhancement motives, who are motivated to leave a positive impression on their supervisors and colleagues (Yun et al., 2007), may feel more compelled to demonstrate their engagement. Second, exploring the effects of job characteristics, such as work results transparency or schedule control, may be beneficial. For instance, remote workers whose work results are more transparent may experience less pressure, as their effort is easily discernible.

Concerning the outcomes of remote workers' felt pressure, our study revealed detrimental effects on stress, psychological detachment, and ultimately on job performance. Adding to these insights, future research could consider favorable outcomes. For instance, based on stress theory, pressure could also be perceived as a positive challenge (Lazarus & Folkman, 1984). Further research could investigate whether remote workers experience eustress when feeling pressure to prove their effort, which could boost their motivation to perform better. Future studies might also explore the behavioral outcomes associated with this pressure. In particular, remote workers who feel compelled to demonstrate their effort may exhibit behaviors such as responding quickly to email or being available during breaks and after hours (e.g., Cristea & Leonardi, 2019; Elsbach, 2012). Future research could examine whether remote workers' felt pressure to prove their effort is related to these behavioral patterns and how showcasing these behaviors affects their performance and their evaluation by others.

4.5.2 Practical Implications and Conclusion

Revealing the detrimental effects caused by remote workers feeling pressured to prove their effort, our study emphasizes the need for organizations to address bias against remote work to mitigate stereotype threat and its adverse impacts. As our findings suggest, efforts to reduce existing stereotypes about remote work need to be accompanied by approaches targeted at alleviating remote workers' perceptions of these stereotypes.

With remote work becoming a norm, many companies have implemented policies that allow employees to work remotely. However, organizations also need to establish a work environment that supports remote work, signaling that working remotely is not just tolerated but encouraged throughout the organization. Our study shows the importance of team support for remote work. Therefore, positive attitudes toward remote working should be embedded within the teams and the mindset of each team member. First, organizations can provide training to supervisors of all levels to encourage positive attitudes about remote work. Bias against remote work could be mitigated by demonstrating the advantages of remote work for both the organization and its employees, such as enhanced productivity (Delanoeije & Verbruggen, 2020; Gajendran & Harrison, 2007; Hinds & Martin, 2006). Second, supervisors should act as role

models and advocate for remote work within their teams. If stereotypes surrounding remote work are present within their team, supervisors should openly discuss these and question their validity (Kray & Shirako, 2012). These interventions could facilitate support for remote work at both organizational and team levels, consequently mitigating perceived bias against remote work and experiences of stereotype threat among remote workers.

Interventions to foster a climate that supports remote work simultaneously enhance trust among remote workers and their supervisors and colleagues, which is an important factor for successful remote work (Gohoungodji et al., 2023). Yet, our research highlights the significance of remote workers' felt trust by their colleagues. As trust is a subjective experience, remote workers may perceive mistrust, even if others do not hold that view (Lanaj et al., 2018). Therefore, it is important that team members actively communicate their trust and confidence in remote workers. This would alleviate remote workers' perception of bias against them and subsequently decrease the burden of proving their effort.

Finally, teams should openly discuss the pressure to prove one's effort when working remotely and develop strategies to mitigate this pressure and its negative consequences. It is critical that all team members – including supervisors – commit to the idea that demonstrating effort is not necessary while working remotely. Teams should aim to establish a work environment that prioritizes actual results and objective performance over showcasing effort. In addition, clarifying expectations for availability could benefit those working remotely. For instance, establishing clear guidelines for response times, including differentiating between urgent and non-urgent matters through the use of distinct communication media, may ease the perpetual pressure for remote workers to demonstrate engagement. It is important to consider the benefits of uninterrupted time to concentrate on work and to detach during breaks.

Overall, our study highlights the importance of considering remote workers' felt pressure to prove their effort in both research and practice to maintain remote workers' well-being and performance.

5. Discussion

Hybrid work, a work model that combines on-site and remote work, has become the "new normal" today. Besides many well-known advantages, however, organizations and individuals face various challenges due to the physical separation of remote workers. This dissertation addressed these challenges by examining three phenomena: (1) remote workers' ICT-based availability, (2) remote workers' proving availability and communication behavior, and (3) remote workers' felt pressure to prove their effort.

To reach the corresponding research goals, a systematic literature review and two empirical studies with distinct methodological approaches were conducted. The literature review and a qualitative study with remote workers were used to (1) identify antecedents of remote workers' ICT-based availability. While conducting the interviews, the phenomenon of (2) remote workers' proving availability and communication behavior was discovered and elaborated. The second study employed a quantitative research design to (3) examine remote workers' felt pressure to prove their effort.

In the following, the main findings of this dissertation are summarized. Afterwards, theoretical and practical implications are derived from these findings. Finally, limitations of this dissertation and directions for future research are presented.

5.1 Main findings

This dissertation pursued three overarching research goals. The first research goal was to identify antecedents of remote workers' ICT-based availability. Thereby, two sub-goals were examined by combining the findings of a qualitative study with 21 remote workers and a systematic literature review. First, based on the qualitative study, a comprehensive framework with 17 factors that influence remote workers' ICT-based availability was developed. These 17 antecedents were structured into seven superordinate categories, namely ICT-related, organizational, job-related, interpersonal, individual, and communication-specific antecedents of remote workers' ICT-based availability. This dissertation relied on Theory of Planned Behavior (Ajzen, 1991) to explain the underlying relationships between the antecedents identified and remote workers' ICT-based availability. Drawing on the three drivers of individuals' behavior

discussed in Theory of Planned Behavior (Ajzen, 1991), this dissertation contended that remote workers' choices regarding their ICT-based availability are affected by their attitude toward being available via ICT, their perception of others' norms regarding ICT-based availability, and their perception of the extent to which they have control over their ICT-based availability. Results showed that such individual attitudes, considerations and decisions impact when, how, and to whom remote workers are available via ICT, consequently, there is no homogenous ICT-based availability behavior. Second, a systematic literature review was conducted to synthesize the current state of research regarding antecedents of remote workers' ICT-based availability, and to identify critical research gaps. The literature search resulted in 25 studies which were classified into three categories. Studies in categories 1 and 2 investigate ICT-based availability as a dependent variable, whereas studies in category 3 focus on constructs related to ICT-based availability. Category 1 contains three studies that identify antecedents of ICT-based availability among a sample of remote workers, Category 2 consists of five studies that were conducted outside a remote working context. The remaining 17 studies in category 3 focus on constructs related to ICT-based availability behavior as the dependent variable, such as technology-assisted supplemental work or media choice. Finally, contrasting the results of this literature search with the comprehensive framework from the qualitative study yielded several avenues for future research.

The second goal of this dissertation was to build on the qualitative study to explore remote workers' proving availability and communication behavior. Thereby, four behaviors remote workers use to signal their engagement to supervisors and colleagues were introduced and described, namely continuous availability, prompt response, demonstrating communication and problematization of non-availability. A five-stage model was developed to explain the emergence of such proving behavior and its potential outcomes. This model demonstrated that due to the lack of visibility and transparency while working remotely, remote workers fear that bias against their work effort exists. In turn, remote workers feel pressure to prove that they are actually working at home. Consequently, they adapt their availability and communication behavior to prove their effort to colleagues and supervisors. Yet, this research revealed detrimental outcomes for remote workers, such as a reduction in perceived scheduling flexibility, disruptions in concentration, and increased pressure and stress. Taken together, this study provided the first holistic examination of remote workers' availability and communication, and contributed to literature and practice by deriving implications to maintain the benefits of remote work.

The third research goal was to examine remote workers' felt pressure to prove their effort. Therefore, a two-wave quantitative study with 407 remote workers was conducted. Addressing

the first sub-goal, remote workers' felt pressure to prove their effort was defined as the extent to which employees feel they need to show that they are dedicated to work while working remotely. Moreover, a quantitative measure consisting of three items was developed. By examining antecedents of this felt pressure, this research showed that team factors, i.e., team norms regarding remote work and felt trust by colleagues, predicted presumed bias against remote work, which in turn was positively related to remote workers' felt pressure to prove their effort. Yet, organizational norms regarding remote work and felt trust by supervisor were not directly related to presumed bias against remote work or indirectly related to felt pressure to prove effort. In terms of the consequences of felt pressure to prove effort, the results showed that it negatively affected remote workers' well-being, as indicated by increased stress and decreased psychological detachment, which both hindered job performance. In summary, the study introduced the novel phenomenon of remote workers' felt pressure to prove their effort and contributed to literature on remote work by examining its antecedents and consequences.

Taken together, findings suggest that all three phenomena may negatively impact remote workers' well-being and performance. This highlights the importance of investigating and better understanding these phenomena in order to maintain the positive outcomes of remote work in hybrid work settings.

5.2 Theoretical contribution

This dissertation contributes to literature on remote work by investigating three phenomena that affect remote workers' experiences: remote workers' (1) ICT-based availability, (2) proving availability and communication behavior, and (3) felt pressure to prove their effort. In the following, theoretical contributions are derived from the findings of this research. Finally, overarching contributions are presented.

First, with regard to remote workers' ICT-based availability, this dissertation provided a framework of 17 factors that shape remote workers' ICT-based availability. While previous studies have focused on a few selected antecedents (e.g., Felstead et al., 2003; Lal & Dwivedi, 2010; Leonardi et al., 2010), this dissertation offered a comprehensive understanding of antecedents that influence when and how remote workers are available via ICT. This framework underpins the complexity of ICT-based availability and the multiple domains remote workers - intentionally or more unconsciously - take into consideration when managing their ICT-based availability. Accounting for this complexity, this dissertation contributes to future research by providing a categorization of the manifold antecedents. Future studies can rely on these categories to

systematically examine which overarching drivers (e.g., organizational vs. interpersonal vs. individual antecedents) are most relevant for remote workers' ICT-based availability. Moreover, previous research on ICT-based availability (in and outside a remote working context) is scarce and fragmented. Accordingly, this dissertation integrated research from disciplines of information systems, management, and psychology to identify studies that examine antecedents of ICT-based availability. By categorizing the findings of this literature search, the dissertation provided an overview of the current state of research regarding remote workers' ICT-based availability. Integrating the findings of the literature review with the qualitative study, this dissertation derived and outlined implications for future research, such as the need for a holistic conceptualization and validated measure of ICT-based availability.

Second, this dissertation explored remote workers' proving availability and communication behavior. Extending existing research that has mentioned behaviors remote workers use to signal their engagement (e.g., Barsness et al., 2005; Cristea & Leonardi, 2019; Elsbach, 2012), this dissertation provides the first systematic categorizing and explanation of such behaviors. Future research may build on this conceptualization and integrate the findings with different theoretical approaches. For example, linking remote workers' proving availability and communication behavior to impression management theory might provide further insights on this phenomenon. Impression management theory is "concerned with the behaviors people direct toward others to create and maintain desired perceptions of themselves." (Gardner & Martinko, 1988, p. 321). Subsequently, this dissertation may add to impression management theory by offering explanations of why it is important for remote workers to manage the impression they make on colleagues and supervisors by engaging in proving availability and communication behavior. Moreover, this dissertation draws conclusions for signaling theory, which focuses on behaviors when individuals and organizations have access to different information (Connelly et al., 2011; Spence, 1973), such as in remote working contexts where organizations have limited information about remote workers' effort. Subsequently, one party (i.e., remote workers) has to choose how to signal that information (i.e., their work effort) and the other party (i.e., colleagues or supervisors) has to interpret that signal (Connelly et al., 2011; Spence, 1973). For example, an existing study by Afota et al. (2022) drew on signaling theory to suggest that remote workers may use their availability as a signal of their dedication to work in order to replace constrained visibility. This dissertation contributes to literature and theory by empirically demonstrating the underlying mechanisms between such behavior and constrained visibility in a five-stage model (see Figure 3-1). Future research may build on this dissertation and link the findings to signaling

theory in order to examine how colleagues and supervisors interpret such signals as proof of remote workers' dedication.

Third, this dissertation introduced the phenomenon of remote workers' felt pressure to prove their effort. By providing a concept definition and quantitative measure, this research lays foundation to further investigate its relevance for remote workers. Moreover, this research contributes to literature by following the call of Cristea and Leonardi (2019) to investigate the underlying factors that drive remote workers to feel the need to prove their effort and engage in behaviors to demonstrate their dedication. Results of the quantitative study showed that team climate, i.e., felt trust by colleagues and team norms regarding remote work, determined remote workers' perception of bias against remote work, which in turn predicted felt pressure to prove their effort. Thus, this dissertation emphasizes the need for future research to consider team-related factors when focusing on the experiences of remote workers. Examining the consequences of remote workers' felt pressure to prove their effort, findings indicated negative effects on their well-being, ultimately leading to lower job performance. These findings reinforce that such felt pressure carries significant implications for remote workers, and warrants exploration in future research. Drawing on the conceptualization provided by this dissertation helps future research to explore remote workers' felt pressure in more detail in order to maintain their well-being and performance.

Integrating the findings of all phenomena under study, this dissertation yields further theoretical implications. All three phenomena demonstrated that the physical separation of remote workers is a key challenge in hybrid work settings. Thus, the results of this research can be linked to literature on face time, which refers to the amount of time an employee is physically present and seen by others at work (Cristea & Leonardi, 2019). As found in previous research, supervisors interpret their team members' face time as an indicator of specific traits (such as responsible, committed, and dedicated), which might be disadvantageous for employees who are seen less (i.e., who work remotely; Elsbach et al., 2010). Previous studies have demonstrated that employees try to compensate for the lack of face time by engaging in certain behaviors, such as turning on their camera in online meetings or constantly appearing online on instant messaging systems (Afota et al., 2022; Cristea & Leonardi, 2019). This dissertation contributes to literature on face time by offering explanations of the underlying mechanisms between the lack of face time and such behavior. As shown in this research, the lack of face time, i.e., the reduced transparency of remote workers' effort, leads to remote workers feeling pressured to demonstrate their dedication and consequently engaging in such proving behaviors. Integrating these findings and test the relationships between face time and the phenomena studied here will add

to literature on face time by considering remote workers' subjective experiences and feelings of pressure.

Finally, both studies emphasize that perceived bias against remote work determines remote workers' felt pressure to prove their effort and concomitant proving availability and communication behavior. While such bias around the lack of dedication and engagement has been widely discussed in contemporary discourse, it has not been quantified in prior research. Yet, this dissertation provides empirical support for the importance of examining (perceived) bias in the context of remote work. Investigating the prevalence and causes of such bias helps to gain a better understanding of its emergence and the factors that determine remote workers' perceptions of the extent to which others hold bias against remote work. Building on this, implications to combat bias against remote work and strengthen remote workers' belief that their contributions are being valued can be derived, thereby avoiding detrimental consequences on remote workers' well-being and performance.

5.3 Practical contribution

In general, this dissertation examines challenges for remote workers resulting from their physical separation from colleagues and supervisors. Outlining the detrimental effects on remote workers' well-being and performance, this dissertation emphasizes the need for organizations to consider the three phenomena of remote workers' (1) ICT-based availability, (2) proving availability and communication behavior, and (3) felt pressure to prove their effort. The following overarching implications should help organizations and employees alike to create hybrid work settings that maintain remote workers' well-being and performance.

A fundamental prerequisite for successful hybrid work arrangements is to develop an organization-wide remote work policy that creates transparency and clarity for both employees and their supervisors. This policy should include the extent to which remote work is possible and genuinely desired throughout the organization. This level of remote work should be negotiated with management and all relevant stakeholders. If the organization's management has a clear stance on remote work, it can obligate all supervisors to offer and promote the desired level of remote work in their respective teams – if the corresponding jobs can technically and legally be executed remotely. A consistent remote work policy throughout the organization will build employees' confidence that this extent of remote work is accepted without reservation, and, in turn, reduce felt pressure to prove their and concomitant proving availability and communication behavior.

On the basis of an organization-wide remote work policy, teams should collectively develop guidelines regarding availability and communication to support collaboration in a hybrid work setting. As outlined in this dissertation, ICT-based availability is a complex phenomenon with a diverse set of antecedents. Thus, as an initial step, supervisors should encourage their team members to identify factors that impact their individual availability and communication when working remotely. Each team member should reflect on how they can manage their ICT-based availability to meet personal and professional demands and what conditions are beneficial or detrimental for their personal well-being and performance. Likewise, supervisors should reflect on their own availability and communication expectations, considering that their own behavior (e.g., being continuously available and responding quickly all the time) may set implicit norms where their team members believe they are expected to do the same. Accordingly, teams should openly discuss preferences and expectations on how to be accessible and available for communication when working remotely and develop team guidelines for ICT-based availability.

Such guidelines should include two aspects: First, they should outline the extent and timeframe to which employees are expected to be available when working remotely and what ICT-based availability, if any, is expected during breaks and after hours. It is important to consider that restricted availability can be beneficial from both, a professional and personal perspective. From a professional perspective, periods of limited availability are important to work undisturbed and focused. In this way, tasks that require a high level of concentration can be completed without interruption. From a personal perspective, periods of limited availability are beneficial as they allow remote workers to be more flexible with their working hours. This enables them to incorporate personal obligations into their working day and then continue with their professional activities. Second, team guidelines for ICT-based availability should address responsiveness expectations for different communication channels (e.g., phone calls vs. emails vs. online messaging tools). It might be beneficial to differentiate between the urgency and complexity of a request (e.g., using phone calls for urgent or more complex requests).

Team guidelines for ICT-based availability are beneficial in two regards. In contrast to organization-wide regulations that set rather undifferentiated and inflexible rules, team-level guidelines consider individual team demands while at the same time providing a framework for remote workers to adapt their ICT-based availability to individual needs. Moreover, such guidelines offer transparency of what is expected and signal remote workers that it is not necessary to be available and respond quickly to messages all the time. Thereby, team guidelines for ICT-based availability can help alleviate remote workers' felt pressure to prove their effort and mitigate their proving availability and communication behavior.

Beyond organization-level policies and team-level guidelines, organizations should create a work environment that supports remote work in a hybrid work setting and makes employees feel trusted when working remotely. To foster such a culture, organizations could implement trainings for supervisors to encourage positive attitudes towards remote work and mitigate bias against remote workers. These positive attitudes and confidence in remote workers should be actively communicated within the organization and teams, whereby supervisors may act as role models and advocate for remote work within their teams. Additionally, it is important to establish a work environment that prioritizes actual work results and objective performance measures over proving availability and communication behavior. In such a supportive and result-oriented work environment, remote workers can rely on their effort being trusted and assessed by their actual output, which in turn may counteract felt pressure and proving availability and communication behavior.

Overall, organizations that offer hybrid work arrangements should implement policies and guidelines that provide a consistent and transparent framework for remote work. At the same time, it is important to create a work environment where employees feel supported and trusted when working remotely. This gives remote workers confidence to manage their ICT-based availability according to their personal and professional needs, and alleviates felt pressure to prove their effort and proving availability and communication behavior, consequently maintaining their well-being and performance.

5.4 Limitations and future research

Overall, this dissertation yields insights into the experiences of remote workers, providing various implications for research and practice. Yet, there are some limitations that need to be considered which, together with the findings of this dissertation, suggest avenues for future research.

First, a qualitative study was conducted to explore remote workers' ICT-based availability and remote workers' proving availability and communication behavior. Using a qualitative research approach was beneficial to better understand the subjective perceptions, feelings and considerations of remote workers. However, due to the qualitative nature of the data, the relationships suggested by the data could not be tested. For example, with regard to remote workers' ICT-based availability, the interdependencies between the antecedents identified and their relative importance remains understudied. Thus, future research may use quantitative approaches to determine the effect sizes of the 17 antecedents or their superordinate categories on remote

workers' ICT-based availability. Further, this dissertation introduced remote workers' proving availability and communication behavior, focusing on exploring and describing the behaviors based on the qualitative data. Future studies may develop measures for the four patterns of proving behavior and test the extent to which these behaviors are empirically distinct and exist independent of each other. Applying measures for remote workers' proving availability and communication behavior, future research could also examine the relationships between these behaviors and remote workers' felt pressure to prove their effort to better integrate the two phenomena and understand their relationship.

Second, for all three phenomena examined here, this research relied on the subjective experiences and perspectives of remote workers themselves. Yet, it might be beneficial to integrate additional perspectives from work-related or personal contacts. For example, subsequent studies may include availability expectations of remote workers' team members and examine their impact on remote workers' ICT-based availability behavior. Collecting data from personal contacts and measure their expectations (e.g., regarding private obligations or boundary management) might help to better understand their impact on remote workers' ICT-based availability. Moreover, this research demonstrated that remote workers engage in proving availability and communication behavior to demonstrate their effort and dedication to colleagues and supervisors. By assessing the perspective of colleagues and supervisors, future research could examine how they perceive and interpret such behaviors, and if remote workers actually achieve the impression they desire.

Third, while this dissertation focused on antecedents and consequences of the three phenomena, further research is needed to identify potential moderators. With regard to remote workers' ICT-based availability, future studies could investigate moderating effects to understand which antecedents amplify or attenuate each other in their effect on remote workers' ICT-based availability. Moreover, with regard to remote workers' felt pressure to prove their effort and concomitant proving availability and communication behavior, it would be beneficial to investigate factors that strengthen or weaken the underlying relationships. For example, remote workers' self-enhancement motive, i.e., the extent to which they are motivated to leave a positive impression on others (Yun et al., 2007), may moderate the relationship between felt pressure to prove their effort and engaging in behaviors to demonstrate their dedication to colleagues and supervisors. The effect of felt pressure to prove effort on proving availability and communication behavior might also depend on specific job characteristics. For example, the transparency of work results or a result-oriented work culture might moderate the relationship between felt pressure and proving behavior in such a way that the relationship is weaker if remote workers'

work results are more transparent or if the culture is more result-oriented, because under such conditions remote workers can rely on their effort being assessed by their output, not their availability behavior. Investigating such moderating effects may help to better understand how felt pressure and proving availability and communication behaviors – and their detrimental consequences – may be avoided.

Finally, some methodological issues need to be considered. For the quantitative study, data were collected at two points in time to account for common method bias (Podsakoff et al., 2012) and to capture lasting effects on remote workers' well-being and job performance. However, the model tested also included relationships between constructs measured at the same time (see Figure 4-2), which limits the interpretation of the underlying causal mechanisms. Further studies should validate the causal effects proposed in the model here using a longitudinal study design and temporally separate the variables' assessment. Moreover, the study relied on self-reported data to assess remote workers' job performance. Subsequent studies should include peer-measures of supervisors or colleagues to assess remote workers' performance, or employ objective performance measures instead.

Despite these limitations, this dissertation sheds light on the experiences of remote workers by examining the three phenomena (1) remote workers' ICT-based availability, (2) remote workers' proving availability and communication behavior, and (3) remote workers' felt pressure to prove their effort. The studies highlight the importance of considering these phenomena in both research and practice to maintain remote workers' well-being and performance in hybrid work settings.

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Appendix

Appendix A: Measurement Information

Items	Factor loadings (CFA)	*α*	*CR*	*AVE*
Felt pressure to prove effort (self-developed), T1		.87	.88	.71
When I work remotely, …				
1. I feel the need to prove that I am actually working.	.90			
2. it is important to me to show that I am actually working.	.68			
3. I feel the pressure to prove that I am diligent.	.93			
Presumed bias against remote work (self-developed), T1		.97	.97	.89
I have the feeling that my colleagues/supervisors…				
1. fear that people loaf around when working remotely.	.90			
2. have a bias that remote workers do personal things instead of working.	.92			
3. think that people would work less when working remotely.	.98			
4. assume that people are less engaged when working remotely.	.97			
Organizational norms regarding remote work (adapted from Kaplan et al., 2018), T1		.89	.90	.75
In my company…				
1. working remotely is promoted.	.89			
2. working remotely is supported.	.94			
3. people are open toward working remotely.	.75			
Team norms regarding remote work (adapted from Kaplan et al., 2018), T1		.89	.90	.75
In my team…				
1. working remotely is promoted.	.88			
2. working remotely is supported.	.93			
3. people are open toward working remotely.	.77			
Felt trust by supervisor (adapted from Nerstad et al., 2018), T1		.94	.95	.81
1. My supervisor shows through their behavior that they trust me.	.95			
2. I feel that my supervisor has confidence in me.	.97			
3. My supervisor communicates clearly that they have confidence in me.	.82			
4. My supervisor believes that I am trustworthy and honest.	.86			
Felt trust by colleagues (adapted from Nerstad et al., 2018), T1		.91	.93	.77
1. My colleagues show through their behavior that they trust me.	.93			
2. I feel that my colleagues have confidence in me.	.93			
3. My colleagues communicate clearly that they have confidence in me.	.78			
4. My colleagues believe that I am trustworthy and honest.	.88			
Stress (Motowidlo et al., 1986; Netemeyer et al., 2005), T2		.89	.96	.69
1. At the end of a day of remote work, I feel “stressed-out.”	.69			
2. When working remotely, I feel fidgety.	.93			
3. Working remotely is extremely stressful for me.	.95			
4. When working remotely, I feel a great deal of stress because of my job.	.73			
Psychological detachment (Sonnentag & Fritz, 2007), T2		.96	.96	.86
During my non-work time on days I work remotely, …				
1. I forget about work.	.92			
2. I do not think about work at all.	.89			
3. I distance myself from work.	.95			
4. I get a break from the demands of work.	.94			

Items	Factor loadings (CFA)	α	CR	AVE
Job performance (adapted from Staples et al., 1999), T2		.96	.96	.85
1. I believe I am an effective employee when working remotely.	.90			
2. When working remotely, I am happy with the quality of my work output.	.89			
3. When working remotely, I work very efficiently.	.94			
4. When working remotely, I am highly productive.	.95			
Ambition (based on Hansson et al., 1983; Rothwell et al., 2008), T2		.81	.81	.59
1. I have a very strong desire to be successful in my job.	.72			
2. At work, I always try to do at least a little better than what is expected of me.	.82			
3. I regard myself as highly ambitious.	.77			
Initiated interdependence (Morgeson & Humphrey, 2006), T1		.88	.88	.79
1. The job requires me to accomplish my job before others complete their job.	.86			
2. Other jobs depend directly on my job.	.92			

Note. α = Cronbach's alpha, *CR* = composite reliability, *AVE* = average variance extracted.

Appendix B: Correlation and Measurement Information

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Felt pressure to prove effort (T1)	3.57	1.68	–													
2. Presumed bias against remote work (T1)	2.40	1.43	.39**	–												
3. Organizational norms regarding remote work (T1)	5.42	1.31	−.09	−.35**	–											
4. Team norms regarding remote work (T1)	5.70	1.36	−.23**	−.53**	.58**	–										
5. Felt trust by supervisor (T1)	6.05	1.12	−.22**	−.40**	.26**	.48**	–									
6. Felt trust by colleagues (T1)	5.98	0.89	−.12*	−.37**	.19**	.26**	.48**	–								
7. Stress (T2)	2.52	1.29	.27**	.17**	−.03	−.10*	−.15**	−.20**	–							
8. Psychological detachment (T2)	4.51	1.60	−.14**	−.16**	.15**	.16**	.16**	.27**	−.44**	–						
9. Job performance (T2)	5.89	1.06	−.12*	−.17**	.04	.08	.09	.28**	−.45**	.33**	–					
10. Gender (T1)	1.68	0.49	−.07	.02	−.06	.01	−.01	.03	.03	−.04	−.04	–				
11. Remote work tenure (T1)	1.56	0.81	.10*	−.02	.07	.03	.00	.00	.03	.02	−.03	−.08	–			
12. Managerial responsibilities (T1)	0.24	0.43	−.09	.03	−.02	.04	.09	−.03	.14**	−.13*	−.05	.18**	−.21**	–		
13. Ambition (T2)	5.60	0.97	.05	−.02	−.05	−.03	.14**	.15**	.00	−.06	.23**	−.00	−.02	.10*	–	
14. Initiated interdependence (T1)	4.48	1.41	.01	−.12*	.10*	.13**	.12*	.12*	.07	.04	−.03	.20**	−.01	−.00	.01	–

Note. *M* = mean; *SD* = standard deviation.

n = 407.

* $p < .05$. ** $p < .01$.

Curriculum Vitae

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Declarations

Erklärung über versuchte Prüfungen

Hiermit versichere ich, Meika Schuster, dass die vorgelegte Dissertation in keinem anderen Verfahren zur Erlangung des Doktorgrades oder als Prüfungsarbeit für eine akademische oder staatliche Prüfung eingereicht wurde.

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