# Agility and new forms of work: applications, challenges and potentials

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## Summary

Companies are confronted with various disruptions and a dynamic environment. On the one hand, markets are characterized by uncertainty and dynamics that reflect a need for companies and employees to adapt. On the other hand, the COVID-19-pandemic in particular has significantly increased the importance of working outside the office. Broad segments of the population have had to work on short notice, mostly from home. This circumstance is likely to accompany companies and employees in the future as infrastructure has been established and benefits have become apparent.

This cumulative dissertation contributes to the understanding of possible cause-effect relationships and appropriate responses of companies. The thesis focuses on possible out-of-office work that is partial and characterized by adaptability or flexibility. Agile work, as a construct to describe successful work in dynamic and complex environments, is thereby applied in remote work or HW to determine possible success factors and challenges. In addition, corporate support measures are inserted and examined in this research context. With the help of qualitative and quantitative research, the interrelationship between remote work, agile work, and enablers is examined.

The first article clarifies the relationship between change management and agility and highlights its role as an enabler in increasing agility or integrating into it. The insight that the increase of agility itself is a profound change and therefore has to be accompanied by change management is central.

The second article adapts and transfers the underlying construct of this dissertation, 'Agile Work', into the specific context of remote work. Characteristics such as autonomy, flexibility, willingness to learn, adaptability and proactivity are also central indicators for successful work in remote work. However, this positive effect is not insignificantly determined by HRM, since agile employees use special enablers.

Companies must provide their employees with work organization guidelines, 'policies', to organize on-site and remote work collaboration. The third article qualitatively and quantitatively explores possible policies, examines their prevalence, analyzes them in terms of their flexibility and autonomy, and derives a framework, which can help define this key enabler.

The fourth article explores possible specific challenges in the context of HW. It turns out that there is a plethora of challenges. A survey provides information on the expression of these items and an analysis examines the influence of the support perceived by employees: It is shown that the expression of the challenges varies significantly with the support and is therefore a key factor for companies.

## Zusammenfassung

Unternehmen sind mit diversen Verwerfungen und einem dynamischen Umfeld konfrontiert. Zum einen sind Märkte von Unsicherheit und einer Dynamik geprägt, die sich in einer Notwendigkeit zur Anpassung für Unternehmen und Mitarbeiter widerspiegeln. Zum anderen hat insbesondere die COVID-19-Pandemie den Stellenwert von Arbeit außerhalb des Büros erheblich gesteigert. Breite Bevölkerungsschichten mussten kurzfristig, meist von Zuhause, arbeiten. Dieser Umstand wird Unternehmen und Mitarbeiter wohl auch in Zukunft begleiten, da die hierfür notwendige Infrastruktur etabliert wurde und Vorteile erkennbar wurden.

Die vorliegende, kumulative Dissertation leistet einen Beitrag zum Verständnis möglicher Wirkzusammenhänge und geeigneter Antworten von Unternehmen. Die Arbeit konzentriert sich dabei auf eine mögliche, teilweise und von Anpassungsfähigkeit bzw. Flexibilität geprägte Arbeit außerhalb des Büros. Agile Arbeit, als Konstrukt zur Beschreibung der erfolgreichen Arbeit in dynamischen und komplexen Umfeldern, wird dabei im remote Work bzw. HW untersucht, um mögliche Erfolgsfaktoren und Herausforderungen zu bestimmen. Ergänzend werden Unterstützungsmaßnahmen von Unternehmen in diesen Forschungskontext eingefügt und analysiert. Mithilfe qualitativer und quantitativer Untersuchungen wird der Wirkzusammenhang zwischen remote Work, Agile Work und Enablern beschrieben.

Der erste Artikel klärt den Zusammenhang von Change Management und Agilität und beleuchtet dessen Rolle als Enabler bei der Steigerung von Agilität bzw. bei Integration in diese. Die Erkenntnis, dass die Steigerung von Agilität per se ein tiefgreifender Wandel ist und somit vom Change Management begleitet werden muss, ist zentral.

Der zweite Artikel adaptiert und transferiert das dieser Dissertation zugrundeliegende Konstrukt „Agile Work“ in den speziellen Kontext von remote Work. Eigenschaften wie Autonomie, Flexibilität, Lernbereitschaft, Anpassungsfähigkeit und Proaktivität sind auch bei remote Work zentraler Indikator für erfolgreiche Arbeit. Jedoch wird dieser positive Effekt nicht unwesentlich durch das HRM bestimmt, da agile Mitarbeitende spezielle Enabler nutzen.

Unternehmen müssen arbeitsorganisatorische Richtlinien, „Policen“, vorgeben, um die Zusammenarbeit vor Ort und im remote Work zu organisieren. Der dritte Artikel untersucht qualitativ und quantitativ mögliche Policen, untersucht deren Verbreitung, analysiert diese hinsichtlich ihrer Flexibilität und Autonomie und leitet ein Framework ab, was bei der Definition dieses zentralen Enablers helfen kann.

Im vierten Artikel werden mögliche, spezielle Herausforderungen im Kontext von HW untersucht. Es zeigt sich, dass es eine Fülle dieser gibt. Eine Erhebung gibt Aufschluss über die Ausprägung dieser Herausforderungen und eine Analyse untersucht den Einfluss der durch Mitarbeitende wahrgenommenen Unterstützung: Es zeigt sich, dass die Ausprägung der

Herausforderungen durch die Unterstützung signifikant variiert und daher für Unternehmen eine relevante Zielgröße darstellt.

Der letzte Artikel skizziert den Einfluss von Agile Work bzw. dem Zusammenhang mit Teamarbeit. Diese Form der Arbeit erklärt einen Teil des positiven Effekts und kann daher auch als Enabler gesehen werden. Zentral ist jedoch eine zeitliche Analyse von Agile Work durch den Vergleich während und nach der COVID-19-Pandemie. Die Veränderung insgesamt bzw. der einzelnen Faktoren gibt Aufschluss über mögliche Anpassungen und Lerneffekte.

Diese Dissertation erweitert daher das bestehende Verständnis und ergänzt es um die Wirkzusammenhänge zwischen Agile Work, Enabler und remote work. Dazu definiert und adaptiert sie ein zugrundeliegendes Konstrukt (Agile Work), untersucht quantitativ und qualitativ Zusammenhänge und analysiert diverse Enabler als Unterstützungsmaßnahmen. Die Aktualität, die fundierte Verortung in der Theorie, die qualitativen und quantitativen Untersuchungen sowie ihre theoretische und praktische Relevanz entwickeln umfassende Erkenntnisse für Entscheider und Forschende.

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## List of Abbreviations

| | |
|---|---|
| B | unstandardized regression coefficients |
| bspw. | beispielsweise |
| Bzw. | beziehungsweise |
| ca. | circa |
| cf. | confer “compare” |
| CI | confidence interval |
| CM | change management |
| COVID-19 | Coronavirus SARS-CoV-2 |
| CRA | Cronbach’s Alpha (α), measure of the internal consistency of a scale |
| e.g. | exempli gratia (for example) |
| ed. | edition |
| Ed./Eds. | editor/editors |
| esp. | especially |
| et al. | et alii |
| etc. | et cetera |
| GDP | gross domestic product |
| H | hypothesis |
| HRM | human resource management |
| HW | hybrid work |
| i.e. | id est (that is to say) |
| IT | information technology |
| JD-R | Job Demands-Resources |
| LLCI | lower level confidence interval |
| M | mean |
| MANOVA | multivariate analysis of variance |
| MTurk | Amazon Mechanical Turk, crowdsourcing website |
| N | size of the sample |
| PM | project management |
| POS | Perceived Organisational Support |
| Q | question |
| R | also $R^2$ and adj-$R^2$, (adjusted) coefficient of determination |
| RW | remote work |
| S.D. | standard deviation |
| SE | robust standard errors |
| SPSS | brand of the software company IBM, under which statistics and software is developed and distributed |

| | |
|---|---|
| ULCI | upper level confidence interval |
| VHB | Verband der Hochschullehrerinnen und Hochschullehrer für Betriebswirtschaft e.V. |
| WFH | work from home |
| WFO | work from office |
| z.B. | zum Beispiel |

## Preface

The nature of work has changed massively in recent years. Many professions have the opportunity to take advantage of new ways of working. Advances in digitization, individual benefits, and changing worker expectations have led a strong trend toward concepts such as remote work. In particular, the impact of the COVID-19 pandemic is still very much in mind as this dissertation is written. As an external shock, large parts of the work had to be transferred to the own four walls, if possible, within a few weeks, so to speak. Digital infrastructure had to be provided, work organization had to be adapted, and collaboration and communication had to be adjusted. The nature of work was changed massively and possibly in the long term - remote work is an important part of working life for many employees. Even though remote work has been in the working world for some time, this concept and others have experienced a remarkable upswing in recent years.

At the same time, companies are threatened in their existence by crises and uncertainty or have to adapt in ever shorter cycles. Global cooperation and value creation lead to intense competition. Crises shake up and change business in the short and long term. This uncertainty is also directly reflected in the work of employees. Uncertainty about tasks, changing roles and complex issues confront employees directly. Collaboration is becoming more dynamic, more cross-functional. In addition to actual skills, the ability of employees to adapt and develop is becoming increasingly central. Changes in culture and management style give employees more flexibility but also more responsibility. Teamwork is becoming more central, as is the use and adaptation of new technological trends and tools. Autonomy, flexibility and adaptability are increasingly in focus.

The COVID-19 pandemic and the related crisis have impressively shown that the modern world of work demands both the distinctive use of remote work and other new forms of work and at the same time the adaptability to crises, uncertainty and dynamics is a central requirement for many professions. It is under this impression that this dissertation was written. The diverse contributions of different disciplines around adaptability and remote work show how current and important these topics are and will probably remain in the future.

# 1 Introduction

## 1.1 Motivation and Research Question

Companies are subject to various trends, shocks, and influences (Buliga *et al.*, 2016). These trends have a direct and in some cases significant impact on the way companies operate (Granig and Hilgarter, 2020). Some of these trends are very long-term while some are more short-term. Knowledge of these influences and the ability to deal with them adequately makes companies successful (C. L. Wang and Ahmed, 2007). Yet these trends and influences have significantly changed the nature of work in recent years. Two overarching trends can be identified.

Globalization, as a trend, intensifies competition and makes international teams necessary (Bellur, 2006). These teams work directly together on projects or in product development, which makes so-called "distributed teams" necessary (Mortensen and Hinds, 2001). Corresponding advances in information and communications technology make it possible to bring employees together and collaborate productively internationally (Garro-Abarca *et al.*, 2021). This makes distributed working possible in the first place and has thus enabled a new form of work. In particular, this possibility, in combination with other societal changes, has caused a strong demand for remote work (RW) by employees (BMWK, 2022). Individual benefits such as reduced commuting effort or increased job satisfaction are just two examples (Brynjolfsson *et al.*, 2020; Felstead and Henseke, 2017). In order not to lose out in the intensified competition for talent and employees, an increasing number of companies are offering RW (Hansen *et al.*, 2023). Ultimately, the crisis triggered by COVID-19 has also been something of a shock to the design of work. To avoid contagion and increased infection rates, and to maintain work delivery, many employees had to or were allowed to do their WFH (Bulut and Maimaiti, 2021). Successful collaboration had to continue despite the enforced physical distance. In this respect, we can also speak here of an intensification of distributed working, which represents the commonality of these trends and thus one of the central changes for companies, employees, and the way work is performed.

The second overarching trend concerns the corporate environment. Parallel to the flexibilization of distributed work, the environment of the company and, thus, also for the employees, is becoming increasingly dynamic and uncertain (Horney *et al.*, 2010). International markets intensify competition while ever-shorter production and innovation cycles cause pressure on companies (Heredia *et al.*, 2022). A trend toward service and support reinforces this dynamic (Chirumalla *et al.*, 2023). To respond to this competition and its fast pace, the company must adapt itself and its business model (Saebi, 2016). This leads to a new dynamic that has a direct impact on employees (Dyer and Shafer, 2003). Uncertainty about the

future and about the skills and activities needed and required is the result of this (Sherehiy and Karwowski, 2014). Being successful in the context of this uncertainty is a key objective for companies (Li and Liu, 2014). Both the dynamics, as well as the adaptation to competition, cause changes (Bordia *et al.*, 2003). While changes are necessary to be successful in the long term (Teece *et al.*, 1997; Overby *et al.*, 2006), projects designed to drive change fail excessively often (By, 2005). People react to change with resistance that threatens the success of the change (Waddell and Sohal, 1998). Danger to one's own job, excessive demands, and lack of participation can be challenges in the context of change (Long and Spurlock, 2008; Bergmann and Garrecht, 2016; Waddell and Sohal, 1998). This makes change management (CM) necessary to accompany changes and mitigate resistance (Cacaci, 2006). The trend toward distributed work also represents a significant change for the way work is delivered (Sardeshmukh *et al.*, 2012). All these trends demand a high level of adaptability from a company and its employees (van Dam, 2013). Without successful adaptation, change cannot be successful and potential benefits do not materialize (Pulakos *et al.*, 2000; Sony and Mekoth, 2022). Various concepts exist that deal with the perception of change, adaptation to a change, continuous adaptation, or skills for the use of a change (Overby *et al.*, 2006; Nijssen and Paauwe, 2012; Teece *et al.*, 2016). These describe the adaptability of companies and employees and, thus, represent a central requirement in the context of the external and internal influences mentioned above (Li and Liu, 2014).

Both of these trends, distributed working and an environment of dynamism and uncertainty, confront companies with the question of how RW can be designed in an environment that necessitates adaptability, or how this new type of work can be organized and supported in the best possible way (Arunprasad *et al.*, 2022). RW initially describes only, for example, that work is not done from the office or on site (Sako, 2021). There are a variety of work forms that come into question or that are combined and offered. What they have in common is that employees do not communicate directly with each other, but work from different locations (Messenger and Gschwind, 2016). Distance, changed communication and collaboration, possible isolation, lack of social exchange, changing work requirements, new needs for support, efficient infrastructure and IT, uncertainty and change in expanding such work models (not least through COVID-19), and greater autonomy are possible implications (Deschênes, 2023; B. M. Smith *et al.*, 2020; Yang *et al.*, 2022; Clear and Dickson, 2005). Companies are therefore faced with the challenge that work organization, work delivery, and collaboration are fundamentally changing (Lucas Ancillo *et al.*, 2021).

This challenge meets the described readiness for change as a prerequisite for survival in dynamic and uncertain environments (Uhl-Bien and Arena, 2018). In the literature, abilities of companies and employees to successfully adapt to changes are described as 'agility' (Overby *et*

*al.*, 2006). In general, agility is associated with capabilities such as success in uncertainty, adaptability, flexibility, proactivity, autonomy, and participation (Sherehiy and Karwowski, 2014). Agility can thus be understood as a characteristic of companies and employees that enables them to successfully adapt to changes in uncertain and dynamic environments (van Dam, 2013; Sherehiy and Karwowski, 2014). Agility can be understood as a characteristic of companies and employees that enables them to successfully adapt to changes in uncertain and dynamic environments (Arunprasad *et al.*, 2022). Characteristics of agility such as autonomy or independence also seem to be needed in RW due to distance and isolation (Busse and Weidner, 2020; Turetken *et al.*, 2011).

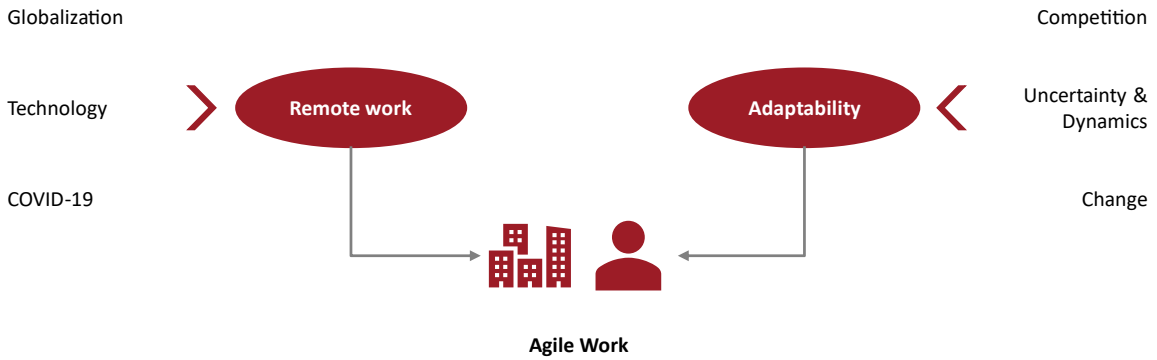


Figure 1: Trends and influencing factors as motivation for Agile Work

Agility in the context of work delivery is therefore called "Agile Work" in the following and represents a way to deal with the described influences (cf. Figure 1).

In this complex of topics, various questions are relevant for companies, but have not yet been answered. First, it is of central importance to clarify the cause-and-effect relationships of agility in RW as an example of a new form of work (Turetken *et al.*, 2011; Arunprasad *et al.*, 2022). Advantages of autonomy and flexibility are described (Martínez-Sánchez *et al.*, 2007b; Clear and Dickson, 2005), but a holistic view of agility in this specific, but highly relevant context, remains elusive. As described, there are indications that components of agility, such as autonomy and flexibility, can be a success factor in RW. At the same time, RW and the increase of this type of work presuppose adaptability and, thus, agility (Peroznejad *et al.*, 2021). For example, "agile teams" were able to leverage the change to more home offices triggered by COVID-19 to increase success (Krzywdzinski, 2022). Agile work, however, also requires support from the company, managers, and HRM (Nijssen and Paauwe, 2012; Joiner, 2019). There are countless contributions regarding the prerequisites for RW in terms of infrastructure, work equipment, culture, and supervisor behavior (Berube Kowalski and Swanson, 2005; Kwon and Jeon, 2020; B. Wang *et al.*, 2021; Yang *et al.*, 2022; Raghuram, 2021). However, there is no consideration of the organizational requirements in the context of agility:

changes must be accompanied, an organizational framework must be facilitated, training must be offered, the challenges of this agile type of work in RW must be known, and employees must be optimally supported. Such 'enablers' enable employees to perform agile work in the sense of this thesis. Because the type of work changes as well as the required skills and values, the interdependencies must also be known here so that companies can provide adequate support.

This thesis therefore aims to close this research gap and provide insights into what agile work can look like in the future for RW as a new form of work. To this end, interdependencies are explained, success factors identified, and support measures described so that companies and employees can perform their work adaptably, successfully, and from almost anywhere in the future. Thus, the following three research questions arise, which this thesis answers:

- Q1: What is the connection between remote work and agility?
- Q2: What framework conditions and measures support remote work?
- Q3: How can the company increase or support agility in this context?

These research questions are shown schematically and in relation to RW, agility, and enablers in Figure 2.

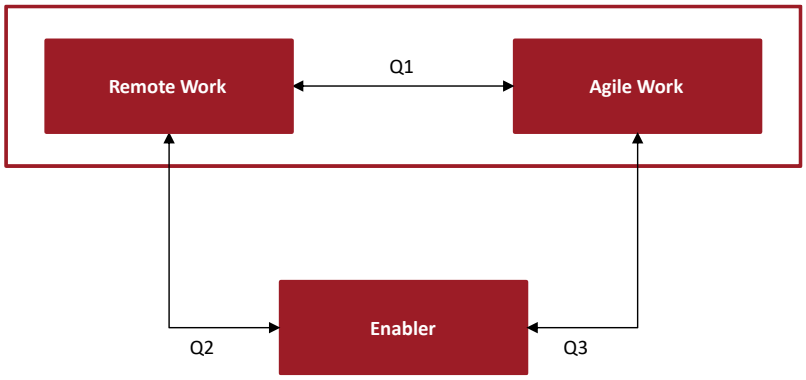


Figure 2: Research context for this thesis

To answer these questions, five qualitative and quantitative studies were conducted as part of this thesis.

## 1.2 Theoretical foundation

As can be seen from the problem definition, the research questions of this dissertation mainly concern three areas (RW, Agile Work, Enabler; cf. Figure 2) or their relationships, each consisting of different components with different characteristics. Therefore, a detailed, theoretical overview is given in this chapter in each. Therefore, a detailed, theoretical overview is given in each case in this chapter.

### 1.2.1 Remote Work

RW is a construct with different definitions and variations. RW can be understood as a type of work organization in which the work is not performed on site in the employer's office or facility, as has historically been the case in many professions, but rather off-site. Depending on the work location, flexibility, or use of IT, different types of work organization can be defined. These definitions are not clear-cut: some are used synonymously or defined completely differently.

One of the first mentions of remote work was the so-called “telecommuting” coined by Jack Nilles while he was stuck in traffic (Kurkland and Bailey, 1999). The notion of avoiding traffic congestion or using it for work in a time-efficient manner seemed desirable: working while commuting or avoiding commuting in hard-hit areas was the motivation to be able to work regardless of where one is located. From Nille's approach, countless definitions and investigations of work outside the office evolved. Advances in IT technology have spawned entire ‘waves’ of new collaboration models, significantly enabling these forms of work delivery (Johns and Gratton, 2013).

In order to develop a definition that can be used for this thesis, the forms of work identified from the literature and listed in Table 1 were considered, which can be understood as new types of work in relation to the use of IT and the flexibilization of the place of work. The forms of work described there differ, in some cases significantly. In some cases, the place of work is fixed, but in others it can be chosen freely.

| Group | Type | Description | RW in the sense of this thesis / Work location |
|---|---|---|---|
| (1) On-site work | Work from Office (WFO) | Classic work organization where work is performed in the office or the employer's facility (Own definition) | No / Fixed |
| (2) Work at home | Work from Home (WFH) | Work in own apartment/house (Aksoy *et al.*, 2022) | Yes / Fixed |
| | Homeoffice | Used synonymously with WFH in Germany (Alipour *et al.*, 2020) | Yes / Fixed |
| | ‘Telearbeit‘ | Work at home, but in premises equipped by the employer (primarily used in | Yes / Fixed |

| | | | |
|---|---|---|---|
| | | Germany) (Wissenschaftliche Dienste - Deutscher Bundestag, 2017) | |
| (3) Work outside the office | (home-based) Telecommuting | Working from home or outside the office, motivation to reduce commuting but also especially work while commuting (Abilash and Siju, 2021) | Yes / Free |
| | Telework | Broader concept than telecommuting, especially including the use of information technology (Garrett and Danziger, 2007; Messenger and Gschwind, 2016) | Yes / Free |
| | Mobile Work | Also called mobile office/telework. Work is not limited to home office. The employer does not have to provide the equipment (Wissenschaftliche Dienste - Deutscher Bundestag, 2017). A workforce that can practice mobile working can be called a "mobile workforce" | Yes / Free |
| | Work from Anywhere (WFA) | Work from anywhere, especially also "workation," in addition to geographical aspects also time flexibilization of work (Choudhury *et al.*, 2021). Sometimes used synonymously with "new work" (Lindner and Dominic, 2020) | Yes / Free |
| | Coworking | Mixed form; joint work in third locations. Can be rated as WFO or WFA, focus especially on start-ups or "digital nomads" (Gauger *et al.*, 2021) | Yes (with limitation) / Independent |
| | Smart Working | Synonymous with WFA but sometimes focuses on different leadership and organizational culture (Carlo *et al.*, 2022) | Yes / Free |
| (4) Work outside | Distributed Work / | Focus more on the geographical distribution of employees. This often | No / Free |

| | | | |
|---|---|---|---|
| the offices or work on site | Distributed Teams | makes RW necessary, but can also happen via collaboration in different offices or coworking spaces (Collins, 1998) | |
| | Hybrid Work (HW) | Holistic view of flexible and simultaneous use of WFH/WFA and WFO (Masood *et al.*, 2021) | No / Free |
| | Virtual Teams / Virtual Work | Collaboration across borders, time zones, and sometimes across organizations. Work location may vary (Ale Ebrahim *et al.*, 2009; Johns and Gratton, 2013) | No / Free |
| (5) No location reference | Flexible Work | Flexible scheduling of working time, focus exclusively on time aspects and no geographical aspects (Menezes and Kelliher, 2011) | No / Independent |

Table 1: Selection of Possible Definitions and Distinctions of Different Forms of Work Organization

The definitions presented in Table 1 are only a possible selection as the descriptions in the literature are sometimes interpreted contradictorily. Countless other terms exist, e.g., Mobile Office, Virtual Office, etc. (Messenger and Gschwind, 2016; Johns and Gratton, 2013; Sardeshmukh *et al.*, 2012). Upon examination, it becomes apparent that the described forms of work can be divided into three categories:

1) Fixed work locations: WFO, "telearbeit", and WFH define a fixed work site (either office or home office). The home office can also be defined as "remote". Nevertheless, no flexibility is provided here by definition.
2) Flexible work locations: WFA, RW, telework, telecommuting, and other concepts mentioned are not to be used completely synonymously; however, it does combine work 'outside' the office and, therefore, represents greater geographic (and to some extent temporal) flexibilization. This flexibilization does not explicitly exclude the use of the office, but is not focused on in most work.
3) Overarching approaches: HW, distributed work, and virtual work again comprise the first two groups mentioned. In both cases, a work organization is selected that integrates both fixed and flexible work locations and organizes them in the best possible way.

For this thesis, several of these groups and categories are of interest. In order to investigate the benefits and specifics of agility, work forms with high autonomy but also isolation for employees are particularly relevant; this concerns both Flexible Workplaces and WFH. Additionally, autonomy, and flexibility are relevant for group 3. In this respect, the following two definitions are relevant in the following:

- *Remote Work* (RW) describes the execution of work at locations outside the office, which are chosen according to the required degree of flexibility or autonomy.
- *Hybrid work* (HW) describes a combination of remote work and WFO in different or variable proportions.

It is important to highlight that collaboration requires the use of IT infrastructure for both RW and HW. This is especially true for employees who work in the WFO but collaborate with remote workers. Advances in IT infrastructure have made some of these forms of work possible in the first place. The usage of IT is therefore also a characteristic of HW and RW, and a central requirement (Ng *et al.*, 2022).

This also means that not all professions and types of work can work remotely to the same extent. So-called "knowledge workers", particularly in the IT and service industries, are more likely to be able to use these types of work than doctors, craftsmen, or other professions with direct customer contact. In this respect, however, HW in particular is also relevant for these groups as an individual combination of RW and WFO can also be an option for these. The use of RW and thus also of HW can therefore vary individually between professions and companies (Hansen *et al.*, 2023).

Following the definition for the present thesis, it is necessary to embed it in theory. Various theories exist that can be used to explain work organization in RW as well: PE fit (Person–Environment fit; van Vianen, 2018), DCM (Demand Control Model; Schreurs and Taris, 1998), ERIM (Effort–Reward Imbalance Model; van Vegchel *et al.*, 2005), COR (Conservation of Resources Theory; Halbesleben *et al.*, 2014) are some examples (Bachtal, 2021). These theories describe the occurrence of stress at work and its effects. Stress can have a negative effect and is explained, for example, by a mismatch with the work environment, lack of control, demands and effort of the work, and the use of resources by employees. Some of these theories build on each other (Bakker *et al.*, 2010). Effects and characteristics of RW can be analysed in particular with the help of the rather recent "Job Demands–Resources (JD-R) Model" (Demerouti *et al.*, 2001). This model can be applied to different work contexts by comparing the often multi-layered influences between the location of the work and the output (Bakker and Demerouti, 2007). The JD-R model presents various suggestions that are quantitatively sound and transferable to different contexts. Central is the division of all job-

related characteristics into job demands and job resources (Bakker and Demerouti, 2017). However, the distinction is not always possible without ambiguity and various connections and dependencies exist (Schaufeli and Taris, 2013). Job demands can be described as (negative) characteristics of work that require effort in the performance of work and are therefore associated with costs in terms of mental or psychological resources and have a burdening effect. Job resources, on the other hand, are (positive) aspects of work performance that help reduce job demands, reduce costs or have a motivating effect (Demerouti *et al.*, 2001). Because, especially in RW, the work context sometimes varies greatly and mental and psychological effects can reduce work success, both dimensions have a direct effect on the success of RW (Nakrošienė *et al.*, 2019).

With regard to RW, there are various factors that can be evaluated as a demand or resource and can be particularly pronounced due to the work context: autonomy, feedback, social support, for example, can have a motivating effect, also or especially due to distance (Galanti *et al.*, 2021). Time pressure, uncertainty, and excessive demands in terms of tasks and roles, as well as changed cognitive and emotional requirements, have a negative effect in the specific context of RW (Sardeshmukh *et al.*, 2012; Bilotta *et al.*, 2021). Factors such as scheduling skills, working during the most productive times, manager trust, reduced communication with colleagues, ability to work at WFH when sick, supervisor support, or job suitability can be seen as either demand or resource (Nakrošienė *et al.*, 2019). The respective perception can also vary individually. Further factors can be, e.g., HRM measures or available equipment (Athanasiadou and Theriou, 2021). In particular, the suitability, equipment, or simply the presence of a workplace at the WFH or at third locations in the case of RW, shows a connection to real estate management issues (Gauger *et al.*, 2022; Gauger F., Bachtal Y., Pfnür A., 2022). All these possible resources and demands can have a positive or negative influence on the job performance of employees and thus also on the overall success of the organization (Bakker *et al.*, 2014).

It can be seen that RW and thus also HW represent a special work context in which facilitating and hindering factors are especially pronounced (Jefferson *et al.*, 2022). To better understand the countless specifics and contextual factors, four possible contextual factors were identified and exemplary effects on work delivery were derived from them. This exemplary selection is summarised in Table 2. Distance in the context of RW describes the fact that colleagues, the manager, and support are not immediately available. Communication and collaboration are changing and employees must adapt to this. Isolation partly follows from distance and describes that employees are “on their own”. Perceived by some as more of a freedom to perform work, it tends to have a negative effect on others. This can also lead to problems being perceived more negatively. Infrastructure describes that the equipment, IT, and premises are

different than in the office and thus represent an altered context. Finally, the organization has also to adapt. The company must now reach employees with support and training despite, the expansion of RW is a fundamental change that must be accompanied, and the cooperation in RW must be specified by work organizational measures (policies).

| Factors (context) | Description | Selection of possible effects or specific requirements |
|---|---|---|
| Distance | Due to spatial distance between employees and managers, cooperation is changed (Lojeski *et al.*, 2020, pp. X–XI; Wong *et al.*, 2022) | Proactivity (Turetken *et al.*, 2011)<br>Communication (Fonner and Roloff, 2010; Krzywdzinski, 2022; B. Wang *et al.*, 2021)<br>Collaboration (Yang *et al.*, 2022)<br>Skills/Complexity (Sardeshmukh *et al.*, 2012; Turetken *et al.*, 2011)<br>Culture and Values (Lojeski *et al.*, 2020) |
| Isolation | Employees are spatially isolated, which alters cognitive and psychological perception and work performance (van Zoonen and Sivunen, 2022; Wong *et al.*, 2022). | Autonomy in work performance and planning (B. Wang *et al.*, 2021)<br>No direct support possible, loneliness ("Social Support") (B. Wang *et al.*, 2021; Bentley *et al.*, 2016)<br>Uncertainty / Resilience (Carnevale and Hatak, 2020)<br>Self-motivation (van Zoonen and Sivunen, 2022) |
| Infrastructure | Equipment may vary to the WFO and affects RW | Digitalization / Tools (Krzywdzinski, 2022)<br>IT (Matli, 2020)<br>Work/family (B. Wang *et al.*, 2021)<br>Work room (Gauger F., Bachtal Y., Pfnür A., 2022) |
| Organization | RW must be supported by the organization and an | HRM (Hitoshi Iwashita, 2021)<br>Policy (Chatterjee *et al.*, 2022) |

| | | |
|---|---|---|
| | organizational framework must be provided | |

Table 2: Possible Influencing Factors and Effects in Terms of Job Demand/Resource through RW

These factors influence success in RW. Success is a multi-layered construct, which in the literature and in the further course is usually understood as productivity and/or work satisfaction (Fonner and Roloff, 2010; Gamal Aboelmaged and Mohamed El Subbaugh, 2012).

In the following, the change and impact of agility on resources and demands in the sense of the JD-R model will be used to understand the context of agility and RW. In this thesis, agility can be understood as a possible resource or demand. In particular, the special design of demands and resources on agile employees in the context of RW and HW are in focus. The relevant definition of agility will therefore be described in more detail in the following section.

### 1.2.2 Agility

Agility is a term that can be found in various fields. Although there are earlier mentions in the literature (Rahn, 2018), the term was primarily shaped in the early 1990s, mainly through the contribution of Dove (1991) including relevant goals such as adaptability. These initial contributions have established a comprehensive branch of research and further concepts that can be assigned to various scientific disciplines (Rahn, 2018). In the area of organization, strategy, leadership, IT infrastructure, HRM, employees, supply chains, software development, and project management, for example, are well-known agility-related concepts (Harraf *et al.*, 2015; Weber and Tarba, 2014; Joiner, 2019; Sherehiy and Karwowski, 2014; Agarwal *et al.*, 2007; Ahammad *et al.*, 2020; Weill *et al.*, 2002; Lyytinen and Rose, 2006; Z. Hu *et al.*, 2009). In particular, the Agile Manifesto and the spread of agile project management and software development methodologies has gained much attention (Beck *et al.*, 2001; Gustavsson, 2016). In these areas of research, there are diverse definitions of agility, with some significant differences.

However, agility can also be understood as a characteristic, capability, or resource. The so-called "resource-based theory of management" describes the resources and capabilities of companies as the reason for their success. These resources are physical or intangible resources, knowledge, or skills that are difficult to imitate by competitors (Wernerfelt, 1984). One of these capabilities, which allows companies to survive and adapt in uncertain environments, are the so-called "dynamic capabilities" (Teece *et al.*, 1997). These include skills for sensing, adapting, and transforming to dynamic change ("Sense, Seize, Transform") (Teece *et al.*, 2016). The ability to adapt flexibly or in an agile manner is crucial for the survival of companies (Overby *et al.*, 2006). Dynamic capabilities are the basis for various concepts that describe this agility (or flexibility) in the sense of adaptability in uncertainty and dynamics at

the level of a company (cf. Section 3.2). Many of these concepts relate to the whole company (e.g., Overby *et al.*, 2006; Nijssen and Paauwe, 2012; Teece *et al.*, 2016). However, employees can also be understood as one of the central "resources"[1] of the company. Various works deal with employees, the workforce, or the work organization and their adaptability, flexibility, or even their agility (Sherehiy and Karwowski, 2014; van Dam, 2013; Bhattacharya *et al.*, 2005; Muduli, 2017).

Agility, according to this definition, therefore makes use of various characteristics, attitudes, and beliefs of employees, workforces, and organizations rather than in the form of methods or frameworks. Agility for the purposes of this thesis is therefore named 'Agile Work' and is defined as follows:

- *Agile Work* describes the ability of employees to act flexibly and adaptably in the organizational context and thus respond to new requirements.

As described, there are various definitions of agility. For this thesis, however, we have deliberately restricted ourselves to the agility of employees in order to be able to determine the correlations with their success in RW (cf. Section 1.1). In the following, the attributes and characteristics of agility are described in more detail according to the definition relevant for this thesis. The construct mainly used in this thesis (cf. Article 2 – Section 3) is based on the work of Sherehiy and Karwowski (2014), is adapted to the context of RW, and is divided into three dimensions:

(1) Work Characteristics: The first dimension relates to the nature of work and how employees work. An important characteristic is autonomy. This relates to how independently employees can work and make decisions, but also to how much freedom they have in terms of time and content in carrying out their tasks. In addition, agility relates to successful work in uncertainty or with unknown tasks and roles. This uncertainty is not only tolerated, but can even have a motivating effect (Sherehiy and Karwowski, 2014). The tasks in terms of agile employees are complex, diverse, changing and, in turn, require diverse and varied skills. The requirements offered by the job are therefore also complex and require experience or specific skills (Sherehiy and Karwowski, 2014). Agile employees therefore appreciate demanding and changing tasks, new and unknown challenges, or value autonomy in every respect (Muduli, 2017). Autonomy can therefore also be interpreted as a resource, especially for agile employees (cf. Section 1.2.1, Galanti *et al.*, 2021). This enables agile employees to act flexibly and independently, and to adapt to new or unknown situations. In particular, autonomous decision-making shows connections to agile PM methods, for example (Dybå *et al.*, 2014). This can also explain observations that the success of agile projects does not depend on the complexity of the

[1] Resources in this context are not to be confused with resources as defined by JD-R (cf. Section 1.2.1).

projects (Serrador and Pinto, 2015): agile employees appreciate, tolerate, and master complexity.

(2) Workforce: The second dimension concerns employees as part of the whole workforce. This dimension can be observed in the cooperation and performance of employees (Sherehiy and Karwowski, 2014). Proactivity is a behaviour pattern that describes the independent taking of an action with the goal of reacting to a change (Griffin and Hesketh, 2003). This includes anticipating the potential impact of change, taking action to eliminate that impact, and adapting to the new circumstance (Sherehiy and Karwowski, 2014). Adaptability and the willingness to adapt concerns the change of one's own behaviour and actions toward new contexts, people, tasks, and technologies, which requires personal flexibility and allows for successful work in different roles, teams, and tasks. Resilience is a behaviour that values failure and learning, and allows working under stress and challenging situations. But it also includes a willingness to learn new things and a positive attitude toward change, and, finally, a tolerance of uncertainty, different opinions, and challenges (Sherehiy and Karwowski, 2014). This dimension, in the sense of agility, allows to adapt, evolve, and overcome uncertainties and challenges in collaboration with others.

(3) Organization: The last dimension concerns the entire (work) organization. This primarily includes collaboration, but also participation in decision-making. Participation and co-design, shared responsibility, and co-determination enable agile employees to develop their own ideas and flourish (Ghosh *et al.*, 2017). Collaboration as a prerequisite is central in the team and the organization. Collaboration is actively practiced and information is proactively exchanged (Calefato and Ebert, 2019). This strong collaboration makes it possible to work together in an agile manner, even independent of the work location.

Agile Work in the sense of this thesis is characterized in particular by adaptability, autonomy, flexibility, and other properties. These characteristics are especially necessary for some forms of organization and types of work. One example that has already been mentioned is agile PM methods. For example, one of the most popular methods, Scrum, has defined adaptation or adaptability as one of the Scrum principles (Moe, 2013). The Agile Manifesto, to which many agile frameworks refer, also uses similar concepts to agility in the sense of this thesis (Beck *et al.*, 2001). Further examples are virtual teams. Decentralization, autonomy, proactive communication, and resilience in the sense of tolerance of different cultures and perspectives in international, distributed teams, are criteria that can also be attributed to agility (Ale Ebrahim *et al.*, 2009; Garro-Abarca *et al.*, 2021).

Elements of Agile Work are also central to modern work organizations such as HW or RW. These forms of work are characterized by distance between employees (cf. Section 1.2.1). This

geographical separation has a direct impact on work. Communication must be proactively managed and autonomy is a prerequisite as colleagues and managers are not present (Berube Kowalski and Swanson, 2005; Nakrošienė *et al.*, 2019; Martínez-Sánchez *et al.*, 2007a). In the further course of the contributions of this thesis, the connections between Agile Work and RW (requirements) will be discussed in more detail.

There are other facets of the described form of agility in the literature, but they are not relevant for this dissertation, especially with regard to RW or in the context of adaptability (Breu *et al.*, 2002). However, it can be seen that agility is included in many current trends. In particular, the focus on employees and organizations or their agile attitudes and actions seems to be central.

### 1.2.3 Organizational measures to increase success with remote work or agility

As shown in Section 1.2.1, the success of RW in the sense of the JD-R model can be increased if job resources are positively influenced. Examples in this sense are HRM measures, support by superiors, trust, and a suitable organizational framework (Athanasiadou and Theriou, 2021; Tummers *et al.*, 2015). Job resources can therefore be influenced by "support" from the organization and thus improve the work in RW (Bakker and Demerouti, 2007; Bentley *et al.*, 2016).

Countless approaches exist for the support of employees in RW. These approaches and measures are a central prerequisite and responsibility of companies in order to make RW successful (B. Wang *et al.*, 2021; Arunprasad *et al.*, 2022). In order to structure the selection of possible support measures and to create a basic understanding for the further course of this thesis, a selection of the essential measures was made. For the purposes of this thesis, these measures can be divided into three groups, which are presented below (cf. Figure 3).

The first group (1) refers to organizational conditions and is thus the framework for successful RW. This group includes specifications, guidelines, equipment, communication options and tools, and offices suitable for HW (Chatterjee *et al.*, 2022; Ferreira *et al.*, 2021; Gauger *et al.*, 2022). One component is the so-called policy, i.e., a work organization specification by the company on how RW or HW is to be used (see also Article 3). Such a policy is a measure to positively influence the success of RW by granting the framework conditions for flexibility, e.g., with regard to the place of work or time planning (Chatterjee *et al.*, 2022). A policy can, for example, help reduce work–family conflicts by achieving a balance between job and family through flexibility (Allen *et al.*, 2015). But infrastructure can also be counted among group (1). Equipment, work resources, communication media, and tools are often provided or specified

by companies (Ferreira *et al.*, 2021; Donald Sull *et al.*, 2020). This is a prerequisite for efficient communication and collaboration among employees despite the distance (Ilag, 2021).

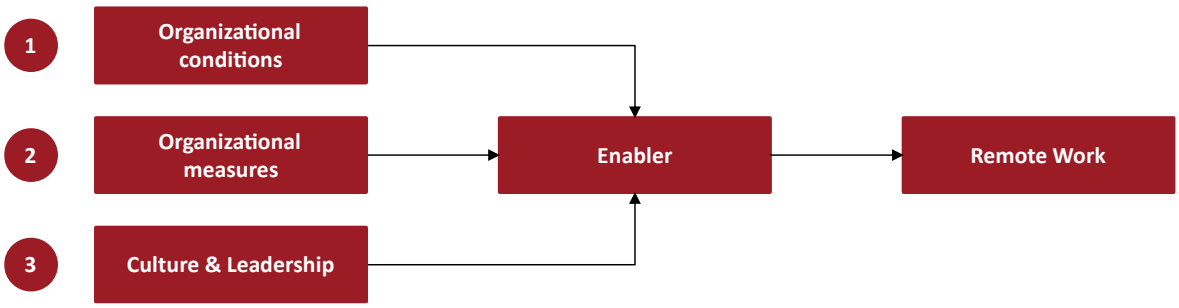


Figure 3: Schematic representations of different groups of support measures (enablers) for remote work or agility

The second possible group (2) concerns tasks and measures that can be taken by different departments and divisions of a company to support RW. These (active or planned) measures relate to the direct improvement of the situation for employees in RW. The task of HRM is to use and develop the resources of employees in the best possible way (Straus *et al.*, 2022). According to Straus *et al.* (2022), this also includes the targeted development of useful skills such as self-goal setting skills and self-efficacy. Training courses, especially for employees with little RW experience, are also useful as support (Pokojski *et al.*, 2022; Como *et al.*, 2021). Another goal of HRM is to increase collaboration and exchange between employees, especially in RW (Arunprasad *et al.*, 2022). Ultimately, however, support in equipping private workspaces and technical equipment are also measures that HRM can take (Straus *et al.*, 2022). But also the use of CM can improve the changes to more RW or the impact of changes in the specific context of RW (Tummers *et al.*, 2015).

The third possible group (3) of "Enablers" relates to culture and leadership. Leadership and the behaviour of managers are central to success in RW (Arunprasad *et al.*, 2022). HRM also tracks the development of management structures and culture (Straus *et al.*, 2022). However, the relationship between manager and employee naturally changes due to the distance associated with RW, and requires adjustment (Kwon and Jeon, 2020; Varma *et al.*, 2022). Adapted leadership models ("remote leadership") and targeted communication between managers and employees are crucial in RW (Neufeld *et al.*, 2010). A supportive culture focuses on team identification, social exchange, and knowledge transfer despite the distance of RW (Raghuram, 2021). Last but not least, appreciation is important for employees to work successfully. This can be particularly difficult in the context of RW as contact with the manager and corporate communication tends to be indirect. An established construct, "perceived organizational support," can be another support measure or an indicator of the perceived

success of other enablers (POS; Eisenberger *et al.*, 1986); i.e., an increase in satisfaction or perceived support and appreciation is associated with positive effects in RW (Chatterjee *et al.*, 2022).

These are just a few well-known examples of enablers in the context of RW. It can be seen that these enablers focus on RW criteria and are therefore specifically designed and adapted to have an impact on RW success (Raghuram, 2021). In the course of the JD-R theory in relation to RW, this can be explained by the influence of resources and demands (Straus *et al.*, 2022).

But agility (cf. Section 1.2.2) also requires enablers and specific support. As with RW, this can be classified according to the three groups in Figure 3, but in relation to agility. The first group of organizational enablers (1) can be described as follows for agility. Agility uses flexibility and autonomy to achieve adaptability (Sherehiy and Karwowski, 2014). For employees to be able to act agilely, the organization must create the right framework conditions: Flexible use of IT infrastructure is one example (Muduli, 2013). Employees must be granted autonomy in work planning (in terms of time, content) or be given the opportunity to make autonomous decisions (Berube Kowalski and Swanson, 2005). The use of agile frameworks can also be included here (Cervone, 2011). Agility can also be supported by organizational measures (2). The capabilities associated with agility are complex and demanding (Breu *et al.*, 2002). Employees need to gain experience, be encouraged, and receive appropriate training and development as needed (Muduli, 2016). The development of these skills can, in turn, be supported by HRM (Arunprasad *et al.*, 2022), especially to support the use of flexibility and autonomy (Fenton-O'Creevy *et al.*, 2008) or to build up the dynamic capabilities associated with agility (Batra, 2020; Carnevale and Hatak, 2020).

There are also potential enablers in the area of culture and leadership behaviour (3). A positive culture of error is helpful so that employees can autonomously try out new things and master complex challenges (Mergel *et al.*, 2021). The manager must also adapt in order to provide optimal support (Joiner, 2019). Parker *et al.* (2015) include adaptability, the view of teams as flexible entities, the recognition that control and influence is limited, and that autonomy and self-organization are strengths of teams. As a result, the role of the manager focuses more on removing obstacles for employees. For example, the management style referred to as "management by objectives" is well suited to evaluate employees on the basis of their goal achievement (Oliva *et al.*, 2019). This enables employees to plan and complete tasks freely and autonomously without being instructed by the manager. Here, the manager supports rather than plans, directs, or executes. This is also described as "enabling leadership" (Uhl-Bien and Arena, 2018) or "leadership agility" (Joiner, 2008). Managers should be supported in the transition to this new role (Joiner and Josephs, 2007).

Enablers therefore seem to be central to success for both agility and RW. It can already be seen in the explanations in this section that some requirements and enablers apply to both sets of topics or that synergies are discernible. These will be explored in more depth in the articles of this thesis.

## 1.3 Positioning of the thesis

Based on the research context (cf. Figure 2) and the theoretical background of Section 1.2, the thesis and the articles it contains will be placed in this context in the following.

To understand the impact of Agile Work on and in RW and the possible supporting measures, it is necessary to relate the three topic areas presented in Section 1.2 in order to examine their interrelationships and identify possible interactions or synergies. The changes in job resources and job demands (RW; JD-R Model) due to agility (Agile Work; dynamic capabilities) as well as possible influencing factors for companies are therefore part of the articles of this cumulative dissertation. The focal points of the articles are shown in Figure 4[2]. Although the articles each highlight one or more key area, they sometimes provide important insights into other facets of the research question of this dissertation. For a better overview, Figure 4 is therefore to be understood as a simplified representation.

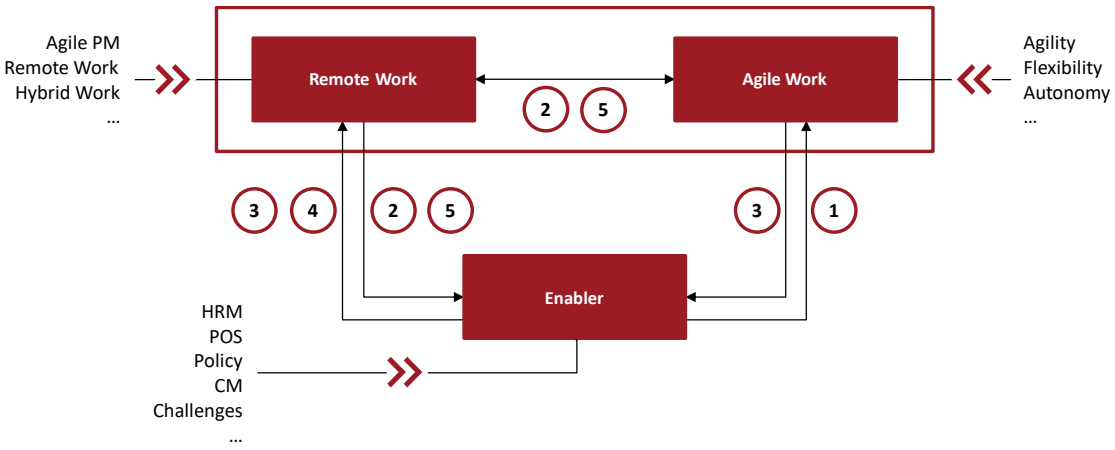


Figure 4: Overarching research context with positioning of the articles

The research context of this dissertation makes use of agility in the form of Agile Work (Sherehiy and Karwowski, 2014) as a "dynamic capability" (Teece *et al.*, 1997). The impact of Agile Work by agile employees or a workforce in RW is examined here. RW is conceptualized

[2] The numbers shown in Figure 4 refer to the numbering of articles in this thesis.

based on the JD-R theory (Demerouti *et al.*, 2001), which presents job demands and job resources in the work context as negative and positive effects, respectively, on job success. The work context here is specifically RW or HW. Enablers have a direct influence on both Agile Work and RW and can mitigate negative influences and enable success.

Agile Work is associated with flexibility and adaptability, which are of great importance for companies in dynamic markets. The influence of Agile Work on the willingness and ability to change and, at the same time, the use of enablers in the sense of change management toward agility are relevant here. This is examined in the first article.

The second article examines the link between agility and RW. In doing so, it quantitatively examines Agile Work as a success criterion in the context of RW. As such, this article represents a central component in the research context as it defines the construct of Agile Work underlying this dissertation and examines it quantitatively in the context of RW. In addition, the use of enablers, especially HRM, on Agile Work in RW is included in this research.

Both Agile Work and RW can be influenced by organizational frameworks (cf. Figure 3). Possible policies provide the framework conditions for the use of RW or HW. At the same time, they grant employees autonomy and flexibility, which is particularly central in the context of Agile Work. This connection is examined in Article 3.

In terms of job demands, it is important to use enablers that mitigate challenges arising from the special context of HW. To do this, however, they must be known. The fourth article therefore looks at challenges in HW, determines them qualitatively and measures their importance quantitatively. In addition, the article examines the influence of perceived appreciation and organizational support (POS) as a key enabler to facilitate employees' work and increase success.

The fifth article is again dedicated to the relationship between Agile Work and RW; however, here it not only focuses on the cause–effect relationships but also examines the development of Agile Work in RW over time. This can shed light on what role the experience of an employee has in this specific context and thus should also be a goal of HRM, an enabler. In addition, the influence of the team is related as a context for Agile Work.

## 1.4 Structure of the thesis and presentation of the research article

The following describes the structure of this cumulative dissertation. The thesis is divided into a total of seven chapters. After the description of the motivation, problem definition, and the general, theoretical background, including the location of this work in the theoretical context in Chapter 1, the articles contained in this dissertation are each presented in their own chapters (Chapters 2–6). The dissertation concludes with a further chapter consisting of a description

of the scientific as well as practical contributions of the dissertation, possible limitations, and an outlook on possible further research.

This dissertation consists of a cumulative five articles. These articles are shown in Table 3. Three articles have already been published in peer-reviewed scientific journals. Another article is part of an anthology while the fifth article is "submitted" in a peer-reviewed scientific journal at the time of submission of this dissertation. The articles have been minimally and mostly graphically adjusted for this dissertation compared to the published versions to ensure internal consistency.

| | | |
|---|---|---|
| Article 1 (Chapter 2) | **Widerstände gegen Agilität: Agiles Change Management als Erfolgsfaktor in Projekten der digitalen Transformation**<br>**(Resistance to agility: Agile change management as a success factor in digital transformation projects)**<br><br>Heidt, Lukas; Gauger, Felix; Wagner, Benjamin; Pfnür, Andreas (2020). In: Swiss Journal of Business Research and Practice (Die Unternehmung), 74.2. DOI: https://doi.org/10.5771/0042-059X-2020-2-155, pages 155–172. | Published (VHB: C) |
| Article 2 (Chapter 3) | **Work from Home Success: Agile work characteristics and the Mediating Effect of supportive HRM**<br><br>Heidt, Lukas; Gauger, Felix; Pfnür, Andreas (2022). In: Review of Managerial Science. DOI: https://doi.org/10.1007/s11846-022-00545-5, pages 2139–2164 | Published (VHB: B) |
| Article 3 (Chapter 4) | **Work from Anywhere organisieren – Richtlinien für hybride und flexible Arbeitsmodelle**<br>**(Organizing Work from Anywhere - Guidelines for Hybrid and Flexible Work Models)**<br><br>Heidt, Lukas; Gauger, Felix; Pfnür, Andreas (2023). In: Zeitschrift Führung + Organisation (zfo), 92.1. URL: | Published (VHB: D) |

| | | |
|---|---|---|
| | https://www.zfo.de/suche-archiv/Document/details/3868_12, pages: 28–33 | |
| Article 4 (Chapter 5) | **Zentrale Herausforderungen und der Einfluss von organisatorischer Unterstützung bei hybrider Arbeit**<br>**(Key challenges and the influence of organizational support in hybrid work)**<br><br>Heidt, Lukas; Gauger, Felix; Pfnür, Andreas (2023). In: Henzler, Ingeborg; Hues, Henning; Sonnleitner, Sandra; Wilkens, Uta (eds.): Extended Views. Gesellschafts - und wirtschaftswissenschaftliche Perspektiven auf die Covid 19-Pandemie. Böhlau, Köln und Wien | Accepted<br>(Book Chapter) |
| Article 5 (Chapter 6) | **Agility in hybrid forms of work: The impact on teamwork and work success**<br><br>Heidt, Lukas; Voll, Kyra; Pfnür, Andreas (2023). In: Review of Managerial Science | Submitted<br>(VHB: B) |

Table 3: Overview of the Scientific Articles of this Dissertation

The following summarizes the five scientific articles of this cumulative dissertation.

**Article 1: Resistance to agility: Agile change management as a success factor in digital transformation projects (Widerstände gegen Agilität: Agiles Change Management als Erfolgsfaktor in Projekten der digitalen Transformation)**

The first article examines the extent to which agility can help mitigate negative effects (resistance) during changes and transformations. Companies and employees are confronted with increasingly rapid changes in the market and general dynamic. One response to this can be agility and adaptability. This is often driven in companies using agile PM methods. However, changes are associated with negative effects and resistance, which often cause change projects to fail. CM offers measures that address these resistances to enable change success. However, it is unclear how CM can leverage the adaptability embedded in agility and agile projects, and what agile CM might look like.

The article uses a qualitative approach. Six experts are interviewed. These experts work agile, are employed in CM, or manage projects in an agile context. The experts were asked about

three possible areas, which were identified via exploratory preliminary interviews. The areas of communication management, stakeholder management, and integration in agile PM methods were identified: here the experts saw potential for CM.

The experts generally confirm the importance of agility and CM, but also point out that the shift toward agility is associated with change and should therefore be accompanied by CM. In terms of required communication, personal interaction is particularly valued, but a combination of different communication types and hierarchies is recommended. Stakeholders should always be considered individually and participation in change should be encouraged. Overall, the experts highlight that CM and agile PM can be combined. Some elements of agile PM methods already have parts of CM included and can be used for this and thus offer synergies.

Based on the results, the article derives a framework that includes both the change toward more agility and agile PM as well the integration of CM into agile PM methods and thus optimally implementing changes in digital transformation projects. For this purpose, existing roles in Scrum are used or supplemented, or events in Scrum are used for CM.

The article proves how CM and agile PM can be profitably combined, but also shows in particular that readiness for change and adaptability in the sense of agility can be an important goal on the path of transformation and must be supported by CM as an enabler.

**Article 2: Work from Home Success: Agile work characteristics and the Mediating Effect of supportive HRM**

The second article examines the extent to which values and characteristics of agility have positive effects in WFH and the extent to which a possible, positive effect is influenced by supporting measures of HRM.

WFH represents a large proportion of RW. Various studies exist that explain what parameters make WFH successful. This article focuses on characteristics of employees, the organization, and the work itself that enable success in WFH. To capture the new requirements of "knowledge work," a research model is established and a construct (Agile Work) is defined. Agile Work thereby summarizes job characteristics (e.g., autonomy and requirements), employee characteristics (e.g., resilience), and organizational characteristics (e.g., collaboration). For this purpose, an existing construct from the field of manufacturing is adapted and transferred to the specific context of WFH. It can be hypothesized that the criteria of Agile Work are not only important in general, but are also a success factor for WFH in particular. In addition to this direct influence on success, indirect potentials can also be used as employees in the sense of Agile Work are also particularly receptive to supporting measures of HRM. The research model thus presents a direct effect and an indirect effect that is mediated

and can therefore be influenced by the company. This indirect effect can be explained by so-called "enablers," which also represent a construct.

The article makes use of a quantitative survey ($N$ = 1,016) in Germany and the U.S. The data were examined with a mediation analysis in SPSS. For this purpose, the model of Hayes (2009) was applied to identify a possible, indirect effect. This study was repeated for individual subgroups and supplemented with control variables to provide even more detailed findings.

The results show the following: 1) There is a generally positive, significant effect of Agile Work on success in WFH. This shows that the characteristics associated with Agile Work are also critical to success in WFH. 2) The effect of Agile Work on Enabler is also positive. 3) Enablers as defined in this article have significant influence. This means that the positive effect of Agile Work on success in WFH is at least partially (48%) explained by the potential and use of specific enablers. The sub-group analysis shows that part-time employees are less attracted by Agile Work, but more by enablers. For experienced employees, the same correlations apply as for the complete sample.

The article provides a completely new understanding of the success factors in WFH. On the one hand, Agile Work is transferred and adapted as a construct in WFH. This represents a completely new approach with the construct Agile Work having a positive effect on success in WFH. Ultimately, the result of the study is that enablers are not only important in general, but offer particular potential with employees in terms of Agile Work and can explain a significant proportion of the positive effect. This is therefore a direct starting point for companies to make WFH successful.

**Article 3: Organizing Work from Anywhere - Guidelines for Hybrid and Flexible Work Models (Work from Anywhere organisieren – Richtlinien für hybride und flexible Arbeitsmodelle)**

The third article deals with the organization of different types of "new work". In the course of the COVID-19 pandemic, WFA, and WFH, i.e., RW, experienced great growth, and individual advantages for employees and companies have become apparent. Still, benefits and legitimate arguments for on-site work exist. The design of HW is individual and depends on the type of work, culture, and preferences of the workforce. To organize these different forms of work, companies issue work organization directives that regulate collaboration in terms of work location. These "policies" are highly individual with specific advantages and disadvantages. The question for companies is therefore which policy is the most suitable and how it can be implemented.

A qualitative survey was conducted to answer this question. Interviews with experts provided an overview of possible policies, which differ primarily in terms of flexibility or autonomy for employees. In a second step, a quantitative survey was conducted ($N$ = 278) to determine additional policies or to determine the distribution of the policies identified. A free-text option gave the opportunity to name further policies.

A total of eight policies were identified. These coincide with the results determined in the qualitative survey, or the free-text answers could be assigned to one of the eight policies in each case. The survey also shows that the policies do not differ in terms of work success and that there is no "standard policy": all policies are common, with minor differences. However, the policies differ in terms of their autonomy (independent and free or autonomous scheduling) and flexibility (freedom within an existing policy) for employees to use HW. Policies can be clustered with respect to these dimensions and further policies can be derived. The paper concludes with a proposed framework that allows decision makers to derive, based on requirements, the flexibility and autonomy of the chosen policy, to translate this into a concrete design based on best practices, and to continuously measure success.

This paper contributes to the understanding of possible policies and organization options for HW, highlights possible dimensions of such policies, and defines a framework for selecting a policy for practitioners.

**Article 4: Key challenges and the influence of organizational support in hybrid work (Zentrale Herausforderungen und der Einfluss von organisatorischer Unterstützung bei hybrider Arbeit)**

The fourth article deals with challenges in HW and possible influencing factors with which companies can counteract them. Because WFH and WFO are applied in a complementary way in terms of HW, a situation arises in which changing parts and proportions of the workforce work on site or remotely. This leads to specific challenges due to segmentation, different infrastructure, and collaboration/communication issues. For a company to adequately respond to these challenges, they need to 1) understand them and 2) identify possible influencing factors so they can be leveraged. One possible influencing factor could be POS as perceived support can increase resilience of employees to negative impacts of challenges.

Based on a qualitative expert survey with 15 people, 36 challenges were identified. In an additional quantitative survey with 260 participants, these challenges were evaluated in terms of their relevance and further items identified (esp. POS). The relative importance of the challenges was determined via an average rating on a 7-point Likert scale. The possible influence of POS on the perception of the challenges was examined using MANOVA (multivariate analysis of variance). Before performing the MANOVA, subjects were divided into

high and low POS groups, and a factor analysis of challenges was performed. This resulted in five clusters of challenges (collaboration, communication, acceptance of HW, and processual and organizational requirements).

The analysis makes the following two revelations. First, 28 of the 36 items are rated as challenging by the majority. However, the remaining eight items are also rated as relevant by some subjects. Additionally, there is no cluster of challenges that is overly often rated highly. Only the organizational requirements, i.e., those that the company can directly influence, are rated particularly highly.

Second, the MANOVA investigation shows differences in the perception of challenges depending on the POS value. This confirms that POS as a target variable is not only important in general, but also relevant for companies in the context of HW in particular. However, the individual influences are different: while some challenge clusters show no differences between the groups, acceptance of HW and processual prerequisites are rated significantly higher by employees with a low POS value. The opposite is true for organizational challenges.

The article expands the understanding of challenges and cause–effect relationships in HW in two ways. First, the article provides a comprehensive, qualitative, and quantitative grounded overview of challenges and their relevance. Second, it expands the application of POS to HW and demonstrates that impacts are significantly different based on the POS of an employee. This insight can be used in detail by companies for actions to overcome challenges or mitigate their negative impacts.

**Article 5: Agility in hybrid forms of work: The impact on teamwork and work success**

The last article of this dissertation examines the influence of agile work. Since the COVID-19-influenced period with high rates of WFH or WFA, companies have increasingly moved to working on-site again. The context of work has thus been changed or "normalized". Nevertheless, markets remain dynamic and numerous uncertainties confront companies and employees. In this environment, the characteristics associated with Agile Work still seem desirable, or the behaviours adapted from the years of the pandemic can be used in a purposeful way. At the same time, Agile Work has a great relation to teamwork as, in some industries and professions, a predominant way of working. Self-organization, shared responsibility, collaboration, and efficient communication are just a few examples that need to be implemented in a team.

Based on the literature, the article proposes a research framework using a quantitative study with 790 hybrid working participants from Germany. An analysis explores two questions. First, it examines the extent to which Agile Work is also critical for success in the hybrid context and

whether the context via teamwork can explain parts of this effect. To this end, a mediation analysis is conducted with teamwork as the mediator. Second, a temporal comparison is made. For this purpose, the values for Agile Work from 75 participants from the time during the pandemic (2021) are compared with the values after the pandemic (2023) in order to detect changes in the Agile Work sub-constructs as well.

The analysis confirms that Agile Work has a significant influence on work success for hybrid workers. This confirms the findings from Article 2 of this dissertation. Furthermore, it can be demonstrated that teamwork is positively influenced by Agile Work, which indicates that agile employees also act more successfully in teamwork. Teamwork in turn has a positive influence on work success. Ultimately, teamwork can be confirmed as a mediator in this relationship as part of the positive effect of agile work on work success can be explained by influence via teamwork.

A comparison over time reveals that Agile Work has almost constant values over this period. For example, within the sub-constructs, however, organization-related characteristics of agility have been expanded, which suggests an improvement in structures and framework conditions. At the same time, the “Workforce” subconstruct is less pronounced, which may indicate that the employees' work situation tends to be less demanding after the pandemic.

The article confirms and extends the findings on the cause–effect relationships of Agile Work in the context of HW. The connection of teamwork as a component influencing work success shows that teamwork also represents a positive context factor for Agile Work. In addition, the article brings an entirely new insight by shedding light on the temporal component and evolution of Agile Work. Particularly with regard to the timing of the surveys, this is another key finding and underpins the importance of Agile Work.

## 2 Widerstände gegen Agilität: Agiles Change Management als Erfolgsfaktor in Projekten der digitalen Transformation


| | |
|---|---|
| Titel: | Widerstände gegen Agilität: Agiles Change Management als Erfolgsfaktor in Projekten der digitalen Transformation |
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Zusammenfassung[3]: In Zeiten dynamischer Veränderungen von Unternehmensumwelten sowie der digitalen Transformation wächst die Bedeutung von agilem Projektmanagement. Dies verändert auch die Anforderungen an das Change Management und dessen Beitrag zum Projekterfolg. Ziel des Forschungsbeitrages ist es, anhand der Begleitung eines agilen Projektes mithilfe von Interviews der Projektbeteiligten die damit einhergehenden Anpassungsnotwendigkeiten des Change Managements zu identifizieren. Das Change Management muss dabei besonders in den Bereichen des Kommunikationsmanagements und des Stakeholdermanagements sowie durch die Integration in agile Projektmanagement-Methoden angepasst werden. Persönliche Kommunikation, individuelles Stakeholdermanagement und Partizipation sind Anpassungsmöglichkeiten zur Integration des Change Managements in das agile Projektmanagement.

*Abstract: In times of digital transformation and dynamic change in corporate environments, the importance of agile project management is growing. This further affects the demand on change management and its contribution to project success. We conduct interviews with project participants of an agile project to identify the associated need for adaptation of change management. Change management criteria have to be adjusted, particularly in areas of communication management and stakeholder management as well as by integration into agile project management methods. Personal communication, individual stakeholder management and participation are starting points for adapting and integrating change management into agile project management.*


[3] Die Artikel für diese Dissertation wurden wortwörtlich übernommen. Geschlechtergerechte Sprache wurde in Übereinstimmung mit den Vorgaben des jeweiligen Journals genutzt. Die Nutzung variiert daher zwischen den Artikeln. In dieser Arbeit verwendete Bezeichnungen beziehen sich auf alle Geschlechter.

## 2.1 Einleitung

Unternehmen sind zunehmend dynamischen Veränderungen ihrer Unternehmensumwelt ausgesetzt, die nahezu jeden Bereich der Wirtschaft und der Wertschöpfung durchdringen (O'Reilly and Tushman, 2008; Saebi, 2016; Muchna, 2019). Diese Veränderungen unterschiedlichster Tragweite erfordern Veränderungen der Unternehmen und des Managements selbst (Köffer and Urbach, 2016; Krüger, 2009). Einen besonderen Fokus erhalten hierbei IT-induzierte Aspekte, die gemeinhin unter dem Begriff der digitalen Transformation zusammengefasst werden. Die Veränderungen durch digitale Transformation erfolgen in immer kürzeren Zyklen, so beschreiben Hofmann and Günther (2019, p. 688) , „dass die Veränderungsgeschwindigkeit aufgrund Digitalisierung […] ihresgleichen sucht". Begegnet wird diesen Veränderungen zunehmend mit der Fähigkeit, zielgerichtet und dynamisch auf sich schnell wandelnde Anforderungen zu reagieren (Conforto *et al.*, 2016; Gustavsson, 2016). Diese organisationale, interne Reaktionsfähigkeit wird im Rahmen dieses Beitrags als Agilität bezeichnet (Overby *et al.*, 2006). Um Agilität zu steigern, werden verstärkt agile Projektmanagement-Methoden (PM-Methoden) als Bestandteil des Agilen Managements eingesetzt. So steigt die Anzahl von Projekten und Arbeitsformen, die mittels agiler PM-Methoden durchgeführt werden, kontinuierlich an (Roghé *et al.*, 2017). Insbesondere Projekte der digitalen Transformation sind durch eine zunehmende Agilität gekennzeichnet, um dem dynamischen Veränderungsbedarf gerecht zu werden (Harraf *et al.*, 2015; Nell, 2018).

Agile Projekte und Arbeitsformen erfordern umfassende Anpassungen in Prozessen, Kompetenzen, Arbeitsweisen, Hierarchien und der Unternehmenskultur (Dutta and Kleiner, 2015). Diese Anpassungen können von betroffenen Mitarbeitern als Gefahr oder Unsicherheit wahrgenommen werden (Long and Spurlock, 2008). Somit sind agile Projekte mit Herausforderungen verbunden, die sich vor allem durch Widerstände der Mitarbeiter gegenüber neuartigen Arbeitsweisen und Rollen zeigen (Chan and Thong, 2009). Aufgrund der mit agilen PM-Methoden einhergehenden Anpassungen sowie einer gestiegenen Komplexität können Widerstände der Mitarbeiter bei Projekten der digitalen Transformation weitaus ausgeprägter auftreten als in herkömmlichen Projekten (Fosfuri and Rønde, 2009). Diese Widerstände gefährden den Projekterfolg als Ganzes, wodurch vor allem Projekte der digitalen Transformation häufig scheitern (Yeo, 2002; Alami, 2016).

Um Projektziele nicht zu gefährden und Agilität zu steigern, ist es daher notwendig, Massnahmen für eine erfolgreiche Begleitung der Anpassungen zu ergreifen. Insofern ist es zentrale Aufgabe eines erfolgreichen Projektmanagements (PM), nicht nur die Projektziele bestmöglich zu erreichen, sondern auch die daraus resultierenden Veränderungen in Projekt und Organisation aktiv zu unterstützen und zu organisieren (Hornstein, 2015). Diese unter Change Management (CM) bekannten Aufgaben erstrecken sich dabei über sämtliche Phasen

des Projektes, umfassen Planung sowie Umsetzung und leisten damit einen direkten Beitrag zum Projekterfolg (Krüger, 2009). Während sich die Forschung zu PM vorwiegend mit Methoden beschäftigt, fokussiert sich die Forschung zu CM hauptsächlich mit der durch die Veränderung hervorgerufenen Dynamik. Eine Verzahnung von CM und agilem PM ist bisher kaum Gegenstand der Forschung. Dabei scheint CM in agilen Projekten einen Beitrag in zweierlei Hinsicht zu leisten: Es baut einerseits die Widerstände gegenüber der Dynamik und Komplexität agiler Projekte ab (Winch *et al.*, 2012), während andererseits erst durch CM die notwendige Veränderungsbereitschaft für agile Arbeitsweisen und Agilität erreicht werden kann (Kruse *et al.*, 2014; Rasnacis and Berzisa, 2017). Eine Integration dieser zwei Sichtweisen wird durch eine literaturbasierte Arbeit von Wipfler and Vorbach (2015) geliefert, die den Zusammenhang von CM und agilem PM skizziert. Obwohl Gergs *et al.* (2019) ein konkretes Vorgehen und Prinzipien für agiles CM zur Realisierung von Veränderungen postulieren, fehlt eine detaillierte Untersuchung der konkreten Schwerpunkte, Anpassungsmöglichkeiten und Optimierungspotenziale sowie eine Integration in agile Projekte.

Daher verfolgt dieser Forschungsbeitrag die zwei Ziele, anhand einer wissenschaftlichen Projektbegleitung aufzuzeigen, (1) welche Bereiche des CMs eine Anpassung benötigen und (2) welche Anpassungen in den identifizierten Bereichen notwendig sind, um Agilität bestmöglich zu steigern. Diese Erkenntnisse können als Grundlage für weitergehende Forschung dienen, sind aber auch insbesondere für Praktiker von grossem Interesse, um die Integration von CM-Massnahmen in agile PM-Methoden vornehmen zu können.

Um zunächst die relevanten Bereiche des CMs zu identifizieren und schliesslich die Anpassungsnotwendigkeiten des CMs in agilen Projekten der digitalen Transformation erforschen zu können, bietet es sich an, Erfahrungen und Herausforderungen aus der Praxis zu betrachten. Daher wurde ein Unternehmensprojekt in der digitalen Transformation, welches sich durch einen hohen Anteil an agilem PM auszeichnet, wissenschaftlich begleitet. In diesem Rahmen wurden Interviews mit Projektbeteiligten geführt, um daraus explorativ Ergebnisse und Antworten zum Forschungsziel zu erhalten.

## 2.2 Change Management als Erfolgsfaktor in agilen Projekten

Das CM hat in den letzten Jahrzenten an Bedeutung gewonnen (By, 2005). Dabei kann CM als ein „umfassender, […] strukturierter Management-Ansatz für die Veränderung von Individuen, Gruppen und Organisationen von einem Ist-Zustand zu einem Ziel-Zustand mit der Absicht, einen Vorteil für eine Unternehmung erzielen zu können“, verstanden werden (Project Management Institute, 2013, p. 7). Organisationen nutzen CM, um Personen, Prozesse, Kultur sowie Strategien geplant in Veränderungsprozesse zu integrieren (Project Management Institute, 2013).

Die Ursachen von Veränderungen können unternehmensexterne Faktoren, wie Marktveränderungen oder neue Technologien, sowie unternehmensinterne wie Restrukturierungen sein (Kraus *et al.*, 2010). Demnach führt vor allem die digitale Transformation zu Veränderungen und damit zu einem erhöhten CM-Bedarf (Bowersox *et al.*, 2005). Im Rahmen der digitalen Transformation werden Geschäftsmodelle modifiziert oder neu definiert bzw. Geschäftsvorgänge verändert oder neu erfunden (Bowersox *et al.*, 2005). Dies wird oftmals durch Projekte vorangetrieben, in denen agile PM-Methoden zum Einsatz kommen. Agile PM-Methoden erreichen Veränderungen durch einen iterativen, aus der Softwareentwicklung entlehnten Prozess, während klassische PM-Methoden sequenziell vorgehen (Balaji and Murugaiyan, 2012). Klassisches PM plant ein Projekt im Vorhinein und arbeitet den Plan ab, während agiles PM kleine, abgeschlossene Teil- Ergebnisse anstrebt, mit deren Hilfe laufend Feedback von Kunden eingeholt wird (Schirmer and Blinkert, 2009). Agile PM-Methoden bedienen sich dabei der agilen Werten, flexibel, schlank und kundenorientiert vorzugehen (Förster, K.: Wendler, R., 2012). Dies hat eine hohe Transparenz, Partizipation, sowie schnelles Feedback und Flexibilität zur Folge. Durch diese zentralen Unterschiede können bei agilem PM neben der durch das Projekt entstehenden Veränderung auch solche durch neue Arbeitsweisen hinzu kommen, was die Bedeutung des CMs weiter steigert (McCann *et al.*, 2009). Der starke Fokus auf IT sowie neue Arbeitsweisen im agilen PM sind Gründe für den erhöhten CM-Bedarf bei Projekten der digitalen Transformation (Bowersox *et al.*, 2005).

Der Nutzen von CM für das PM ist häufig Gegenstand der Forschung. Dem effektivem Einsatz von CM in Projekten mit tiefgreifenden Organisationsanpassungen wird ein umfassendes Synergiepotenzial ausgewiesen (Boddy and Macbeth, 2000; Levasseur, 2010; Leybourne, 2006; Pádár *et al.*, 2011; Winch *et al.*, 2012). Zou and Lee (2008) identifizieren bspw. geringere Projektkosten bei angewendeten CM-Massnahmen als möglichen Synergieeffekt. Die Potenziale durch die Anwendung von CM in agilen Projekten sind jedoch auch mit Herausforderungen verbunden. So ermittelten Gandomani *et al.* (2013) vier Kategorien an Herausforderungen beim Übergang zu Agilität: Herausforderungen in Organisation und Management sowie bezüglich Menschen, Prozessen und Anwendungen, die nur mit Hilfe einer CM-Strategie überwunden werden können. Auch Gregory *et al.* (2016) beschreiben eine Fülle an komplexen, multi-dimensionalen und verflochtenen Herausforderungen, die agile Projekte mit sich bringen. Als Forschungsausblick nennen sie u.a. die Notwendigkeit, den Wissenstransfer zu verbessern. Allerdings fehlen bisher forschungsgeleitete Ansätze, welche Bereiche des CMs im Kontext agiler Projekte angepasst werden müssen und welche Ansatzpunkte CM liefert, um den identifizierten Herausforderungen in agilen Projekten zu begegnen.

Eine zentrale Herausforderung bilden Widerstände, die einen der Hauptgründe für den Misserfolg von Projekten und Veränderungsprozessen darstellen (Waddell and Sohal, 1998). Widerstand ist zu erwarten, wenn durch Veränderung von den etablierten Arbeitsweisen oder Prozessen einer Organisation abgewichen wird. Ebenso kann auch Angst oder Verunsicherung entstehen, bspw. wenn die Einführung einer neuen Technologie erwartete Auswirkungen auf Struktur oder Arbeitsweise hat (Long and Spurlock, 2008). Eine Auswahl dieser Widerstände ist in Tabelle 4 aufgeführt.

| Widerstand | Beeinflussende Faktoren |
|---|---|
| Nicht Wissen | Mangel an Vertrauen |
| | Mangel an Information (Intransparenz, Desinformation) |
| | Fehlende Akzeptanz für Entscheidungsprozess, der zu Veränderung führt |
| Nicht Wollen | Grundlegende Aversion gegenüber Veränderung |
| | Zusatzaufgaben |
| | Ablehnung des Ablaufs der Veränderung |
| | Fehlende Mitbestimmung (Partizipation) |
| Nicht Können | Angst vor Versagen |
| | Fehlende Kompetenz |
| | Verlustängste (Arbeitsplatz, Status, Einfluss) |
| | Gefahr für eigene Überzeugungen |

Tabelle 4: Übersicht möglicher Einflussfaktoren auf Widerstände
(Waddell and Sohal, 1998; Long and Spurlock, 2008; Bergmann and Garrecht, 2016)

Aufgabe des CMs ist zunächst, sich dieser Widerstände bewusst zu sein und adäquate Massnahmen zu ergreifen (Bergmann and Garrecht, 2016). Eine Auswahl möglicher Massnahmenbereiche des CMs wird im Folgenden erläutert.

Kommunikationsmanagement wird im CM verwendet, um Informationen zu verbreiten und insbesondere Widerstände im Bereich „Nicht Wissen“ zu adressieren (Grosse Peclum, 2012). Dabei sind bei der Ausgestaltung der Kommunikation die angestrebte Anzahl der Empfänger sowie die Kontrollmöglichkeit der Kommunikation bei der Wahl eines geeigneten Kommunikationsmittels entscheidend (Clayton, 2015). Van Waardenburg and Van Vliet (2013, pp. 2159–2164) haben u.a. „Probleme mit der Kommunikation“, „Schwierigkeiten Veränderungen einzuleiten“ und „langsame Reaktion zur Veränderung“ als

Herausforderungen bei der Nutzung agiler Methoden in einem bisher traditionellem PM-Kontext identifiziert. Die Autoren sehen geeignete Kommunikationsstrategien und eine Kommunikationsplanung als Lösung, um diese Differenzen und Herausforderungen abzuschwächen.

Stakeholdermanagement beschreibt im Kontext des CMs den strukturierten Umgang mit den von der Veränderung betroffenen Personen. Hierzu entwickelten Kübler-Ross and Leippe (1977) ein psychologisches Modell (vgl. Abbildung 5), bei dem ein Individuum verschiedene Phasen im Zuge einer Veränderung, die von unterschiedlichen, typischen Reaktionen und Empfindungen geprägt sind, durchläuft (Elrod and Tippett, 2002). Dieses Modell erscheint als besonders geeignet für agile Projekte, da es insbesondere individuelle Veränderungen, subjektive Auslöser für Widerstände und den in agilem PM angestrebten Fokus auf Individuen und Interaktionen hervorhebt.

Mitarbeiter reagieren auf eine Veränderung zunächst mit Widerstand, welcher eine deutliche Reduktion der Mitarbeiterleistung zur Folge hat („Tal der Tränen“/“Valley of Death“). Im Zeitverlauf erfolgt durch „Ausprobieren“ eine Anpassung auf die Veränderung bis das Akzeptieren zu einer gestiegenen Mitarbeiterleistung führt. Auch wenn die Mitarbeiterleistung nach erfolgten Veränderungen steigt, ist der Prozess dahin von Höhen und Tiefen geprägt (Elrod and Tippett, 2002). Dem CM kommt daher die Aufgabe zu, die Stakeholder durch diesen Prozess zu begleiten, die Reaktionen der Betroffenen zu antizipieren und zu nutzen sowie die negativen Effekte abzuschwächen. Eine Massnahme kann dabei das beschriebene Kommunikationsmanagement zur Steuerung von Stakeholdern sein.


Abbildung 5: Modell zu den Reaktionen eines Individuums auf Veränderungen

Quelle: Eigene Darstellung in Anlehnung an Elrod and Tippett (2002)

Die steigende Anzahl an agilen Projekten führt dazu, dass das CM in agile PM-Methoden integriert und in einem agilen Kontext stattfinden muss. Die Vorteile agiler Methoden wie Transparenz, Partizipation, schnelles Feedback und Flexibilität sind prinzipiell auch Ziele des CMs. Hierbei sind Möglichkeiten für die Optimierung und Nutzung der Potenziale von Agilität aus Sicht des CMs vorhanden (Sarkis, 2001). Zusätzlich kann agiles Vorgehen Stakeholder motivieren und somit Widerstände überwinden sowie das Engagement erhöhen (Gandomani *et al.*, 2013). Jedoch ist der iterative Charakter der agilen PM-Methoden auch mit einer veränderten Arbeitsweise und einem dynamischeren Projektvorgehen verbunden (Price, 2018), an das sich das CM anpassen muss.

## 2.3 Forschungsdesign und methodisches Vorgehen

Zur Analyse der relevanten Bereiche des CMs und deren Anpassungsnotwendigkeiten im agilen Kontext wurde ein agiles Projekt aus der Automobilbranche wissenschaftlich als Case begleitet. Die Automobilbranche ist ein von Veränderungen besonders betroffener Wirtschaftszweig, mit einer hohen Anzahl an Projekten der digitalen Transformation, weshalb verstärkt agile PM-Methoden zum Einsatz kommen (Hohl *et al.*, 2017; Prostean *et al.*, 2017). Das Projekt wurde vollständig nach Scrum als agile PM-Methode durchgeführt, was in dem betrachteten Projekt-Kontext eine neuartige Vorgehensweise darstellt. Zusätzlich wurde durch das Projekt eine Ablösung bestehender Strukturen durch digitale Neuerungen angestrebt, die teils ausgeprägte Widerstände hervorriefen. Durch die Kombination noch recht unbekannter agiler PM-Arbeit, zusammen mit ausgeprägten Widerständen, kann die Begleitung dieses Projektes als geeignet betrachtet werden.

Um bestmöglich Erfahrungen und Erkenntnisse aus der Praxis zu generieren, wurde ein qualitatives Case-Study-Design gewählt (Creswell, 2010). In diesem Rahmen wurden mithilfe von halbstrukturierten Interviewleitfäden Projektbeteiligte befragt, die auf Grund ihrer Erfahrungen, Wissenshintergrund und speziellem Fachwissen als Experten im vorliegenden Kontext angesehen werden können (Flick, 2016; Lamnek and Krell, 2016). Das qualitative Forschungsdesign der persönlichen Interviews bietet gleichzeitig Raum für die eigenen Erfahrungen und Einschätzungen der Befragten und eignet sich daher, um explorativ Theorien und Wissen zu generieren sowie das wissenschaftliche Problembewusstsein weiter zu schärfen (Bogner and Menz, 2002; Mayer, 2009; Gläser and Laudel, 2010; Bogner *et al.*, 2014). Vor allem, da bisher wenig Erfahrungen mit der Umsetzung agiler Projekte und den damit verbundenen Widerständen bzw. deren Management existieren. Eine explorative Interviewstudie erscheint daher geeignet, um Klarheit hinsichtlich des Forschungsziels zu erreichen und das Thema in der Literatur zu verankern (Diekmann, 2018; Shields and Rangarajan, 2013).

Die Expertengruppe für die Erhebung besteht aus sechs Mitarbeitern des Projektes unterschiedlicher Hierarchieebenen aus der Automobilbranche bzw. der begleitenden Technologieberatung. Dabei wurden sowohl operative als auch strategisch tätige Projektbeteiligte des Projektes ausgewählt. Die ausgewählten Experten wiesen über das Projekt hinaus Erfahrung im Bereich agiles PM, CM oder der digitalen Transformation auf. Eine Übersicht der Experten ist in Tabelle 5 dargestellt.

| Experte | Rolle | Expertise/Erfahrungen |
|---|---|---|
| #1 | Berater | Beratung, digitale Transformation |
| #2 | Berater | Beratung, agiles PM |
| #3 | Projektleiter | Agiles PM, CM |
| #4 | CM Spezialist | CM |
| #5 | Vertrieb | Automobilbranche, digitale Transformation |
| #6 | IT | Automobilbranche, IT, agiles PM |

Tabelle 5: Hintergrund der befragten Experten

Quelle: Eigene Darstellung

Um eine Vorauswahl relevanter Bereiche des CMs im Kontext agiler Projekte zu identifizieren, wurden zwei explorative Vorabinterviews geführt. Dabei haben sich folgende Bereiche herauskristallisiert: Kommunikationsmanagement, Stakeholdermanagement und Integration in agile PM-Methoden. Diese Bereiche wurden mehrfach genannt und von den Befragten als am bedeutsamsten bezeichnet. Das Kommunikationsmanagement ist zentral, da die Reduktion von Widerständen, die Transparenz im Projekt und eine erfolgreiche Vermarktung des Projektes als wichtig erachtet wurde. Das Stakeholdermanagement ist insbesondere hinsichtlich eines grossen, heterogenen Kreises der Stakeholder unabdinglich, da im betrachteten Projekt an der Schnittstelle zwischen IT und Fachbereich unter Einbindung externer Berater eine Veränderung angestrebt wird. Agiles PM wurde als Vorbedingung zur Durchführung des Projektes genannt, um sich die damit verbundenen Vorteile zu Nutze zu machen. Somit scheint eine mögliche Integration der CM-Massnahmen in das konkrete Projektvorgehen erstrebenswert für die Befragten.

Bei der Gestaltung und Auswertung der sechs Experteninterviews wurde den von Bogner *et al.* (2014) beschriebenen Hinweisen gefolgt. Der Fragebogen umfasst drei für diese Auswertung relevante Blöcke: Kommunikationsmanagement, Stakeholdermanagement und Integration des CMs in agile PM-Methoden. Im ersten Block wurde nach Erfahrungen mit

Kommunikationsmanagement, dessen Wahrnehmung, dessen Bedeutung und die verwendeten Kommunikationskanäle gefragt. Fragen zum Stakeholdermanagement zielten auf eine Notwendigkeit der Anpassungen des Stakeholdermanagements insbesondere hinsichtlich Partizipation ab. Der abschliessende Block beinhaltete Fragen zu Erfahrungen mit Agilität, Widerständen bei Bestrebungen zu mehr Agilität und der Integration von CM-Massnahmen in agile PM-Methoden. Durch offene und erzählungsgenerierende Fragen wurden die Experten dazu bewegt, persönliche Erfahrungen und Einschätzungen möglichst frei auszuführen. Die Interviewdauer betrug durchschnittlich 45 Minuten. Die Interviews wurden von einem Autor dieses Beitrags geführt, aufgezeichnet und anschliessend transkribiert.

Die Auswertung erfolgte mit einer qualitativen Inhaltsanalyse. Diese Analyse wird durch ein systematisches, regelgeleitetes Vorgehen bei der Zerlegung und Interpretation von sprachlichem Material bestimmt (Mayring, 2016). Das Zentrum bildet ein Kategoriensystem, dem die Auswertung folgt (Schreier, 2014). Da der halbstrukturierte Fragebogen aus den mithilfe der Vorabinterviews als bedeutsam identifizierten Bereichen besteht, ergibt sich bei der vorliegenden Untersuchung das Kategoriensystem in erster Linie deduktiv (Oberkategorien aus dem Interviewleitfaden) sowie gleichzeitig auch induktiv aus dem Material heraus. Auf Grundlage des so entwickelten und erprobten Kategoriensystems wurden entsprechende Textstellen (Codings) aus den transkribierten Interviews entnommen und den Kategorien zugeordnet. Es handelt sich somit um eine inhaltlich-strukturierte Inhaltsanalyse, auch wenn das Kategoriensystem nicht ausschliesslich theoriegeleitet ist (Steigleder and Mayring, 2008). Zur Objektivierbarkeit der Ergebnisse wurde die qualitative Inhaltsanalyse von drei unabhängigen Personen durchgeführt, deren Ergebnisse miteinander verglichen wurden. Die Aussagen der Experten werden im folgenden Kapitel analysiert. Darüber hinaus fliessen die Beobachtungen und Erfahrungen der Forschungsgruppe in die Diskussionsergebnisse ein.

## 2.4 Darstellung der Forschungsergebnisse

Agilität wird in der Praxis als relevanter Bestandteil von Unternehmen, der Zusammenarbeit und vor allem der Projektarbeit wahrgenommen. Die Bedeutung von CM steigt bei der Anwendung agiler Methoden, besonders bei dabei scheiternden Projekten:

> *„Wenn agile Methoden nicht korrekt eingesetzt werden, das Verständnis fehlt, dann schlagen Projekte fehl und CM wird benötigt“ (#2).*

Dabei werden verschiedene Widerstände wahrgenommen, die sowohl in der konkreten Umsetzung, dem Wandel zu agilem Arbeiten und im angestrebten Grad der Agilität auftreten und potenziell zum Scheitern von Projekten führen. Insbesondere das Top-Management forciert agiles Arbeiten, da die Vorteile als erstrebenswert angesehen werden (*#5*). Dennoch

wird an Forderungen festgehalten, die aus klassischer Projektarbeit bekannt sind (fester Zeitrahmen, fixes Budget, konkrete Meilensteine). Diese diametral unterschiedliche Wahrnehmung kann Widerstände bei den Mitarbeitern hervorrufen, da Vorteile der Agilität erwartet werden und gleichzeitig Anforderungen aus klassischem Projektvorgehen beibehalten werden (*#2*). Ebenfalls sind nicht alle Unternehmen vergleichbar agil:

> *„Viele Organisationen arbeiten nicht agil oder maximal hybrid, daher braucht es CM, um die Organisation zur Agilität zu wandeln." (#5)*

Der Prozess hin zu Agilität und agilem PM ist mit Herausforderungen verbunden. Viele Mitarbeiter lehnen Neuerungen ab, vermissen Qualifikation und Weiterbildung und erkennen nicht den Sinn in den neuen Prozessen, Kulturen, Hierarchien und Arbeitsweisen (*#1*). Auch wenn überwiegend eine hohe Akzeptanz des agilen Vorgehens bestätigt wird, ist der Wandel zu einem agilen PM ungenügend umgesetzt:

> *„Es wäre wünschenswert, CM in agile Methoden zu integrieren und zu nutzen, aber aktuell ist dies nicht der Standard, da Unternehmen oftmals nicht ausreichend agil sind." (#3)*

Es werden zu wenige Massnahmen ergriffen, um die Veränderung zu begleiten und die auftretenden Widerstände zu behandeln. Trotz klassischer Massnahmen wie Schulungen werden jedoch Vorteile von Veränderungen bspw. der digitalen Transformation unklar benannt und der Sinn hinter der Veränderung nicht erklärt (*#1*). Dennoch wird CM als wichtiger Faktor bei der Transformation zu einer agilen Arbeitsweise gesehen. Die Massnahmen sind jedoch oftmals nicht ausreichend angepasst (*#1*).

Diese Transformation kann durch ein aktives Kommunikationsmanagement im Rahmen des CMs unterstütz werden. Entscheidend ist insbesondere das klare Benennen von Vorteilen und Auswirkungen der Veränderung. Neben den Methoden, Rollen, Werten und Zielen agiler Projekte müssen die Vorteile von Agilität vermittelt und durch die Individuen erkannt werden:

> *„Der Widerstand sinkt, wenn man Vorhaben erklärt. Menschen benötigen Details, Verantwortung und ein Ziel, nicht nur einen abstrakten Grund." (#1)*

Schulungen können oft beim Erlernen benötigter Fähigkeiten helfen. Jedoch sind Auswirkungen, Vorteile und Grenzen der Veränderung insbesondere in Projekten der digitalen Transformation unklar oder die Veränderung wird nicht verstanden („Nicht Wissen") (*#2*). Kommunikation wird dabei insbesondere in der persönlichen Form als besonders relevant betrachtet. Zusätzlich wird der Kombination von Kommunikationsarten und -mitteln grosse Bedeutung zugemessen:

> *„Eine Kombination der Kommunikationskanäle, -richtung und -mittel mit besonderem Fokus auf persönliche Kommunikation führt meiner Erfahrung nach zum besten Ergebnis." (#4)*

Durch diese Form der Kommunikation konnten insbesondere bei der Akzeptanz von Veränderungen oder bei Verunsicherung Vorteile erkannt werden. Ein Stakeholdermanagement, das den Mitarbeiter individuell durch die Veränderung begleitet, ist ebenso relevant:

> *„Wichtig ist die individuelle Betrachtung der Stakeholder zusammen mit Empathie für die Prozesse, die ein Mitarbeiter bei der Veränderung durchläuft. Darauf abgestimmt sollten die Massnahmen sein." (#3)*

Der Wandel der Projekte und die damit verbundenen Arbeitsweisen werden als massiver Einschnitt empfunden, was starke Widerstände verursachen kann. Phasen der Ablehnung, des Zweifelns und des Misstrauens werden insuffizient begleitet. Gleichzeitig mangelt es an Partizipation bei den tiefgreifenden Veränderungen (*#3*). Insbesondere bei agilen Projekten der digitalen Transformation sollte der Mitarbeiter bei der Entscheidungsfindung, Umsetzung und Ausgestaltung eingebunden werden. Das Gefühl, auf einen Prozess einwirken zu können und diesem nicht ausgesetzt zu sein, kann Widerstände deutlich abschwächen:

> *„Partizipation ist generell bei Veränderungsprozessen wichtig. Mitarbeiter, die integriert werden in Entscheidungs- und Gestaltungsprozesse haben das Gefühl mitwirken und entscheiden zu können, was Widerstände reduziert" (#3)*

Neben der Anpassung bestehender CM-Bereiche muss das CM als Ganzes auf agile Projekte angepasst werden. Gleichzeitig bestätigen die Experten, dass CM von Konzepten der Agilität profitieren und sich die Vorteile des agilen PMs zunutze machen kann:

> *„Agiles PM und CM haben prinzipiell ähnliche Zielgrössen und können helfen, Widerstände zu verringern." (#1)*

In der Befragung konnten die Experten überwiegend Aussagen zu Scrum, als einer der bekanntesten Vertreter agiler PM-Methoden machen. Hierbei kann bestätigt werden, dass agile PM-Methoden von Mitarbeitern genutzt, die Vorteile geschätzt und die Konzepte verinnerlicht werden (*#5*). Regelmässige Meetings wie das Daily Scrum werden jedoch nicht zur Identifikation von Widerständen genutzt. Rollen wie die des Scrum Masters beschränken sich auf die von Scrum definierten Aufgaben. Auch wenn das Scrum Framework dezidiert Aufgaben und Rollenbeschreibungen vorgibt und eine Anpassung nur in Teilen empfiehlt, sehen einige Experten hier Potenziale für einen Einsatz eines agilen CMs:

> *„Agiles Arbeiten, wenn korrekt angewandt, beinhaltet schon CM. […] Kommunizieren mit Stakeholdern z.B., um Widerstände zu beseitigen" (#2)*

Insbesondere die regelmässige Kommunikation, institutionalisiertes Feedback und selbstorganisiertes Arbeiten im agilen PM als Form der Partizipation werden herausgestellt. Kommunikationsmanagement und Stakeholdermanagement müssen individueller und persönlicher stattfinden. Dabei muss das Stakeholdermanagement insbesondere in Bezug auf

die Partizipation intensiviert werden, um den Stakeholdern ein Ausprobieren der für sie neuen, unbekannten und subjektiv unkontrollierbaren Situation zu ermöglichen und durch zielgerichtete und persönliche Kommunikation ergänzt werden. Hierdurch werden Widerstände deutlich verringert. Zusätzlich muss das Individuum und dessen individuelle Betrachtung noch stärker in den Mittelpunkt gestellt werden:

> *„Partizipation, Feedback, und Kommunikation lassen Stakeholder positiver auf Veränderungen reagieren und sprechen für Agilität im PM und agiles CM" (#6)*

CM sollte bereits bei der Transformation der Arbeitsweise hin zu einem agilen Zielzustand eingebunden werden, um Mitarbeiter im Zentrum des Veränderungsprozesses optimal zu begleiten. Dies ist eine wichtige Voraussetzung, um schliesslich die Potenziale des CMs in agilen Arbeitsmodellen und PM-Methoden nutzen zu können, die wiederum mitunter massiv durch ihre Strukturen und Rollen von angepasstem CM profitieren können. Somit können noch zielgerichteter Widerstände behandelt werden, was das CM zu einem relevanten und entscheidenden Faktor in und zu einem agilen Unternehmen macht, um Vorteile von Agilität nutzen zu können:

> *„Agiles Arbeiten und CM sind nicht nur möglich, sondern eine Voraussetzung mit einem sehr positiven Beitrag." (#5)*

Es zeigt sich, dass das CM besonders in den Bereichen des Kommunikationsmanagements, des Stakeholdermanagements und in der Integration in agile PM-Methoden Anpassungsmöglichkeiten bietet. Vorteile agiler PM-Methoden, wie Transparenz, tägliche Kommunikation und organisierte Reflexion der Zusammenarbeit helfen dabei, Widerstände in der digitalen Transformation zu reduzieren.

Eine Zusammenfassung der beschriebenen Ergebnisse aus der Erhebung wird in Tabelle 6 dargestellt.

| Identifizierter Bereich | Mögliche Anpassungen eines agilen CMs |
|---|---|
| Allgemein | Agilität als Voraussetzung für Erfolg<br>CM notwendig bei Widerständen gegenüber Veränderung zur Agilität<br>Ausgleich der unterschiedlichen Ausprägung von Agilität in Unternehmen |
| Kommunikation | Persönliche Kommunikation besonders wichtig<br>Kombination und Variation der Kommunikationskanäle sinnvoll<br>Fokus auf Widerstände des „Nicht Wissens" |

| | |
|---|---|
| Stakeholdermanagement | Individuelle Betrachtung der Stakeholder<br>Partizipation schwächt die oftmals stärker ausgeprägten Widerstände ab |
| Integration in agile PM-Methoden | Agiles PM und CM eignen sich als Ergänzung<br>CM teilweise schon in agilen Methoden vorhanden<br>Partizipation und Feedback in agilen Methoden förderlich<br>Kombination von agilem PM und CM nicht nur möglich, sondern Voraussetzung für erfolgreiche Veränderung |

Tabelle 6: Ergebnisse der Expertenbefragung

Quelle: Eigene Darstellung

## 2.5 Diskussion der Forschungsergebnisse

Die Ergebnisse der Befragungen zeigen, dass in agilen Projekten der digitalen Transformation insbesondere die Bereiche Kommunikationsmanagement, Stakeholdermanagement und die Integration von CM in agiles PM erfolgskritisch sind. Daher liegen in diesen Bereichen auch die wichtigsten Anpassungsnotwendigkeiten des CMs für agile Projekte.

Der Wandel von Unternehmen zu einem höheren Grad an Agilität kann als Veränderungsprozess betrachtet werden. Mitarbeiter durchlaufen, analog des Modells von Kübler-Ross and Leippe (1977), verschiedene Phasen in ihrer Reaktion und reagieren mit Widerständen, was ihre Arbeitsleistung zum Teil erheblich beeinträchtigt. Dabei wird der "Schock" ausgeprägter ausfallen, da die Veränderung nicht nur Teile der Arbeit betrifft, sondern massiv in die Arbeitsgestaltung der Mitarbeiter eingreift. Daher ist es umso wichtiger CM einzusetzen, um agile Projekte der digitalen Transformation bestmöglich zu begleiten. Neben Schulungen des Mitarbeiters zum Erlangen benötigter Kompetenzen sind weitere Massnahmen zu ergreifen, um Widerstände bei der Veränderung abzuschwächen und den Erfolg sicherzustellen.

Insbesondere in den ersten Phasen des Modells (vgl. Abbildung 5) ist ein umfassendes und angepasstes Kommunikationsmanagement notwendig, da neuartige und einschneidende Veränderungen der digitalen Transformation zu erklären und Widerstände des „Nicht Wissens" zu beseitigen sind. Neben Schulungen und Informationen muss im Detail erläutert werden, was sich ändert, warum sich etwas ändert, was die Ziele sind, was die Vorteile sind (insbesondere auch für das Individuum) und welche Grenzen die Veränderung hat. Etwaige Verunsicherung (Widerstände des „Nicht Könnens") kann dadurch abgeschwächt werden.

Somit kann der Mitarbeiter erkennen, warum die Veränderung zu mehr Agilität notwendig ist und was von ihm verlangt wird. Die Kommunikation sollte vor allem in besonders erklärungsbedürftigen und innovativen Projekten einen hohen individuellen und persönlichen Anteil umfassen.

In der Phase der starken Widerstände („Tal der Tränen“) muss durch das Stakeholdermanagement die Partizipation des Mitarbeiters sichergestellt werden, um bspw. Widerstände des „Nicht Wollens“ abzuschwächen. Durch Teilhabe an Gestaltung erhält der Mitarbeiter ein Gefühl der Kontrolle über die Situation. Des Weiteren kann die Partizipation helfen, durch „Ausprobieren“ Akzeptanz zu erzeugen und sich damit den Wandel zu eigen zu machen, d.h. die Veränderung als positiv auch für die eigene Person zu begreifen. Der Endzustand der Veränderung kann wie im Modell von Kübler-Ross and Leippe (1977) die Verbesserung der Arbeitsleistung sein. Agilität wurde in der Befragung als positiv bewertet und auch in Bezug auf die Arbeit geschätzt, jedoch unter der Voraussetzung, dass der Stakeholder dies, auch mit Hilfe des Stakeholdermanagements, ausprobieren und als für sich individuell positiv beurteilen kann. Das Ausprobieren und folgende Anpassen sind zentrale Elemente agiler PM-Methoden, welche sich das CM zunutze machen kann. In iterativen Schritten wird auf den Erkenntnissen und Erfahrungen der zuvor verfolgten CM-Massnahmen aufgebaut. Diese Erkenntnisse werden nach und nach in den Projektalltag integriert. Regelmässige Ereignisse, wie tägliche Meetings oder die „Retrospektive“ sind Ansatzpunkte für die Integration der CM-Massnahmen in die agile Vorgehensweise.

Diese Integration des CMs in agile PM-Methoden wurde als dritter Bereich herausgearbeitet. Hierbei wird deutlich, dass CM notwendig ist, um Agilität im Unternehmen sowie das zugehörige Engagement und die Fähigkeiten der Mitarbeiter zu erreichen. Dies kann bspw. durch regelmässige Mentoring-Massnahmen, Schulungen oder Coachings flankiert werden. Die Integration des CM in agile Methoden kann exemplarisch, wie in der Abbildung 6 dargestellt, erreicht werden.

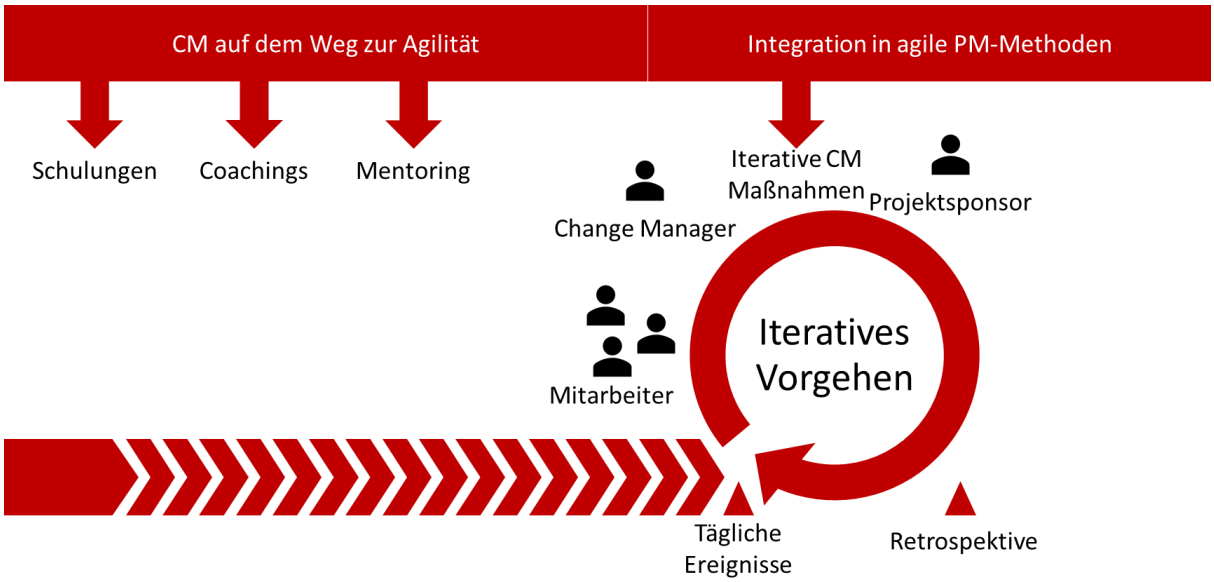


Abbildung 6: Integration eines agilen Change Managements in agile Projektmanagement-Methoden

Quelle: Eigene Darstellung in Anlehnung an Maximini (2018)

Ereignisse wie tägliche Meetings und „Retrospektiven“ können auch genutzt werden, um durch Feedback Widerstände zu identifizieren. So wird dem erhöhten Kommunikationsbedarf beim Umgang mit Widerständen durch die tägliche Kommunikation innerhalb eines selbstorganisierten Teams Rechnung getragen. Ein in Regelereignisse integriertes CM, welches nach agilen Prinzipien (flache Hierarchien, gemeinsame Verantwortung, Involvierung in alle Arbeitsschritte) durchgeführt wird und das Team ermuntert, Stakeholder in allen Arbeitsschritten zu involvieren, fördert Partizipation. Der iterative Charakter garantiert wiederkehrende Kommunikation, Reflektion und Feedback. Analog zu agilen Vorgehensweisen sind flache Hierarchien und der Einbezug des Managements notwendig. Die regelmässige Rückmeldung kann weiterhin dazu beitragen, Widerstände des „Nicht Könnens“, bspw. durch den Einsatz neuer agiler PM-Methoden, zu erkennen und ihnen entgegenzuwirken.

Aufgrund der Integration in das agile PM wird das CM selbst agiler. Dieses angepasste CM kann daher als agiles CM bezeichnet werden. Ein agiles CM wird damit ebenso wie die Einführung agiler PM-Methoden und die Veränderung der Organisation als Gesamtes zum Erfolgsfaktor, um Projekte der digitalen Transformation durchzuführen.

Es zeigt sich, dass agiles PM zu einem gewissen Grad bereits CM-Massnahmen beinhaltet, aber darüber hinaus Potenziale zur Verbesserung bietet, die bspw. deutlich über die Iteration von Larsen and Eskerod (2015) hinausgehen. Die vorliegende Untersuchung bestätigt darüber hinaus, dass ein agiles CM in der Lage ist, durch umfassende Partizipation, regelmässige Kommunikation und Fokus auf Beseitigung von Widerständen agile PM-Methoden optimal zu

ergänzen, was die Erkenntnisse von Wipfler and Vorbach (2015) bestätigt und mit den Erkenntnissen von Gergs *et al.* (2019) kombiniert. Voraussetzung für die Integration von CM in agiles PM ist jedoch eine durch CM-Massnahmen erreichte Agilität des Unternehmens: Die Veränderung eines Unternehmens und seiner Mitarbeiter sowie die Adaption von agilen Methoden sind Voraussetzung und ebenfalls Aufgabe des CMs, was die Ergebnisse von Rasnacis and Berzisa (2017) bestätigt. Dabei bestätigen die Experten die enge Verknüpfung von CM und agilem PM sowie die zu erwartenden grossen Potenziale eines Einsatzes und der Integration von agilem CM, die auch durch Wipfler and Vorbach (2015) festgestellt wurden. Dies bedeutet, dass auch das CM selbst Anpassungen durchlaufen muss, um im agilen PM eingesetzt zu werden. Zudem ist das CM auch Erfolgsfaktor beim Wandel zu einer höheren Agilität. Auf übergeordneter Ebene kann das agile CM als Bestandteil des Agilen Managements verstanden werden, mit dessen Hilfe Agilität in verschiedenen Ebenen und Unternehmenskonzepten realisiert werden kann.

## 2.6 Zusammenfassung und Ausblick

Agilität ist häufig eine strategische Antwort auf ein immer dynamischeres Unternehmensumfeld. Veränderungen, die mit dieser Dynamik einhergehen, werden durch agile Projekte vorangetrieben. Agilität und agile PM-Methoden führen jedoch auch zu Widerständen. Diese Widerstände treten in agilen Projekten der digitalen Transformation verstärkt auf, was den Unternehmens- und Projekterfolg unmittelbar gefährdet. Diese Tatsache ist auf stärkere Veränderungen und höhere Verunsicherungen in agilen Projekten zurückzuführen. Das CM als Teil des PMs bietet ein bedeutendes Lösungspotenzial, um diesen Widerständen zu begegnen. Hierzu muss das CM jedoch an agile PM-Methoden angepasst werden.

Der vorliegende Beitrag erweitert das Verständnis für Auswirkungen agiler PM-Methoden in Projekten der digitalen Transformation auf entstehende Widerstände. Dabei wurden drei Bereiche des CMs mit entsprechenden Anpassungsnotwendigkeiten identifiziert. Erstens steigt die Bedeutung von persönlicher Kommunikation in agilen Projekten innerhalb des Kommunikationsmanagements, um den Widerständen des „Nicht Wissens“ zu begegnen. Zweitens muss im Rahmen des Stakeholdermanagements die Partizipation intensiviert werden, da die Mitarbeiter besonders bei agilen Arbeitsweisen die täglich neu gewonnenen Erkenntnisse auch praktisch umsetzen müssen. Drittens ist die Integration des CMs in agile PM-Methoden von hoher Bedeutung. Das CM hat in agilen Projekten in der digitalen Transformation zwei Anwendungsmöglichkeiten. Zum einen muss das CM den Wandel von klassischen Arbeitsmethoden zu agilem Arbeiten begleiten und zum anderen Widerstände in agilen Projekten reduzieren. Durch die Integration des CM in agile PM-Methoden wird das CM

selbst agil. Dadurch werden Transparenz, regelmässige und persönliche Kommunikation, Partizipation als Ansatzpunkt für Stakeholdermanagement sowie Feedback gefördert. Insbesondere das iterative Vorgehen agiler PM-Methoden kann helfen, Widerstände kontinuierlich zu erkennen und geeignete Gegenmassnahmen zu ergreifen.

Der explorative Charakter der Untersuchung hat naturgemäss einige Einschränkungen, die weiteren Forschungsbedarf aufzeigen. So ist festzustellen, dass die Einschätzungen der Experten subjektiv sind. Eine Verallgemeinerung der Erkenntnisse kann über weitere Forschung aufgezeigt werden. Eine Detaillierung der Ausgestaltung konkreter CM-Massnahmen kann über eine quantitative Erhebung erfolgen. Die drei aufgezeigten Bereiche des agilen CMs können hierbei als Thesen für weitere Forschung verwendet werden, um die Bedeutung des CMs für den Projekt- und Unternehmenserfolg weiter zu klären.

# 3 Work from Home Success: Agile work characteristics and the Mediating Effect of supportive HRM


| | |
|---|---|
| Titel: | Work from Home Success: Agile Work Characteristics and the Mediating Effect of Supportive HRM |
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**Abstract:** Work from home or teleworking, continues to expand not least due to the COVID-19-crisis and poses challenges for employees and companies. In uncertain and dynamic times, organisations wonder what skills make employees successful when working from home and which measures support employees. By performing in-depth research that addresses employee agility as skills and capabilities, a research framework is proposed. Based on an international survey of employees working from home during the COVID-19-crisis ($N$ = 1,016), the impact of agile work characteristics on work from home success and the mediating effect (accounting for 48% of the total effect) of tailored support measures by HRM were investigated. The results of the mediation analysis show that agile work characteristics have a direct, positive and significant effect on the success of working from home. Part of the effect is explained by HRM measures as a mediator. The findings contribute to the research stream of dynamic capabilities by applying the theory to working from home. The comparatively simple research model provides companies with information on how they can best support employees in the dynamics of a crisis and the expansion of work from home and, therefore, has high relevance for practitioners.


## 3.1 Introduction

Companies are subject to constant change and must adapt in order to survive. The success of a company depends on how business and human resource management (HRM) can respond to changes in the work environment. A growing shift towards work from home (WFH), or telework, with potential benefits such as employee retention, job satisfaction, higher employee

productivity and enhancement of overall organisational performance, can be observed (Bloom *et al.*, 2015; Fonner and Roloff, 2010; Martin and MacDonnell, 2012; Martínez-Sánchez *et al.*, 2007b). Meanwhile, among the drivers of WFH is another factor: the economic and social crisis caused by COVID-19 (Abulibdeh, 2020; Belzunegui-Eraso and Erro-Garcés, 2020). Due to this pandemic, the widespread use and in some cases massive expansion of WFH became necessary, and it is to be expected to continue long after the COVID-19-pandemic (Brynjolfsson *et al.*, 2020). Forty-two percent of the U.S. labour force is working from home due to the pandemic. This accounts for more than two-thirds of U.S. gross domestic product based on their earnings (Bloom, 2020).

The expansion of WFH represents a change for employees and companies with challenges such as altered leadership models, distance from colleagues and more difficult communication and collaboration (Caligiuri *et al.*, 2020; Contreras *et al.*, 2020; Raišienė *et al.*, 2020; S. A. Smith *et al.*, 2018). Employees with low tolerance for uncertainty can be negatively affected, which may lead to distress and reduced well-being (B. M. Smith *et al.*, 2020). Management, and especially HRM, must therefore find ways to support employees facing change and uncertain situations while working from home and, thereby, ensure the success of the company (Gigauri, 2020). Without appropriate support for these challenges, employees are potentially affected by loneliness or loss of meaning and companies are threatened in their ability to survive (Carnevale and Hatak, 2020; Tremblay and Thomsin, 2012).

The benefits of WFH for companies and employees have been studied, especially in terms of work equipment, productivity, work–life balance, flexible time allocation and reduced time loss due to less commuting (Gálvez *et al.*, 2011; Nakrošienė *et al.*, 2019). However, surprisingly few studies exist that examine what skills and organisational conditions make employees successful in working from home (Turetken *et al.*, 2011). While there is work that relates employee characteristics to firm success, particularly in terms of flexibility (Beltrán-Martín *et al.*, 2008; Bhattacharya *et al.*, 2005), there has been little application of these concepts to WFH.

In this context, the question arises, especially in times of crisis, as to which actions HRM must take to guarantee success when working from home. Enhanced flexibility or employee autonomy could be goals for HRM in this regard (Fenton-O'Creevy *et al.*, 2008). In times of high uncertainty, such as COVID-19, it is even more crucial for HRM to support the organisation to deal with change and achieve the resilience of employees to uncertainty by facilitating dynamic capabilities (Batra, 2020; Carnevale and Hatak, 2020).

Various approaches and theories in the field of dynamic capabilities exist that deal with the capabilities of a company and its employees to dynamically react and adapt to changes in an uncertain environment (e.g. Overby *et al.* 2006, Li and Liu 2014 or Tallon *et al.* 2019). Some of

these have already been described as beneficial in the context of the COVID-19-crisis (Janssen and van der Voort, 2020) but have not yet been applied to WFH settings. This ability to adapt to unpredictable circumstances and rapid changes can be described as 'agility' (Overby *et al.*, 2006). Agility builds on theories that deal with adaptability, perception and reaction to change, and with associated competitive advantages. In this context, agility is a construct with diverse definitions and its role in business survival has additionally increased during the COVID-19-crisis (Werder *et al.*, 2021).

In particular, the work and attitudes of employees play a central role in achieving an agile organisation (Muduli and Pandya, 2018), which is also called an 'agile workforce' (Breu *et al.*, 2002; Samukadas and Sawhney, 2004; Sherehiy *et al.*, 2007). This includes individual employee skills and behaviours (Muduli, 2013) as well as appropriate agile work design characteristics (Sherehiy *et al.*, 2007), culture (Felipe *et al.*, 2017) and leadership (Uhl-Bien and Arena, 2018; Parker *et al.*, 2015). Agile capabilities and behaviours of employees are, for example: participatory solution finding, willingness to change and adapt, tolerance of uncertainty, finding solutions through teamwork, or coping with challenging work through autonomy (Griffin and Hesketh, 2003; Samukadas and Sawhney, 2004; Dyer and Shafer, 2003). Most studies in this field identify the benefits of agile employee and organizational capabilities in terms of uncertainty and adaptability but are mostly related to traditional work environments and not to WFH. Other researchers highlight the fact that flexibility is a possible facilitator for WFH as a work model (Martínez-Sánchez *et al.*, 2008; Martínez-Sánchez *et al.*, 2007b). However, the adaptation of agile or flexible skills and organisational forms into WFH has not yet been researched, or is limited to selected characteristics (e.g. Turetken *et al.* 2011).

In addition, studies show that employees need support to work optimally from home. This includes formal and informal communication, training, supervisor support, appropriate technology and social interactions (Berube Kowalski and Swanson, 2005; Greer and Payne, 2014). HRM designed for WFH is critical in this regard to promote autonomy and personal responsibility (Martínez-Sánchez *et al.*, 2008). In the case of changes in general and WFH in particular, HRM must accompany changes accordingly (Heidt *et al.*, 2020). HRM should, therefore, encourage the participation of employees and integrate them directly into the change process.

Studies have demonstrated the impact of HRM measures that support WFH on organisational success (Martínez-Sánchez *et al.*, 2007b). However, there is a lack of studies examining whether employees in agile organisations require special or less pronounced support from HRM. For one, employees in an agile workforce are autonomous and adaptive, yet agility and

associated characteristics, such as skill variance, are also complex and challenging (Sherehiy and Karwowski, 2014). Therefore, we analyse if the enablement of employees working from home has a mediating effect. In doing so, information is provided on which special measures are necessary to support agile employees working from home.

Based on literature streams of WFH and agile work, our study makes two contributions. First, we analyse existing models of employee and organisational agility grounded on the dynamic capability theory (Breu *et al.*, 2002; Muduli, 2016; Overby *et al.*, 2006; Tallon *et al.*, 2019; Teece *et al.*, 2016).

We propose an adapted model of agile work with ten characteristics from the field of dynamic capabilities by transferring the work of Sherehiy and Karwowski (2014) to the special context of WFH. In this way, we expand the understanding of success factors of WFH with a focus on characteristics of employees and organisation, which have only a subordinate role in current research (Baruch, 2001; Turetken *et al.*, 2011).

Second, we add to literature in the area of appropriate support for WFH by showing that there are support measures like HRM support that directly increase WFH employees' success while at the same time also indirectly contribute to employee success by mediating the effect of employee characteristics such as agile work (Uhl-Bien and Arena, 2018; Turetken *et al.*, 2011; Martínez-Sánchez *et al.*, 2007b). Thus, we contribute to organisational and HRM literature by combining the strands of workplace and dynamic capabilities literature, and give practical and theoretical implications. This quantitative work provides insights into the mechanisms of various factors and their relationships on WFH success, and opportunities for optimised deployment in dynamic environments even after COVID-19.

## 3.2 Theoretical framework and hypotheses

According to the resource-based theory of management, the success of a company is essentially attributed to its capabilities and resources (Wernerfelt, 1984). These capabilities, which are difficult for competitors to copy, can be described as the tangible or intangible resources, skills or knowledge of individuals. In this respect, the workforce and employees, with their individual knowledge, experience and skills, are among the most important resources of an organisation (Coff, 1997). These resources and capabilities can also include so-called *dynamic capabilities* as the ability to act successfully in uncertain environments (Teece *et al.*, 1997). Dynamic capabilities represent a construct that refers to the entire enterprise and deals with actions in a rapidly changing environment. In this context, dynamic capabilities are a crucial competitive advantage in uncertain environments and, therefore, are not only a moderator of success but a

central driver (Li and Liu, 2014). A central idea here is the maintenance of competitiveness through adaptability (Overby *et al.*, 2006). Various concepts exist that can be attributed to dynamic capabilities and their achievement: enterprise agility (Overby *et al.*, 2006; Sherehiy *et al.*, 2007), organizational agility (Côrte-Real *et al.*, 2017; Nijssen and Paauwe, 2012; Tallon *et al.*, 2019), and the general, often synonymously used term, 'flexibility', for agility in this context (Teece *et al.*, 2016). However, this should not be confused with agility in the sense of, for example, agile project management or agile software development even though these have similar origins (Janssen and van der Voort, 2020). Adaptations of these concepts with a focus on employees and their work extend the goals of dynamic capabilities to the workforce as part of a company's resources. Employee adaptability (van Dam, 2013), human resource flexibility (Bhattacharya *et al.*, 2005; Martínez-Sánchez *et al.*, 2007a), agile workforce (Breu *et al.*, 2002; Muduli, 2013; Alavi *et al.*, 2014; Sherehiy and Karwowski, 2014) and workforce scalability (Nijssen and Paauwe, 2012) are possible concepts because they enable flexible and adaptive actions in dynamic environments. This paper summarises these concepts under the term a*gile work*.

The framework proposed in this paper includes three constructs: agile work, WFH enabler and WFH success (Figure 7). Agile work summarises the pronounced agility of employees (Sherehiy and Karwowski, 2014). WFH enabler summarises the extent to which expected organisational support services are provided for WFH (Berube Kowalski and Swanson, 2005). WFH success measures productivity and satisfaction of WFH at employee-level (Baruch, 2001). These concepts are not measured at the firm level but at the self-assessment individual level as employees are the key reference for this study (Shin *et al.*, 2000).

This conceptualisation of possible impacts on WFH success through a rather simple model differs from similar approaches. Unlike, for example, Martínez-Sánchez *et al.* (2007a) or B. M. Smith *et al.* (2020), a less complex model was deliberately chosen; simple models may generalise better and additional independent variables, for example, do not equate to higher accuracy or explanatory power (Dul and Ceylan, 2014). To date, only few studies exist that link employee skills related to agility with WFH. Compared with the more complex structural equation model (e.g. Alavi *et al.*, 2014), and particularly because the research is still in its infancy, a simple model focusing on agile work and enablers is particularly suitable to model the direct and mediated effects.

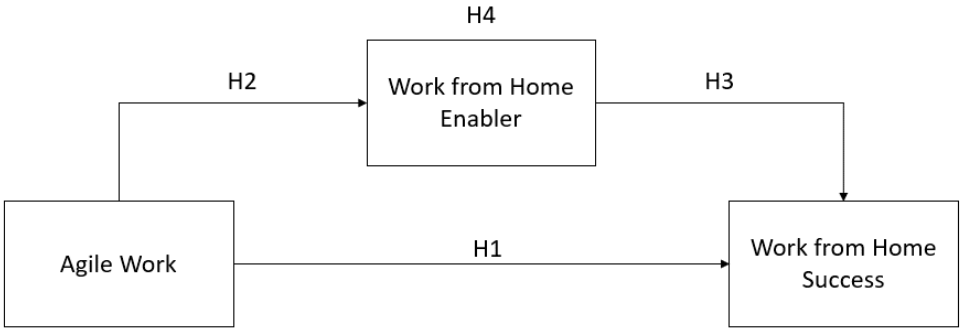


Figure 7: Conceptual model - agile work and the relationship to WFH success

Figure 7 shows the conceptual model. Agile work is related to WFH success for several reasons. The autonomy of WFH does not suit every individual and can have negative effects. Furthermore, WFH can be described as 'demanding' because different skills, more personal responsibility and proactivity are needed when working from home (Turetken *et al.*, 2011). This is also part of agile work and, thus, can be beneficial in this work setting. Working independently can accommodate agile employees because they value autonomy, flexible job design and job control (Sherehiy and Karwowski, 2014; Turetken *et al.*, 2011). Agile work is characterised by active bidirectional communication, proactivity and shared team responsibilities (Hopp and Oyen, 2004; Muduli, 2013). Employees can communicate proactively or maintain team bonding and, at the same time, have freedom in planning their work. This results in fewer interruptions while maintaining an exchange of information despite distance to colleagues, which leads to an increase in productivity (Fonner and Roloff, 2010). Increasing uncertainty and dynamism in the COVID-19-pandemic are amplified in a WFH setting (Carnevale and Hatak, 2020). On the one hand, agile work is associated with adaptivity to change. This allows short-term changes to be considered as part of the work. Likewise, a flexible style of WFH helps implement changes. Therefore, we propose that the WFH setting suits agile employees and enhances WFH success. Thus, a possible positive effect of agile work on WFH success follows:

Hypothesis 1 (H1): A higher degree of agile work is related with higher WFH success.

However, agile work emphasises skill variance and high job demands (Sherehiy and Karwowski, 2014), which may differ from other types of work and can, therefore, be challenging for employees not familiar with these work demands. This makes organisational support advisable. Enablers for WFH can be technical prerequisites as well as technical support

and training, an appropriate leadership style like management by objectives, an enabling culture and trust from supervisors, offered participation and the opportunity to design and carry out work in an autonomous manner (Berube Kowalski and Swanson, 2005; Nakrošienė *et al.*, 2019; Martínez-Sánchez *et al.*, 2007b). However, it can also be argued that agile employees are not only particularly dependent on support, but also more receptive. An example could be autonomy, which is described positively as a supportive measure but also as an aspect of agile work (Gálvez *et al.*, 2011). Agile work employees rely on management by objectives from superiors, attach importance to being involved in decision-making processes and want to actively participate in them. Other studies emphasise the need for an 'enabling leadership style' in dynamic environments (Uhl-Bien and Arena, 2018) that supports adaptivity and is often found within employees of agile work. It can, therefore, be assumed that employees in the sense of agile work are more receptive to support and, thereby, have a positive effect on the actions in the sense of WFH enablers:

Hypothesis 2 (H2): The more pronounced agile work is among employees, the more effectively WFH enablers can be used.

When companies adequately support their employees, it is commonly assumed that this has a positive effect on their performance. Established concepts such as 'perceived organizational support' (Eisenberger *et al.*, 2001) focus strongly on perception. However, it can be argued that perceptions of support measures change due to isolation and distance in the WFH and that some measures are particularly important and expected by employees (Gálvez *et al.*, 2011). Employees are separated socially and technically as well as administratively. In this respect, support is essential: without a functioning infrastructure, work is severely hindered (Mello, 2007; Morgan, 2004). The employee hardly has a chance to get immediate help and is dependent on (expert) support. Furthermore, mentoring, leadership, controlling, and face-to-face communication by superiors are limited due to physical distance (Greer and Payne, 2014). Isolation or lack of management commitment are some of the biggest barriers to successful WFH (Mello, 2007). Additionally, the manager must find ways to encourage and promote trust and social integration accordingly (Nakrošienė *et al.*, 2019). Thus, there is a potential positive effect of support interventions that target WFH challenges:

Hypothesis 3 (H3): Employee support is positively associated with WFH success.

In addition to the positive effect of WFH enablers on WFH success described in other studies in a similar manner (e.g. 'trust' by Berube Kowalski and Swanson 2005), another effect can be assumed. Due to the characteristics of agile employees, enablers could be used more effectively, are more accepted and valued (H2) and, thus, positively influence WFH success (H3). This means that the positive effect of agile work on WFH success is partly or entirely influenced and mediated by those enablers. According to H1, agile work has potential benefits in application to WFH. However, it can be conjectured that these benefits do not exclusively impact directly but are incorporated via the application of enablers. Based on the definition of the constructs, it is reasonable to assume that there is no full mediation but only partial mediation. Complete mediation would imply that agile work is helpful solely due to or in combination with enablers, but this seems unlikely. Even completely without the defined enablers, it should still be possible to find a positive impact of agile work. We therefore conclude the previous hypotheses and postulate:

Hypothesis 4 (H4): The use of WFH enablers partially mediates the effect of agile work on WFH success.

In summary, Figure 7 suggests that agile work could have a general effect on WFH success. We assume that this effect could be mediated using WFH enablers by exploiting the characteristics of agile work.

## 3.3 Methodology

### 3.3.1 Sample and procedure

A quantitative survey was conducted, mainly consisting of closed questions, seven-point Likert scales and some open questions. The respondents were employees who worked from home during the COVID-19-pandemic. The independent variables were collected in two waves. The dependent variable was collected in a separate third wave with the same participants in order to avoid methodological bias (common method bias). In addition, information on support measures was collected in the third wave because a free-text evaluation revealed missing items. Participants completed the first survey from 18 to 22 June, the second survey from 10 to 14 August and the third survey from 8 to 15 October, 2020. The average age of participants was 36.82 years with a standard deviation of 10.47 and ranging from 18 to 70 years. All three questionnaires were responded by the same 1,016 participants: 467 responses from Germany

and 549 from the United States. In the first survey wave, 2,415 respondents answered the survey, resulting in a drop-out rate of 57.9%. Further demographic information can be found in Table 7.

### 3.3.2 Data collection

In order for findings to be obtained for the purposes of this study, participants had to work at home at least part of the time in order to qualify for the study. We focus on Germany as the European country with the highest GDP and stable economic and political regulations. In order to compare the results with the Anglo-Saxon culture, we selected the U.S. as a country with high GDP, but with differences in COVID-19 handling. Furthermore, WFH is more widespread in the U.S. than in Germany (WFH while the COVID-19 crisis; first wave: U.S. 42% (Bloom, 2020); Germany: 27% (Statista, 2021). Furthermore, the housing situation in the U.S. is significantly different than in Germany. American citizens tend to have more housing space and rooms available than Germans. At the same time, American office buildings tend to perform worse than German offices (Gauger F., Bachtal Y., Pfnür A., 2022). We recruited German participants via Clickworker and U.S. participants via Amazon's Mechanical Turk (MTurk). The survey was administrated in Lamapoll and then spread through Clickworker and MTurk, which are sampling platforms with increasing popularity in research to generate fast and reliable respondents. Previous research has proven comparable quality responses to those obtained from more traditional sampling methods (Brawley and Pury, 2016; Follmer *et al.*, 2017; Lutz, 2016).

Twenty-eight respondents were excluded from the sample because their response time was too short. To address the potential for common method bias, we checked characteristics of the respondents with those of the original population sample of office workers. We found no differences for age, gender and tenure, suggesting that there is no nonresponse bias. Furthermore, we conducted Harman's single-factor test to check for common method bias. The single factor accounts for 43% (< 50%) of variance, suggesting there is no indication for such a problem (Podsakoff *et al.*, 2012). Respondents are from all different industries (public management service, service, industry/production, retail) with a high proportion from the service industries (38.3%). This might be due to the affinity of respondents from the IT, creative and freelancer sectors towards WFH, which are all clustered under 'service industry'. In addition, there is a tendency for MTurk to more strongly target technology-related industries, which explains, in combination with the precondition that WFH is possible, the relatively high share of service industries (Keith and Harms, 2016).

| | M | S.D. |
|---|---|---|
| Age (years) | 36.82 | 10.47 |
| Work experience (years) | 12.00 | 9.78 |
| Workhours per week (h) | 36.45 | 11.90 |
| | Frequency | % |
| Working from home | | |
| Yes | 234 | 23.0 |
| Partially | 782 | 77.0 |
| Gender | | |
| Female (=2) | 378 | 37.2 |
| Male (=1) | 635 | 62.5 |
| Other | 3 | .29 |
| Country | | |
| Germany | 467 | 47.0 |
| US | 549 | 53.0 |
| Leadership responsibility | | |
| Yes | 503 | 49.5 |
| No | 513 | 50.5 |
| Industries | | |
| Public management service | 270 | 23.3 |
| Service | 444 | 38.3 |
| Industry/Production | 207 | 17.9 |
| Logistics | 38 | 3.3 |
| Retail | 55 | 4.7 |
| Own workroom | | |
| Yes | 620 | 61.0 |
| No | 396 | 39.0 |

Table 7: Demographics and descriptive statistics of participants

(N = 1,016)

### 3.3.3 Measures

#### 3.3.3.1 Agile work (independent variable)

Agile work is a concept that encompasses all the characteristics, attitudes and skills of employees that enable them to work flexibly and adaptably in uncertainty. To define the construct 'agile work', relevant studies (including Alavi *et al.* 2014; Breu *et al.* 2002; Sherehiy *et al.* 2007; Sherehiy and Karwowski 2014) were analysed and the dimensions proposed by Sherehiy and Karwowski (2014) were adapted and adjusted with respect to the particular environment of WFH (Figure 8). This results in three constructs of agile work, which is an adapted scale of the agile workforce scale by Breu *et al.* (2002) and Muduli and Pandya (2018).

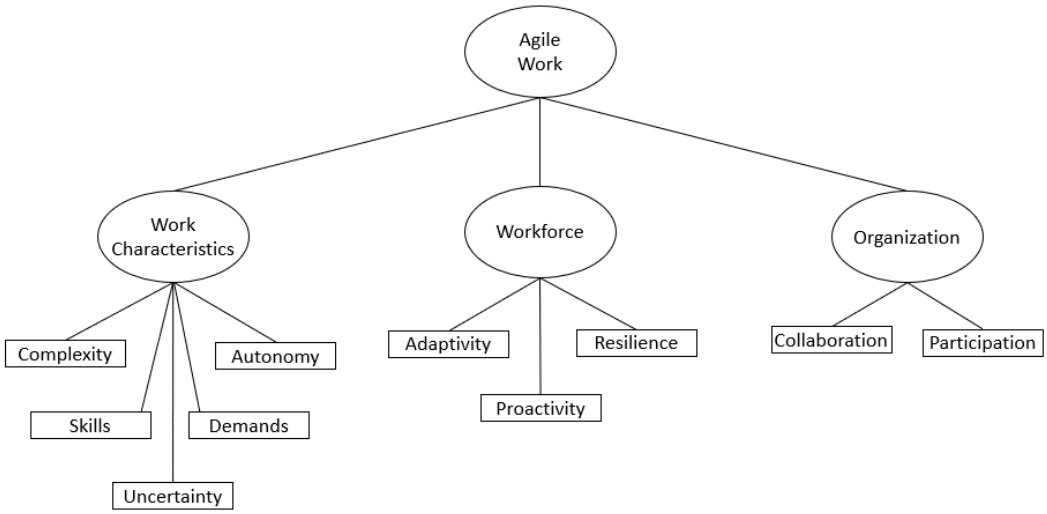


Figure 8: Construction of agile work

Adapted from Sherehiy and Karwowski (2014)

*Work characteristics:* Through an in-depth analysis of studies in the area of work characteristics in agile environments, five characteristics were selected that can positively influence work success in dynamic environments (Bond and Bunce, 2003; Breu *et al.*, 2002; Muduli, 2017; Sherehiy and Karwowski, 2014): *Complexity* describes how demanding a job performed is (e.g. 'In my job, I have to handle a variety of tasks'); *Skills* describes the extent to which diverse and changing skills are required to perform the job (e.g. 'In my job, I can use many of my talents'); *Uncertainty* describes the extent to which the employee is confronted with uncertainty with regard to changing goals, work conditions or requirements (e.g. 'In my

work, I am always doing something new'); *Demands* describes the extent to which employees are mentally challenged in performing the job (e.g. 'My job requires the use of demanding skills'); and *Autonomy* describes the extent to which employees can decide on the sequence, focus and content of the activity (e.g. 'I can decide for myself the sequence in which I do my work'). The overall Cronbach's alpha (CRA) of the construct work characteristics is .921, which is considered to be sufficiently high.

*Workforce:* 'Agile workforce' according to Sherehiy and Karwowski (2014) describes skills and behaviours of employees. Three characteristics of a workforce have been the topic in several studies (Alavi *et al.*, 2014; Breu *et al.*, 2002; Muduli, 2017; Sherehiy and Karwowski, 2014). *Proactivity* refers to a person's ability to actively take action that will have a positive impact in a changing environment (Sherehiy and Karwowski, 2014). Taking initiative and improvisation in the context of uncertainty can be counted among these (e.g. 'I think about how things might change in the future and try to influence those things in my daily actions') (Dyer and Shafer, 2003). *Adaptivity*, according to Griffin and Hesketh (2003), is the ability to reflect on one's behaviours and be able to adjust based on a change. Furthermore, this characteristic comes into play when working in roles with various and changing demands (e.g. 'Short-term changes and adjustments to goal of work are important parts of work for me') (Sherehiy and Karwowski, 2014). *Resilience* describes the ability to perform optimally despite changing conditions and associated challenges. It therefore expresses an independence from challenging situations or failure that would otherwise lead to negative effects such as stress or frustration (e.g. 'I advocate an error-tolerant culture that does not punish failure but views it as a gain in knowledge') (Sherehiy and Karwowski, 2014). The CRA of workforce has a value of .836, which is sufficiently high.

*Organisation:* Through an analysis of studies in the area of higher-level characteristics of an agile organisation, two characteristics were identified that influence employees and their work in uncertain environments (Breu *et al.*, 2002; Muduli, 2017). The first dimension concerns *collaboration* between employees. Shared responsibility and decision-making within the team, good cooperation and motivation derived from the team can be attributed to this characteristic (Breu *et al.*, 2002). In particular, shared responsibility is important in uncertainty (e.g. 'A shared perceived responsibility for work results in the team is important to me'). *Participation* expresses an involvement in decisions that affect one's situation. Those who actively participate are better able to cope with uncertainty (Muduli, 2017). This is sometimes called 'empowerment' but it should not be confused with autonomy, the flexible shaping of work and

content (e.g. 'I expect decisions to be made in the team if possible'). The internal consistency of this construct is also confirmed with a CRA of .829.

#### 3.3.3.2 Work from home enabler (mediator)

From the multitude of support measures for WFH described in the literature, we focus on two constructs that have particular potential in the context of agile work, or are absolute foundations for successful WFH: *(1) technical infrastructure and support* and *(2) HRM measure*s. Technical infrastructure and support measures taken by the organisation to create all technical prerequisites for WFH can lead to enhanced performance. This refers to information technology measures as well as technical support for employees (Morgan, 2004). Employees working from home depend on appropriate technical foundations to perform their agile work ('I do not expect any technical problems (software, hardware, etc.) when transitioning to the home office'). HRM measures support WFH employees through appropriate processes and culture. Trust between employees and supervisors is the basis for other measures like management by objectives, offering autonomy, opportunity to take responsibility, opportunities to plan and design work and is, therefore, essential as an HRM measure (e.g. 'In cooperation and in the relationship with superiors, I expect mutual trust') (Berube Kowalski and Swanson, 2005; Nakrošienė *et al.*, 2019; Martínez-Sánchez *et al.*, 2007b). Additionally, regardless of whether change is triggered by an increase of WFH or by changes due to a dynamic environment, measures directed against possible, negative effects of changes like participation have to take place especially in WFH (e.g. 'I expect to be sufficiently involved in the planning process of increased WFH on the part of my employer') (Martínez-Sánchez *et al.*, 2008). The CRA for this construct has a value of .581, which is slightly below the threshold.

#### 3.3.3.3 Work from home success (dependant variable)

WFH success is measured by *job satisfaction at home* (Fonner and Roloff, 2010) and *work productivity at home* (Gamal Aboelmaged and Mohamed El Subbaugh, 2012). The three-item 'Job Diagnostic Survey' by Hackman and Oldham (1975) was modified to measure job satisfaction at home. Work productivity at home was measured by self-assessment on a modified scale (including, e.g. 'Working in a home office makes it easier for me to do my job') (Bloom *et al.*, 2015). The CRA of .890 is considered to be sufficiently high.

#### 3.3.3.4 Control variables

To rule out confounding effects, we applied control variables in our analysis. Because other studies have found that openness and affinity for digital technologies may reduce stress due to technology and, therefore, enhance WFH success, we controlled for openness to technology (Suh and Lee, 2017). The openness to technology construct consists of 18 items and provides good reliability with a CRA of .972. We also controlled for age and gender, according to Bloom *et al.* (2015). Based on other studies on WFH, we further controlled for a dedicated room for WFH ('own workroom'; dummy variable). Having an own workroom for WFH can reduce stress and interruptions leading to a higher WFH success. We further controlled for leadership responsibility since perception and demands of WFH may differ between employees with and without leadership ('leadership'; dummy variable) (Møller-Jensen *et al.*, 2008). To explore if there is a locational effect and a significant difference between the Anglo-Saxon and European work culture, we controlled for the possible effect of the country in which the WFH is done. We thus included a country dummy variable (Germany and U.S. = reference group).

The survey items, descriptive statistics and CRA measures are shown in Table 8, with higher means representing greater levels of each variable. Except the construct WFH enabler (five items), all constructs have Cronbach's alpha (α) values above the threshold of .70 (Cortina, 1993).[4]

#### 3.3.3.5 Subsamples

In order to gain further insights, we applied two subgroup analyses. For this purpose, the entirety of the data was subdivided to compare them with each other. The investigated model could provide different results for subgroups of certain characteristics. First, possible differences in outcomes between employees with different work experience (low: < 10 years of work experience, $N$ = 287; high: ≥ 10 years of work experience, $N$ = 341) were investigated (Torten *et al.*, 2016). There could be different needs and effects of enablers due to different levels of work experience (Puyod and Charoensukmongkol, 2019), or agile working could be difficult for inexperienced employees to use, as connected skills are described as demanding (Sherehiy and Karwowski, 2014). We thus hypothesise that it might be possible that more experienced employees make better use of agile work and need less support by HRM etc. as they are already able to cope with that high degree of agility and demanding skills.

[4]We further checked average inter-item correlation for the construct WFH enabler, which has a value of .25 and is in an acceptable range.

Second, we examined possible differences between part-time (< 30 h per week, *N* = 123) and full-time employees (≥ 30 h per week, *N* = 505). Part-time employees can respond differently to work attributes and can have differing work satisfaction and success due to their reduced hours as they are less included. Part-time employees need a more defined setting because they are less involved in the workforce so they need more direction, leadership or guidance. Additional autonomy could lead to further distance and isolation and outweigh the benefits. We therefore postulate that there might be a difference between the two subsamples and that part-time employees are not able to benefit from agile work in such a pronounced way (Conway and Briner, 2002). Literature further reports that part-time employees are more aware of organisational support than full-time employees (Gakovic and Tetrick, 2003). Because part-time employees value support and enablers more, this could also have a stronger impact in WFH.

| Items | M | SD | α |
|---|---|---|---|
| Work characteristics | | | .921 |
| Scope for decision-making | 5.09 | 1.41 | |
| Free time management | 5.15 | 1.40 | |
| Autonomous decisions | 5.15 | 1.40 | |
| Sequence of work | 5.20 | 1.38 | |
| Number of various skills | 5.39 | 1.25 | |
| Requirement for different skills per task | 5.39 | 1.24 | |
| Number of tasks | 5.31 | 1.29 | |
| Demanding skills | 5.25 | 1.32 | |
| Skills variance | 5.24 | 1.32 | |
| Work variety | 5.18 | 1.34 | |
| Number of talents used | 5.27 | 1.33 | |
| Frequency of new challenges | 5.20 | 1.33 | |
| Workforce | | | .836 |
| Tolerance of other opinions | 5.39 | 1.30 | |
| Change as part of the work | 5.19 | 1.22 | |

| | | | |
|---|---|---|---|
| Team improvement | 5.60 | 1.20 | |
| Take initiative | 5.22 | 1.34 | |
| Foresighted way of working | 4.86 | 1.47 | |
| Adjustment of work based on anticipated future development | 5.25 | 1.20 | |
| Adaption as part of work | 5.48 | 1.22 | |
| Mistake tolerant culture | 5.58 | 1.22 | |
| Feedback | 5.64 | 1.18 | |
| Mistakes as an opportunity to improve the work | 4.89 | 1.42 | |
| Free expression of opinion | 5.36 | 1.37 | |
| Stress resistance | 3.59 | 1.09 | |
| Organization | | | .829 |
| Good collaboration | 5.76 | 1.14 | |
| Shared responsibility | 5.53 | 1.21 | |
| Importance of communication | 5.55 | .170 | |
| Team decisions | 5.15 | 1.26 | |
| Work from home enabler | | | .581 |
| Involvement in planning processes | 5.22 | 1.34 | |
| Mutual trust | 5.87 | 1.14 | |
| Trainings | 5.08 | 1.42 | |
| Support availability | 5.55 | 1.24 | |
| Technical availability | 5.07 | 1.56 | |
| Work from home success | | | .890 |
| Satisfaction | 5.51 | 1.32 | |
| Enjoyment of the work | 5.61 | 1.32 | |
| Work from home preference | 5.66 | 1.30 | |
| Increase in productivity | 5.02 | 1.48 | |
| Facilitation of work | 5.05 | 1.44 | |

| | | |
|---|---|---|
| Quality improvement | 4.87 | 1.47 |

Table 8: Survey items and descriptive statistics

### 3.3.4 Empirical method

Results for means, standard deviations and correlations for all used variables are shown in Table 9. Due to item-nonresponses, the sample size used for the mediation analysis is 628 (*N*). This dataset from U.S. and German employees was used for all calculated models. Subsample analysis used samples from this dataset as well.

| Variables | | M | S.D. | 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|---|---|---|---|
| 1. | WFH success | 5.32 | 1.14 | 1 | | | | |
| 2. | Agile work | 5.21 | .75 | .383** | 1 | | | |
| 3. | WFH enabler | 5.38 | .82 | .383** | .600** | 1 | | |
| 4. | Openness f. technology | 4.67 | .76 | .253** | .412** | .299** | 1 | |
| 5. | Age | 36.82 | 10.47 | .156** | .097* | .073 | -.093** | 1 |

Table 9: Means, standard deviations and correlations

Notes: M = mean, SD = standard deviation and Pearson-Correlations (2-sided); **. * denotes significance at the 1 % and 5 % level, respectively

Prior to the mediation analysis, a simple mean value comparison was performed to indicate a possible relation between the degree of agile work and WFH success. The presence of agile working practices can be seen in Figure 9. If the degree of agile work is low, then the mean of WFH success is 4.95. If agile work is high, then the mean value of WFH success is 5.64. This possibly indicates an influence as derived from the literature.

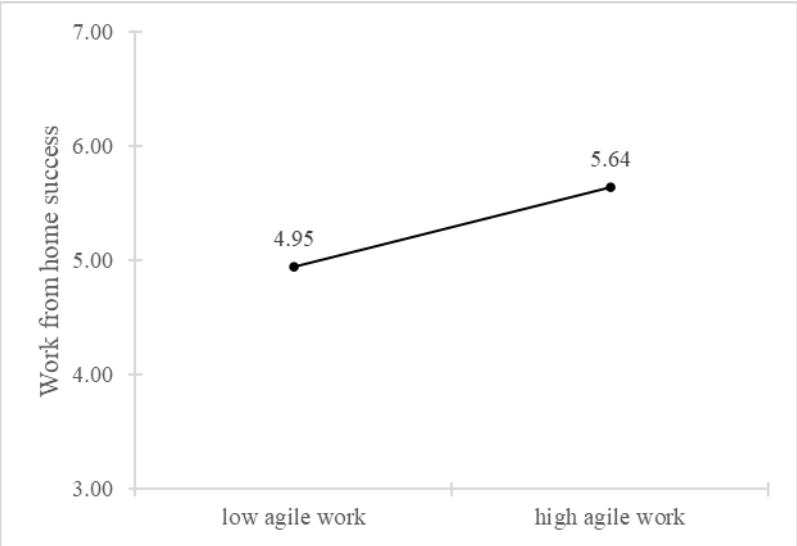


Figure 9: Mean value comparison of agile work and WFH success

The hypotheses were tested using various test procedures and regression analyses. The presented constructs of the independent and dependent variables, the control variables and the mediator were included in each regression model, and examined for mediation following Baron and Kenny (1986). Although the methodology still finds application in literature (e.g. Bendickson and Chandler 2019) there is criticism of the (Baron and Kenny, 1986) approach because the conclusions about mediation are not sufficiently meaningful and an assumption is made about the normality of the variable distribution (Zhao *et al.*, 2010). Therefore, an alternative approach is recently used in the literature (e.g. Ghosh *et al.* 2017) based on a bootstrapping approach by Hayes (2009). Because of the possible shortcomings of the concept of Baron and Kenny (1986) the authors of this study followed this approach by using the PROCESS macro for SPSS by Hayes and Little (2018) ('Model 4' – simple mediation) to determine a possible mediated effect of agile work on WFH success through the WFH enabler. This approach uses ordinary least squares regression to determine un-standardised path coefficients of the direct, indirect and total effect.

We generated 10,000 bootstrap samples based on the observations derived from the 628 participants with heteroscedasticity-consistent standard errors in order to determine the confidence intervals (CI) and inferential statistics as proposed by Davidson *et al.* (1995). Effects were considered to be significant if 0 was not included in the confidence interval, following the approach by Hayes (2009).

### 3.4 Results

A significant, positive effect of agile work on WFH success (*c*) was observed: $B = .447$, $p < .001$. The regression coefficient differs significantly from 0, which indicates a positive effect of agile work on WFH success. This confirms Hypothesis 1 (*A higher degree of agile work is related with higher WFH success*).

After entering the mediator and the control variables into the model, agile work predicted the mediator (*a*) significantly, $B = .669$, $p < .001$. This indicates a positive effect of agile work on the success of WFH enablers and supports Hypothesis 2 (*The more pronounced agile work is among employees, the more WFH enablers can be used*). WFH enabler predicted WFH success (*b*) significantly, $B = .322$, $p < .001$, which confirms Hypothesis 3 (*Employee support is positively associated with WFH success*).

| | Mediator: WFH enabler | | | Outcome: WFH success | | |
|---|---|---|---|---|---|---|
| | *B* | *SE* | *p*-Value | *B* | *SE* | *p*-Value |
| Constant | 1.418*** | .235 | .000 | .888** | .336 | .008 |
| OpennessTechnology | .122*** | .038 | .001 | .174** | .063 | .006 |
| Gender | -.167** | .056 | .003 | -.046 | .087 | .598 |
| Age | .003 | .003 | .300 | .012*** | .004 | .001 |
| Own workroom | .069 | .056 | .216 | .338*** | .087 | .000 |
| Leadership | -.091 | .066 | .169 | .038 | .101 | .708 |
| Country US | -.167* | .066 | .011 | .030 | .098 | .759 |
| Agile work | .669*** | .042 | .000 | .231** | .084 | .006 |
| WFH enabler | | | | .322*** | .072 | .000 |
| adj-$R^2$ | .394 | | | .223 | | |

Table 10: Results for hierarchical regression analyses

Notes: N = 628; *B*: Unstandardized regression coefficients; *SE:* robust standard errors; ***, ** and * denote significance at the .1 %, 1 % and 5 % level, respectively

We found that the relationship between agile work and WFH success is partially mediated by WFH enablers, indirect effect *ab* = .216, 95%-CI[.122;.312] and direct effect *c*' = .231, 95%-CI[.065;.397].

| Bootstrapping (10,000 Samples) | Direct effect | Indirect effect | Boot SE | 95% confidence interval | |
|---|---|---|---|---|---|
| | | | | LLCI | ULCI |
| Agile work → WFH enabler → WFH success | .231*** | .216 | .048 | .122 | .312 |

Table 11: Summary of the mediation effect of agile work using bootstrapping

Notes: N = 628; LLCI: lower level confidence interval; ULCI: upper level confidence interval; *SE:* robust standard errors; ***, ** and * denote significance at the .1 %, 1 % and 5 % level, respectively; Effects were considered to be significant if 0 was not included in the confidence interval

We found significance for the control variable openness to digital technologies (*B* = .173; *p* < .01), stating that more openness to digital technologies is related with a higher WFH success. Also significant were age (*B* = .012; *p* < .01) and an own workroom (*B* = .338; *p* < .001). We find that older employees show higher values of work success when working from home. We found a significant effect of gender on the mediator WFH enabler (*B* = −.167; *p* < .01), indicating that female employees are more receptive for support measures. All other control variables, including country, have no significant effect on WFH success, which is in line with results of other studies (Bloom *et al.*, 2015; Møller-Jensen *et al.*, 2008).

In conclusion, an indirect effect of *ab* = .216 and a direct effect of *c*' = .231 from agile work on WFH success can be significantly confirmed (cf. Figure 10). This leads to a total effect of *c* = .447. A partial mediation, accounting for 48.3% of the total effect, is confirmed with the significance of the indirect effect. There is empirical support for the partial mediation model on the effect of agile work on WFH success. Therefore, Hypothesis 4 (*The use of WFH enablers partially mediates the effect of agile work on WFH success*) can be confirmed.

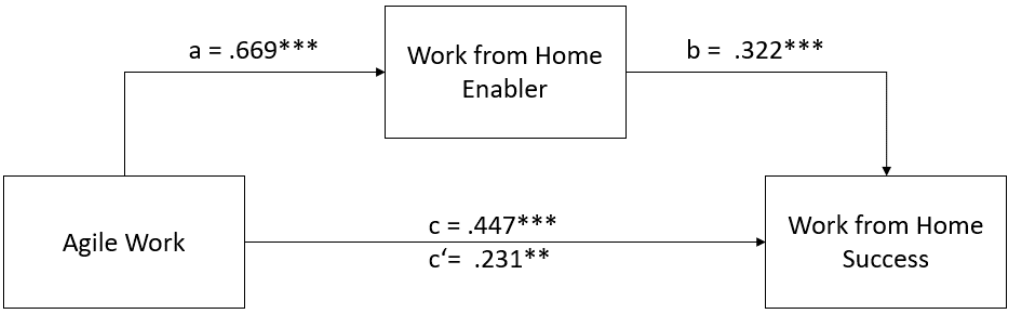


Figure 10: Results of the proposed research model

Notes: ***, ** and * denote significance at the .1 %, 1 % and 5 % level, respectively

In the subsample analyses, employees with high work experience (high: ≥ 10 years of work experience, $N = 341$) show effects comparable to the total: agile work has a significant, positive effect on WFH success ($c = .445$, $p < .001$; $a = 657$, $p < .001$; $b = .243$, $p < 0.05$; $c' = 276$, $p < .05$; $ab = .169$, 95%-CI[.032;.313]). For employees with less work experience (< 10 years of work experience, $N = 287$), the effect of agile work on WFH success is no longer significant ($c' = .175$, $p > .1$) after the mediator is included in the model. The total effect is mediated and explained by the use of WFH enablers ($a = .659$, $p < .001$; $b = .425$, $p = .001$; indirect effect $ab = .281$, 95%-CI[.148;.419]).

The second subgroup analysis provided similar effects for full-time employees (≥ 30 h per week, $N = 505$) as for the main study ($c = .446$, $p < .001$; $a = 645$, $p < .001$; $b = .332$, $p < 0.05$; $c' = 232$, $p < .01$; $ab = .232$, 95%-CI[.046;.417]). The total effect for part-time employees (< 30 h per week, $N = 123$) is insignificant when the mediator is added to the model ($c = .457$, $p > .1$; $c'.195$, $p < .05$). The mediator effect is significant, indicating a total mediation ($a = .759$, $p < .001$; $b = 346$, $p < .5$, $ab = .263$, 95% CI[.057;.509].

## 3.5 Discussion

This study proposes a new mediating relationship between agile work and WFH success. Further, the research framework defines and combines possible theories of agility, flexibility and adaptability of employees for WFH. Results indicate that companies with employees who have internalised agile working are, on the one hand, more successful in WFH and, on the other hand, can significantly support their employees through HRM actions. The use of WFH enablers has a partially mediating influence on the effect of agile work on WFH success. Thus, companies could positively influence the success of WFH in two ways: through the expansion of agile work

and by applying WFH enablers. Agile work, therefore, is not only conducive to WFH success, but also allows HRM to deploy enablers in a particularly advantageous manner.

Agile work has a direct, positive and significant effect on WFH success. We show that characteristics and behaviours summarised under adaptive, flexible, dynamic or (as in this case) 'agile' work not only lead to an advantage in dynamic environments but are also specifically useful when working from home. Agile work can, therefore, help manage uncertainty during the COVID-19-pandemic and have a positive impact on employees' work success and the firm's outcome. We find that agile work is not only beneficial in dealing with the general uncertainty and dynamics of the COVID-19-crisis but also supports companies and has a positive impact on employees' work success and the firm's outcome. While leadership responsibility and the country have no significant influence, age and an own workroom significantly influence WFH success. As stated in other studies, an own workroom enhances productivity and, therefore, WFH success. Higher age corresponds to higher WFH success but cannot be assigned to a higher degree of agile work. Older employees may be more experienced and, therefore, less exposed to some of the challenges of WFH. Other (in this study unreported) descriptive statistics like the presence of children in the household or the sector of the workplace (industry) are not significant. The insignificance of industries is particularly noteworthy: provided the opportunity for WFH exists, this can be leveraged by employees in agile work regardless of industry. We controlled for possible differences between countries using a control variable but did not find a significant difference in WFH success.

Furthermore, Hypothesis 2 can be confirmed, which shows that agile work reveals potential for HRM support. This can be interpreted as follows. First, employees expect and value special kinds of support in terms of agile work. Freedom, participation, personal responsibility and trust by superiors are HRM measures to support agile employees. However, HRM should also place value on a culture in which mistakes are not seen as failures. This could have to do with the adaptive way agile employees work. With constant adaptation and development, mistakes can and perhaps must happen. Adaptation to change could also be complemented by change management to reduce resistance to change. At the same time, however, support, adequate technology and further training measures are also required. Gender influences enabler acceptance significantly: female employees tend to be more receptive to enablers offered. This illustrates further possible applications of enablers by HRM. Additionally, Hypothesis 3 was confirmed: support and enablement by management has a positive influence on WFH. Although employees are successful in WFH in terms of agile work, support is still essential. This effect, partially described in other, qualitative studies (Berube Kowalski and Swanson, 2005), could also be observed quantitatively.

A partial mediation of WFH enabler on the relationship between agile work and WFH success was demonstrated, confirming Hypothesis 4. Thus, enablement by HRM at least partially explains the relation of agile work on WFH success and should, therefore, be extended. Analysis of the subsamples revealed the following: the work experience of the participants has an influence on the effects of the model. Experienced employees benefit from the direct effect of agile work and the mediated effect via WFH enablers when working at home. For inexperienced employees, the effects are different: the effect of agile work is entirely mediated by WFH enablers. This might be due to the needed experience for dealing with a high degree of freedom and self-structuring work tasks. Participants with less work experience have not gained the skills to derive a best-fit to cope with the high flexibility and autonomy. Enablers, therefore, have a dominant influence, especially because they can help build skills to deal with uncertainty and autonomy. Therefore, inexperienced colleagues should be especially supported by enablers in the sense of agile work. Training courses could build up targeted skills that enable the benefits of agile work.

Further, part-time employees value support from the organisation more than average and perceive it differently. In this respect, the results regarding the enabler are in line with the literature (Gakovic and Tetrick, 2003). The positive perception of enablers could also strengthen the effect in the present case and make it particularly effective. Agile work has no direct, significant effect on WFH success in this subgroup. One reason could be that part-time employees often take up part-time work for specific reasons and, therefore, cannot benefit from autonomy and flexible, independent planning due to private reasons, for example. This could limit the direct effect of agile work. Another reason could be that part-time workers already make use of a high degree of flexibility due to their part-time work. In such, they demand a structured framework in their job and cannot value autonomy and freedom as high as full-time workers.

This study makes two main contributions. The first contribution is the investigation or further construction of agile work in a workplace context. As previously shown, countless definitions exist, some of which are not very clear-cut; at their core, they all deal with adaptability and flexibility in dynamic and uncertain situations. Even though essentially the model of Sherehiy and Karwowski (2014) was used as a basis, an adaptation was made and the new agile instrument can be used as a starting point for further construct validations. The framework was adapted and extended by including, e.g. participation and collaboration of the organisation in the sense of teamwork. Even though the original framework was mainly aimed at manufacturing, we received reasonable results for knowledge-intensive WFH. One could argue that the realisation that agile work is beneficial for WFH could be expected. However, it could also be argued that key aspects such as communication or collaboration could be more difficult

due to the circumstances that could result from the isolation at home. Our study disproves this and emphasises the benefits of agile work for WFH. Although the 'agile work' construct used here does not aspire to cover the full range of potential flexible and adaptive capabilities, the selection served to illustrate potential characteristics of agile working. Even though CRA measurements fluctuated, agile workforce and collaboration could be identified as suitable constructs, especially relevant for employees with a high proportion of WFH.

The second contribution refers to possible support measures for WFH. For this purpose, a construct was defined that refers specifically to agile work. This represents a possibility to model support measures. An essential contribution is the modelling as a mediator. This assumes that there are measures that are particularly effective or can be used particularly successfully when employees work in the sense of agile work. In addition, the choice of the mediator model should be emphasised. Previous studies chose dynamic capabilities or flexibility as the mediating effect (Lin and Wu, 2014; Wu *et al.*, 2016). As suggested by other researchers, agile work as part of dynamic capabilities was not modelled as a mediator in this paper, but rather as a main predictor as it can be seen to be one of the main drivers of employee and firm success (Li and Liu, 2014). The results show the great importance of agile work although, of course, there may be countless other effects on the success of WFH that were not part of this study. It turns out that these targeted measures are not only important in general, but also specific to employees in terms of agile work because a large proportion of the effect of agile work can be explained by the mediation effect.

Lastly, based on a relatively large sample in the U.S. and Europe, this study provides insights into data collected during the COVID-19-crisis and the lockdown with expansion of WFH. To our knowledge there are as for now no comparable studies with focus on capabilities with a similar topic.

### 3.5.1 Practical implications

There are several possible practical implications for management and HRM in particular that arise from this study. On the one hand, the advantages of agile work that have been demonstrated make it necessary to control and expand these dynamic capabilities.

Work characteristics are closely related to the type of job and tasks. Measures to diversify tasks and changing roles could increase agile work. In order to be able to perform tasks with demanding and changing skills, training, experience and trial and error acceptance are essential. Central is the autonomy that can be granted to employees by superiors. Workforce as part of agile work is closely linked to employee behaviour and values. A role model of these

values by managers and a suitable culture should be achieved and appropriate behaviour rewarded. Collaboration should be enabled as much as possible and demanded and communicated as a central success factor, especially in WFH. Participation should be offered on the one hand and demanded on the other. As we do also find support for openness to technology, we encourage employees to actively use offered enablers and training, and companies to provide this support by ensuring sufficient infrastructure. Companies can already inquire about openness with regard to digital technologies and their safe use during the hiring process. From the perspective of employees, they can point to existing experience and competencies in dealing with digital technologies and, thus, indirectly demonstrate their suitability for WFH or agile working.

Furthermore, the WFH enablers should be enhanced. These enablers should aim to actively involve employees despite the distance through participation in, e.g. planning, and to ensure mutual trust through a suitable culture and supervisor behaviour. Trust is particularly important to enable employees to plan and implement their work autonomously despite the distance and is a prerequisite; for example, for operating management by objectives without constantly monitoring the employee and his or her work progress. The subsample analysis revealed that inexperienced employees are even particularly dependent on these enablers because complete mediation exists. Here, specific measures and training can help make the best possible use of this effect. The subgroup of part-time employees is similar. They particularly appreciate and need support from the organisation. The use of enablers with a focus on agile work makes optimal use of this context. Special attention should be paid to technical infrastructure and support even though this may seem trivial. Without technical and professional support, employees of whatever ability are limited in their WFH role. Therefore, a suitable infrastructure, support and training concept should be implemented and constantly adapted. Furthermore, it must be noted that even if employees have great adaptive skills and flexibility to excel in WFH, the mediating function of the enablers must not be underestimated. In this respect, it is still necessary to provide or even expand support from the HRM perspective. Furthermore, the subsample analysis showed that inexperienced employees are even more dependent on support and that employees who work almost exclusively in WFH particularly participate in agile work. Both can be an opportunity to expand skills and measures to increase success in the WFH in a targeted manner

The COVID-19-crisis has quickly demonstrated the importance of WFH in dynamic environments. This paper provides empirical insights into ways for HRM to respond to this: (1) by building relevant capabilities and (2) by aligning support and enablement. The emphatically simple model notes that these two measures go hand-in-hand and can be the answer to some of the problems associated with the crisis and the rapid increase in WFH. It is

important to recognise that agile employees still need support for WFH; however, targeted support can be particularly successful and, therefore, seems to be very rewarding for HRM.

### 3.5.2 Limitations and future work

There are few clear distinctions between partly synonymous or complementary constructs such as flexible workforce or adaptive capabilities. Based on existing studies, the authors of this study have strived to form constructs that are as meaningful as possible. However, these constructs are only a small part of theoretically possible capabilities that can be counted as 'agile work' as used in this study. Therefore, an extension by further or other aspects seems to be worthwhile. Further HRM measures to increase for instance self-efficacy and self-determination among employees can be included as it might also enhance WFH success. Even if the CRA measurements delivered satisfactory results, other constructs are conceivable. For example, an existing concept like 'perceived organizational support' (Eisenberger *et al.*, 2001) could be examined as a mediator in the WFH setting.. Furthermore, we interviewed employees who used WFH during the COVID-19-crisis. It can, therefore, be assumed that a large proportion did not voluntarily use WFH to such an extent. It is possible that results might differ if only voluntary WFH users were surveyed.

Conceptually, the choice of a mediator analysis seems very suitable. However, it would be interesting to examine control groups with little or no support or the selection of employees without attributes of agile work. A division of agile work into the three subcategories seems worthwhile to capture the derived findings and measures even more clearly. Likewise, additional mediators could be added, or the existing mediator could be further divided. These multi-mediator models could provide further detailed insights into the interrelationships. Therefore, a path analysis seems to be worthwhile because the sub-constructs are possibly further related to each other. In addition, the present model found different mediation throughout the model and subgroups. Therefore, in the future, further paths or subgroups should be analysed that map the relationship of agile work and WFH success in its entirety. Although there were no significant differences between the countries studied in this paper, other countries with different characteristics regarding WFH could be included in the future.

Even independent of the COVID-19-crisis, research predicts that the dynamic nature and uncertainty of the crisis will become more entrenched. In this respect, agile work is also essential regardless of this crisis - not least because it is assumed that WFH will continue to be maintained as there are advantages for employees, but also from sustainability aspects. In this respect, further research based on this research model is recommended to ensure success in

the medium or long term. It should be noted, however, that this study primarily aims to provide a first step towards understanding agile capabilities in WFH.

# 4 Work from Anywhere organisieren – Richtlinien für hybride und flexible Arbeitsmodelle

| | |
|---|---|
| Titel: | Work from Anywhere organisieren – Richtlinien für hybride und flexible Arbeitsmodelle[5] |
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| Veröffentlicht in: | Zeitschrift Führung + Organisation |
| | URL: https://www.zfo.de/suche-archiv/Document/details/3868_12 |

## 4.1 Vorwort (Lead)

In der Praxis gibt es diverse Organisationsformen und Richtlinien (Policies), um Work from Anywhere (WFA) zusammen mit „klassischer Arbeit“ (bspw. Arbeit aus dem Büro) zu organisieren. Abhängig von Kriterien, wie etwa der Art der Arbeit, gilt es eine geeignete Policy zu wählen. Der Beitrag liefert einen Überblick über in der Praxis genutzte Policies und bietet ein Framework für die Auswahl einer passenden Policy.

## 4.2 Einleitung

Die moderne Arbeitswelt flexibilisiert sich zusehends. Bestehende Trends orts- und zeitflexibler Arbeit wurden durch die Corona-Krise verstärkt. Die zeitliche und räumliche Flexibilität der Arbeit ist dabei eng mit den technischen Fortschritten der IT verbunden und führt zu einer flexiblen und „virtuellen“ Zusammenarbeit (Johns and Gratton, 2013). Nur so konnten während dieser Zeit große Anteile der Mitarbeitenden mehr oder weniger einfach von ihren Büros in die eigenen vier Wände umziehen. Ein weiterer Treiber ist in der Arbeitskultur und den Mitarbeitenden selbst zu sehen. Erwartungen an die Arbeit selbst, Autonomie und Zusammenarbeit im Team und insbesondere hinsichtlich der Möglichkeit, von (nahezu) beliebigen Orten außerhalb des Firmenbüros arbeiten zu können, haben sich verändert. Das Arbeitszimmer zu Hause, shared Workspaces (Weijs-Perrée *et al.*, 2019) oder die Arbeit in

[5] This is a manuscript version of the published article ‘Heidt, L., Gauger, F., & Pfnür, A. (2023). Work from Anywhere organisieren: Richtlinien für hybride und flexible Arbeitsmodelle. Zeitschrift Führung + Organisation (Zfo), 92(1), 28–33‘, reproduced with permission of Schäffer-Poeschel publishing. The final version is available online at: https://www.zfo.de/suche-archiv/Journal/inhalt/259_12/

Kombination mit Urlaub (Workations) sind Orte, die für viele Berufe als Arbeitsstätte dienen können (Nash *et al.*, 2021). In vielen Berufen bieten Unternehmen dieses „Anywhere" der Arbeit bereits vermehrt an, um den Kampf um begehrte Talente nicht zu verlieren (Thompson *et al.*, 2015). Work from Anywhere (WFA) als Arbeitsmodell stellt dabei diese große Flexibilisierung in Bezug auf zeitliche und geographische Aspekte der Arbeit dar (Choudhury *et al.*, 2021).

Während Work from Office (WFO) die „klassische Arbeit" im Büro oder Einrichtung des Arbeitgebers bezeichnet, gibt es für den Anteil der Arbeit außerhalb von WFO diverse Bezeichnungen (Hill *et al.*, 2003). Work from Home oder Homeoffice beschränken die Arbeit auf die Arbeit in den eigenen vier Wänden. WFA, häufig auch als remote work bezeichnet, fasst diesen Begriff weiter und fokussiert sich als Gegenpol zu WFO auf die Arbeit außerhalb des Büros, unabhängig vom genauen Ort (Choudhury *et al.*, 2021). Jedoch bestehen in der Praxis berechtigte Argumente für die Arbeit „vor Ort" (Messenger, 2019). Direkte Kommunikation, effiziente Kollaboration und Wissensaustausch zwischen Mitarbeitern sind einige Vorteile. Auch können Innovationen besser erreicht werden, wenn ein Teil der Arbeit vor Ort stattfindet (Coenen and Kok, 2014).

Viele Berufe können tatsächlich von nahezu überall ausgeübt werden. Andere benötigen einen großen oder ausschließlichen Anteil von Arbeit „vor Ort": Pflegekräfte, Ärztinnen, Handwerkerinnen oder Friseure sind nur einige Beispiele für die Notwendigkeit der Arbeit an einem festen Arbeitsplatz. Weitere Berufsgruppen können Teile der Arbeit vor Ort, andere Teile von außerhalb erledigen. Die Aufteilung zwischen WFO und WFA ist dabei höchst unterschiedlich und abhängig, zum Beispiel, von der Art des Berufs, Arbeitsorganisation und Präferenz der Mitarbeitenden (Sako, 2021).

Auf Grund der fortschreitenden Digitalisierung, der Möglichkeit flexibel arbeiten zu können, digitaler Tools und virtueller Zusammenarbeit sowie der individuellen Vorteile den optimalen Arbeitsort anhand der jeweiligen Tätigkeit wählen zu können, wird in Zukunft eine Kombination von WFA und WFO erwartet, die als hybride Arbeit bezeichnet wird (Alipour *et al.*, 2020). Diese Kombination kann nur durch eine erfolgreiche Integration von WFA in die Arbeitsorganisation geschehen. in der Praxis sind Entscheidende mit der Frage konfrontiert, welche organisatorische Vorgabe (Policy) zur Organisation von WFA genutzt werden soll. Insbesondere ist unklar, welche Policies geeignet sind bzw. nach welchen Kriterien eine Auswahl erfolgen sollte. Um dies zu klären, wurden für diesen Beitrag sowohl Interviews mit Experten und Expertinnen aus der Praxis als auch eine quantitative Erhebung durchgeführt. Ein Framework soll Entscheidenden bei der Wahl einer geeigneten Police unterstützen.

## 4.3 Hybride Arbeit / Work from anywhere – Quo vadis?

Deutschland war lange von WFO geprägt. Seit der Corona-Pandemie hat ein Wandel hin zu größerer Flexibilität (Alipour *et al.*, 2020) und WFA stattgefunden (Pfnür *et al.*, 2021). Unsere Befragung zeigt, dass sich hier einiges verändert hat. Ca. 80% der Personen, die hybride Arbeit nutzen, stellen eine grundsätzliche Eignung ihrer Arbeit für solch flexible Modelle fest. Dies umfasst sowohl technische als auch inhaltliche Voraussetzungen, die (mittlerweile) größtenteils erfüllt scheinen. Auch die Mitarbeitenden haben sich auf Arbeit außerhalb des WFO eingestellt: 66% geben an, einen Arbeitsplatz zu Hause eingerichtet zu haben.

Die Mitarbeitenden arbeiten durchschnittlich 44% ihrer Zeit von flexiblen Orten aus. 50% wünschen sich einen größeren Anteil von WFA. Die Präferenz ist jedoch höchst individuell: Immerhin 20% wünschen sich mehr Arbeit im WFO. Ca. 80% der Mitarbeitenden, die hybride Arbeit durchführen, sind mit dieser Art der Arbeit zufrieden. Es zeigt sich also, dass auf Seite der Mitarbeitenden ein starker Wunsch nach einer Flexibilisierung im Sinne von WFA existiert. Dies umfasst insbesondere auch die Möglichkeit der Arbeit im Büro. Für Unternehmen stellt sich daher die Frage, welche organisatorischen Rahmenbedingungen diese Art der Zusammenarbeit ermöglichen. Dabei sollte sowohl auf die Erwartungen der Mitarbeitenden als auch auf Anforderungen aus Arbeitskultur, Zusammenarbeit und Art der Arbeit Wert gelegt werden.

## 4.4 Organisation von hybrider (Zusammen-)Arbeit

In der qualitativen Befragung berichten die Experten und Expertinnen aus der Praxis von höchst unterschiedlichen Organisationsformen (Policies) zur Organisation von WFA und WFO.

Es können insgesamt acht unterschiedliche Policies identifiziert werden, die in mehreren Unternehmen Anwendungen finden:

- *Vorgabe von fixen Tagen für Work from Anywhere*: Die Mitarbeitenden erhalten vorgegebene Arbeitstage für WFO. Weitere Tage können im Sinne von WFA genutzt werden. Die Vorgabe ist dabei recht strikt bzw. die Mitarbeitenden werden nicht immer in die Auswahl eingebunden. Motivation ist, oftmals feste Tage festzulegen, bei denen alle Mitarbeitenden im Büro sind, um Workshops, Meetings und Kollaboration zu zentralisieren bzw. zu optimieren.
- *Vorgabe fixer Tage für Teile der Mitarbeitenden:* Diese Policy wurde vor allem während Corona gewählt, um Auslastung und Infektionsgeschehen zu minimieren. Ein Teil der Mitarbeitenden musste wechselnd Montag und Dienstag im Office arbeiten, der Rest Mittwoch bis Freitag. Aus Sicht der Mitarbeitenden wurde diese Policy eher negativ

bewertet. Fehlende Flexibilität und vor allem eine Fragmentierung der Belegschaft bzw. direkter Kontakt mit nur einem Teil der Kollegen wurden negativ aufgefasst.

- *Wahl von fixen Tagen für Work from Anywhere durch Mitarbeitende:* Mitarbeitende können selbstständig fixe Tage pro Woche abstimmen, die für WFA genutzt werden. Teilweise wird die Policy so ausgestaltet, dass diese Tage auch zwingend für WFA genutzt werden müssen. Ein Grund dafür war während der Corona-Pandemie die Minimierung der Auslastung der Büros. Nach Infektionsabschwächung haben manche Unternehmen die Kapazitäten reduziert, was diese Regelung auch in Zukunft sinnvoll machen kann.
- *Individuelle Entscheidung des Teams für Work from Anywhere:* Teams können individuell entscheiden, wie WFA organisiert werden soll. Dabei wird bspw. immer zu Monatsbeginn in einem Teammeeting festgelegt, wie die Organisation gestaltet werden soll. Das Unternehmen bietet dabei volle Autonomie und stellt nötige Rahmenbedingungen. Diese Policy, die vor allem bei IT-Unternehmen Anwendung findet, erlaubt eine hohe Akzeptanz durch die gemeinsam beschlossene Organisation und ermöglich eine anlassbezogene Flexibilität. Diese Policy zeigt Parallelen zu agilen Organisationen (Heidt *et al.*, 2022).
- *Vorgabe maximale Anzahl an Arbeitstagen am Stück, die für Work from Anywhere genutzt werden können:* Diese Policy ermöglicht wieder eine hohe Flexibilität für Mitarbeitende. Sie können frei über WFA entscheiden, dürfen aber nur eine maximale Zeit am Stück im WFA arbeiten, bevor sie wieder im Office sein sollten. Vorteil ist, neben der großen Flexibilität der Mitarbeitenden, dass dennoch ein regelmäßiger Austausch der Mitarbeitenden vor Ort sichergestellt wird.
- *Vorgabe eines fixen Anteils für Work from Anywhere:* Mitarbeitende bekommen fixe Vorgaben eines frei nutzbaren Anteils für WFA. Flexibilität und Autonomie für Mitarbeitende ist hier hoch. Für Unternehmen ergeben sich daraus keine Vorteile wie eine steuerbare Auslastung der Büros. Vorteilhaft hingegen ist der fixe Anteil von WFO, sodass physischer und direkter Austausch zwischen wechselnden Mitarbeitenden erhalten bleibt.
- *Vorgabe eines monatlichen Maximums für Work from Anywhere:* Diese Policy ermöglicht dem Mitarbeitenden noch etwas mehr Flexibilität. Nicht nur die Tage im WFA können frei gewählt werden, die Tage können auch nach Bedarf am Stück genutzt werden.
- *Freie Entscheidung jedes Mitarbeitenden Work from Anywhere zu nutzen:* Diese Policy schafft die größte Flexibilität und Autonomie für Mitarbeitende. Komplett frei und eigenverantwortlich können Mitarbeitenden ohne Einschränkung WFA nutzen. Neben der Flexibilität wird aber auch eine gewisse Eigenverantwortung der Mitarbeitenden

vorausgesetzt, um bspw. gemeinsame Arbeit bei Bedarf im Büro zu organisieren. Für Unternehmen kann sich das Problem ergeben, dass die Teamkohärenz leidet.

Unabhängig von der gewählten Policy muss das Unternehmen die passenden Rahmenbedingungen sicherstellen. Dies umfasst eine passende IT, Schulungen, angepasste Büroräumlichkeiten mit einem größeren Fokus auf digitale Zusammenarbeit sowie passende Kollaborationstools.

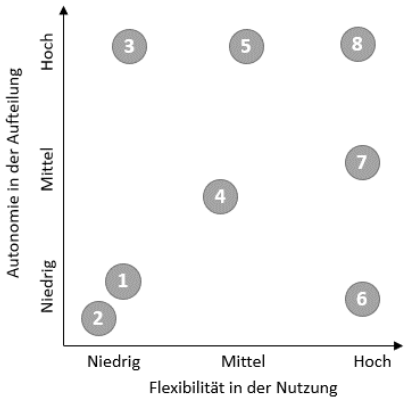
## 4.5 Analyse der Befragungsergebnisse

Die ermittelten Policies zeigen teils erhebliche Unterschiede. Bei einigen wird ein Anteil, ein Maximum, die Teamzugehörigkeit oder Arbeitstage fix vorgegeben. Andere Policies erlauben es den Mitarbeitenden entweder selbstständig oder in Abstimmung mit dem Team WFA zu gestalten. In der Literatur finden sich viele mögliche Erfolgsfaktoren und Rahmenbedingungen bei WFA bzw. Telework, insbesondere Autonomie (Heidt *et al.*, 2022) und Flexibilität (Martínez-Sánchez *et al.*, 2007b), zu denen die Experten befragt wurden. Bei Betrachten der ermittelten Policies zeigt sich, dass Policies für WFA sich unter anderem hinsichtlich dieser Autonomie und Flexibilität für Mitarbeitende unterscheiden und beschreiben lassen. Folglich werden diese Dimensionen im weiteren Verlauf verwendet und im Folgenden kurz beschrieben:

*Autonomie* im Sinne der selbstständigen und freien bzw. eigenverantwortlichen Planung von WFA beschreibt, wie abhängig der Mitarbeitende von Führungskräften oder dem Team in seiner Planung ist. Eine hohe Autonomie zeichnet Policies aus, bei denen Mitarbeitende eigenständig und unabhängig entscheiden, wann und vor allem wie viel WFA genutzt wird oder werden kann. Zwang zu WFA kann teils erhebliche negative Auswirkungen auf Mitarbeitende haben (Kaduk *et al.*, 2019). Je weniger Autonomie ein Mitarbeitender genießt, desto weniger Einfluss hat dieser auf genaue Arbeitstage sowie Anzahl oder Teamzugehörigkeit (vgl. Policy 2). Eine hohe Autonomie wurde von den Experten und Expertinnen grundsätzlich positiv bewertet, da Mitarbeitende direkt ihren Arbeitsablauf planen können. Jedoch werden gleichzeitig Probleme wie Organisationsaufwand und teils erschwerte Kommunikation beschrieben.

*Flexibilität* beschreibt, welche Freiheiten ein Mitarbeitender innerhalb einer bestehenden Policy im Sinne der Nutzung von WFA hat. „Starre“ Policies (vgl. Policy 1) mit fix eingeteilten Tagen für WFA haben eine niedrigere Flexibilität, da die Tage nicht spontan oder eben flexibel genutzt werden können. Policies mit einem Anteil oder einem Kontingent können nicht im Sinne der Autonomie festgelegt, jedoch mit einer hohen Flexibilität genutzt werden. Flexibilität

wird ebenfalls positiv beschrieben. Beispielsweise reduziert dies sogenannte „Arbeit-Familien-Konflikte“ (Namasivayam and Mount, 2004). Auch können Mitarbeitende flexibel den optimalen Ort ihrer Arbeit bestimmen und so WFA sinnvoll nutzen.




| Nr. | Policies | Flexibilität | Autonomie | Erfolg* |
|---|---|---|---|---|
| 1 | Fixe Tage vorgegeben | Niedrig | Niedrig | 3.95 |
| 2 | Vorgabe fixe Tage für Teile des Teams | Niedrig | Niedrig | 3.80 |
| 3 | Wahl fixe Tage | Niedrig | Hoch | 4.06 |
| 4 | Individuelle Teamentscheidung | Mittel | Mittel | 4.03 |
| 5 | Vorgabe maximale Tage am Stück | Mittel | Hoch | 3.95 |
| 6 | Vorgabe fixer Anteil | Hoch | Niedrig | 3.93 |
| 7 | Vorgabe monatliches Maximum | Hoch | Mittel | 4.24 |
| 8 | Freie Entscheidung | Hoch | Hoch | 4.02 |

Abbildung 11: Flexibilität & Autonomie der Policies

Notes: * = 1: Niedrig; 2: Mittel; 3: Hoch; ** = Angabe des Erfolgs mit einer 7-Likert-Skala. 4 = neutrale Bewertung des Erfolges

Eine Bewertung der beschriebenen Policies durch die Experten und Expertinnen in Bezug auf Flexibilität und Autonomie ist in Abbildung 11 dargestellt. Weitere Policies wie etwa eine fixe Vorgabe von möglichen Arbeitstagen (niedrige/kaum Autonomie), an denen ein Mitarbeitender WFA für eine maximale Anzahl an Arbeitstagen nutzen kann (begrenzte/mittlere Flexibilität), können zusätzlich abgeleitet werden. Die genannten Policies sind dabei Beispiele für eine Ausgestaltung im Sinne von Flexibilität und Autonomie. Unzählige Anpassungen und Anwendungen sind denkbar. Wichtig neben der Anpassung an den Arbeitsinhalt, das Team und die Kultur ist bei der Wahl der Policy, die Dimensionen der Flexibilität und Autonomie zu beachten.

Doch wie entscheidet sich ein Unternehmen für eine passende Policy? Ein Kriterium für die Auswahl einer Policy kann offenbar nicht genutzt werden: Der Arbeitserfolg pro Policy. In Abbildung 11 ist pro Policy der durchschnittliche Arbeitserfolg dargestellt (gemessen auf 7 Punkt Likert-Skala). Auch wenn es kleinere Abweichungen gibt: Basierend auf unseren Daten kann kein signifikanter Unterschied nachgewiesen werden.

Es können daher andere Kriterien genutzt werden. Aus den Interviews und den Ergebnissen der Befragung lässt sich ein Framework zur Auswahl und Anpassung einer Policy für WFA ableiten, welches in Abbildung 12 dargestellt ist.

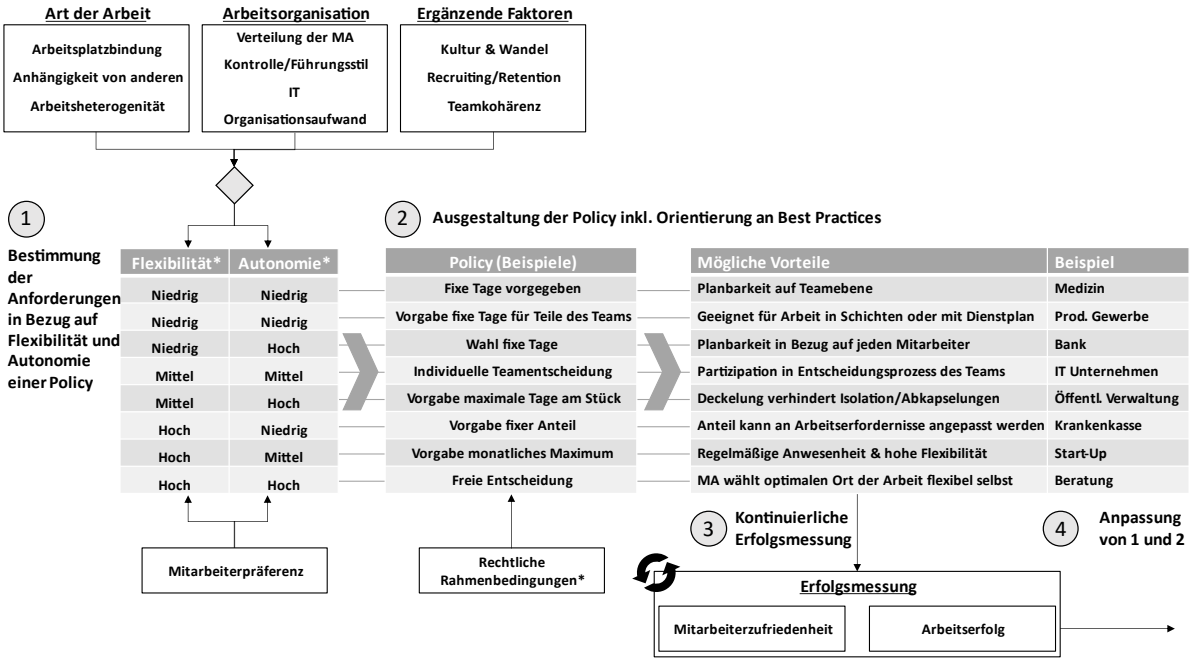



Abbildung 12: Framework zur Bestimmung und kontinuierlichen Verbesserung der gewählten Policies

Anmerkung: * = nicht Bestandteil der vorliegenden Arbeit

## 4.6 Framework for Work from Anywhere

Der Start sollte die Bestimmung möglicher Kriterien sein (1), die sich aus der Art der Arbeit, Arbeitsorganisation und ergänzenden Faktoren ableiten. Dabei geben oft unveränderbare Eigenschaften der Arbeit die Grenzen für Flexibilität und Autonomie vor. Berufe mit Kunden/Patienten-Interaktion können beispielsweise nur bedingt von zu Hause ausgeführt werden. Auch die Arbeitsorganisation setzt Grenzen durch IT-Infrastruktur, Aufwand für die Organisation (z.B. Anfertigen von Dienstplänen und vergleichbarer Organisationsaufwand) bzw. den gelebten Führungsstil. Ergänzende Faktoren wie Teamzusammengehörigkeit oder Kultur sollten beachtet und ein Wandel zu bspw. hoher Flexibilität nicht zu abrupt geschehen. Aus diesen Kriterien lässt sich eine individuelle Einordnung hinsichtlich Flexibilität und Autonomie ermitteln, die in Schritt 2 durch eine konkrete Policy ausgestaltet wird. Dieser Beitrag gibt einige in der Praxis verwendete Policies wieder, jedoch gibt es, wie bereits beschrieben, verschiedene Möglichkeiten, eine Policy umzusetzen. Wichtig ist, mögliche, nicht veränderbare Rahmenbedingungen hier einzubeziehen. Auch wenn nicht Fokus dieser Befragung sind beispielsweise rechtliche Rahmenbedingungen in der Praxis stets zu berücksichtigen. Mögliche Vorteile oder Branchen, in denen eine Policy Anwendung findet, können hierbei als „Best Practice“ unterstützen und sind ebenfalls in Abbildung 12 dargestellt.

Wichtig ist bei Schritt 3, dass die implementierte Policy laufend hinsichtlich des Erfolges überprüft wird. Auch wenn in der vorliegenden Erhebung keine größeren Unterschiede beim

Arbeitserfolg der Policies festgestellt werden konnten, ist auf Grund der Bedeutung der Policy für die Arbeitsausübung davon auszugehen, dass es einen Effekt auf den Arbeitserfolg gibt. Erfolg einer Policy ist ein mehrdimensionales Konstrukt, das durch viele Faktoren beeinflusst werden kann. Mitarbeiterzufriedenheit könnte bspw. Fluktuation reduzieren und die Motivation stärken. Arbeitserfolg im Sinne von Produktivität ist Ziel eines Unternehmens. Jedoch sind Wechselwirkungen vorhanden: Zufriedene Mitarbeiter sind meist produktiver und damit erfolgreicher. Eine Policy, die zwar zu hoher Produktivität führt, aber die Mitarbeiter unzufrieden macht, kann auf Dauer nicht Bestand haben. Welche Zielgröße verfolgt wird, ist abhängig von vielen Kriterien und nicht zuletzt vom Management und den Zielen des Unternehmens. Zur Erfolgsmessung können Mitarbeitende bspw. „direkt" Zufriedenheit mit der Policy bewerten („Ich bin mit der aktuell geltenden WFA Policy zufrieden"). Alternativ könnte auch „indirekt" bspw. die Zufriedenheit (Fonner and Roloff, 2010) und Erfolg im Sinne der Produktivität (Gamal Aboelmaged and Mohamed El Subbaugh, 2012) in Bezug auf die Policy bewertet werden. Im Sinne eines „Regelkreises" gilt es, die gewonnenen Erkenntnisse zur Verbesserung und Neubewertung zu nutzen, eine iterative und kontinuierliche Verbesserung sicherzustellen und die Policy bei Bedarf anzupassen.

Die Entscheidung eines Unternehmens für eine WFA Policy sollte immer individuell fallen, die Mitarbeitenden involvieren, in Einklang mit rechtlichen Rahmenbedingungen stattfinden und laufend optimiert werden. Das von uns vorgeschlagene Framework kann dabei helfen und, basierend auf Erkenntnissen aus der Praxis, eine Hilfestellung für Entscheidende sein. Wir hoffen, dass die Umsetzung zusammen mit den Mitarbeitenden geschieht und somit die Möglichkeiten und Chancen von WFA realisiert werden: Denn WFA ist nicht mehr wegzudenken und muss von Unternehmen als neue Realität verstanden werden.

## 4.7 Zusammenfassung

Work from Anywhere (WFA), also verteilte Arbeit aus Coworking Spaces, dem Urlaub (sogenannte Workation), oder von unterwegs, ergänzt in der Praxis die Arbeit aus dem Büro. Um diese Flexibilität von WFA zu nutzen und gleichzeitig die gesamte Arbeitsorganisation effizient gestalten zu können, müssen Unternehmen geeignete Richtlinien (Policies) definieren. Eine Erhebung ergibt acht Policies, die in der deutschen Unternehmenspraxis Anwendung finden. Die Analyse zeigt, dass die Policies sich vor allem anhand der Dimensionen „Flexibilität" in der Nutzung für Mitarbeitende und „Autonomie" in der Wahl der Arbeitstage für WFA unterscheiden. Ein vorgeschlagenes Framework hilft, basierend auf verschiedenen Kriterien, eine geeignete Policy zu bestimmen und konstant zu überprüfen bzw. anzupassen. Der Beitrag unterstützt Unternehmen durch in der Praxis genutzte Policies und durch das

vorgeschlagene Framework bei der Definition einer Policy zur Organisation von WFA und Arbeit im Büro.

## 4.8 Abstract & Keywords

Work from Anywhere (WFA), i.e., distributed work from coworking spaces, vacation (so-called workation), or on the road, complements work from the office in practice. In order to take advantage of the flexibility WFA has to offer and simultaneously manage to organize work efficiently as a whole, companies must define suitable organizational forms (policies). A survey reveals eight policies that are used in German corporate practice. The analysis shows that the policies differ mainly in dimensions of "flexibility" in their use for employees and "autonomy" in the choice of working days for WFA. A proposed framework based on different criteria helps to determine an appropriate policy and to constantly review or adjust it. The paper supports companies through policies used in practice and through the proposed framework in defining a policy for organizing WFA and work in the office.

Keywords:

- Work from Anywhere
- Work-Policies
- Flexibility
- Autonomy
- Hybrid Work

## 4.9 Impulse für die Praxis

Für Work from Anywhere (WFA) und die Arbeitsorganisation gibt es verschiedene Policies, die Unternehmen vorgeben können. Diese sind zwar stets abhängig von der Art der Arbeit, der Unternehmenskultur und der Ausprägung von Teamarbeit, können jedoch individuell gestaltet werden, um bspw. eine bessere Planbarkeit oder regelmäßige Treffen von Mitarbeitenden vor Ort sicherzustellen:

- Grundsätzlich gibt es eine hohe WFA-Präferenz bei Mitarbeitenden und auch die Voraussetzung dafür werden (mittlerweile) von Mitarbeitenden als gegeben angesehen und von Organisationen immer selbstverständlicher angeboten.

- In der Praxis gibt es eine Auswahl möglicher Policies (8), die von sehr restriktiv, mit wenig individuellen Gestaltungsmöglichkeiten, bis hin zu kompletter, eigenverantwortlicher Gestaltung von hybrider Arbeit durch Mitarbeitende oder Teams variieren.
- Die ermittelten Policies unterscheiden sich hinsichtlich der Dimensionen Autonomie (Eigenständigkeit in der Planung) und Flexibilität (Freiheit in der Nutzung) von WFA. Anhand dieser Dimensionen lassen sich auch weitere Policies planen bzw. ableiten.
- Basierend auf verschiedenen Kriterien kann eine Policy hinsichtlich Flexibilität und Autonomie ausgewählt werden, die individuell ausgestaltet, an Best Practices orientiert und konstant überprüft und angepasst werden muss.

**Studiendesign**

Das Studiendesign umfasste zwei Schritte. Zunächst wurden qualitative Interviews mit Experten und Expertinnen aus der Praxis durchgeführt. Die Experten wurden via LinkedIn bzw. dem persönlichen Netzwerk der Autoren rekrutiert. Einige Experten konnte auf Grund der Empfehlung vorheriger Experten gewonnen werden. Hierzu wurden im Oktober 2021 17 Personen aus möglichst verschiedenen Branchen in Deutschland befragt, die hybrid arbeiten. Vertreten waren unter anderem folgende Branchen: Gesundheitswesen, öffentlicher Dienst, Finanzdienstleister, IT, Unternehmensberatung, Manufacturing, Automobilindustrie, Bildungswesen. In den offen geführten Interviews wurden Erfahrungen und Organisationsformen von hybrider Arbeit abgefragt. Dies resultierte in acht verschiedenen Organisationsformen für Work from Anywhere. Insbesondere wurden die Experten gebeten, Flexibilität und Autonomie der für sie relevanten Policy zu bewerten (hoch, mittel, niedrig).

In einem zweiten Schritt wurde eine quantitative Befragung im Dezember 2021 durchgeführt. Die Teilnehmer wurden über Clickworker ermittelt und der Fragebogen über SoSci Survey verwaltet. 278 Personen aus Deutschland nahmen teil (insgesamt 310 Teilnehmer, Drop-Out-Rate 10,3%). Die Teilnehmer arbeiten dabei sowohl im Büro als auch im WFA. Neben der Bewertung geschlossener Fragen über Items aus der quantitativen Erhebung über Likert-Skalen wurden auch Freitext-Antworten angeboten sowie weitere Präferenzen für hybride Arbeit abgefragt. Die Teilnehmer waren durchschnittlich 38 Jahre alt, 59,6% der Teilnehmer war männlich, 40,4 % weiblich. Ähnlich zur qualitativen Befragung finden sich Teilnehmer aus diversen Branchen: 31% öffentlicher Dienst & Gesundheit, 27% Dienstleistung & IT, 26% Industrie & Logistik sowie 17% andere Branchen. Neben diesen demographischen Angaben ordneten sich die Teilnehmer den Policies aus der qualitativen Befragung zu und bewerteten ihren Arbeitserfolg in Bezug auf Produktivität und Zufriedenheit.

Eine Analyse zeigt, dass sich die Policies teils deutlich hinsichtlich Flexibilität und Autonomie für Mitarbeitende unterscheiden. Basierend auf dieser Analyse und den Erkenntnissen aus der Erhebung leiten die Autoren ein Framework ab, das bei der Auswahl einer passenden Policy unterstützt.

# 5 Zentrale Herausforderungen und der Einfluss von organisatorischer Unterstützung bei hybrider Arbeit

| | |
|---|---|
| Titel: | Zentrale Herausforderungen und der Einfluss von organisatorischer Unterstützung bei hybrider Arbeit[6] |
| Autoren: | Lukas Heidt, Technische Universität Darmstadt |
| | Felix Gauger, Technische Universität Darmstadt |
| | Andreas Pfnür, Technische Universität Darmstadt |
| Eingereicht in: | Extended Views. Gesellschafts- und wirtschaftswissenschaftliche Perspektiven auf die Covid 19-Pandemie. Sammelband |

## 5.1 English Abstract

The COVID-19 crisis has made it necessary to adopt work from home (WFH) as a full value component of work. Since many jobs have to be performed on site to a certain extent, it is assumed that the combination of remote work and work from office (WFO) will continue to be practiced in the future. To organize hybrid work (HW) in the best possible way, an awareness of its challenges is essential. The research goal of this study, therefore, is to give a comprehensive picture of the challenges for hybrid work.

A qualitative survey of experts reveals 36 challenges. A quantitative survey (N = 260) provides information about their importance, and is the basis for an empirical investigation to determine whether employee satisfaction has a significant influence on the perception of these challenges. The results contribute to the understanding of challenges in hybrid work and show that employee satisfaction is an important target for companies, especially in this context.

[6] This is a manuscript version of the article provided with permission of BRILL Deutschland/Böhlau Verlag. The original article will be published as part of Henzler, I., Hues, H., Sonnleitner, S., & Wilkens, U. (Eds.) (2023): Extended Views. Gesellschafts- und wirtschaftswissenschaftliche Perspektiven auf die Covid 19-Pandemie. Böhlau, Köln und Wien

## 5.2 Einführung in Fragestellung und Thema

Die COVID-19-Krise hat die Art der Zusammenarbeit verändert. Unternehmen und Mitarbeiter*innen waren gezwungen, verstärkt *work from home* (WFH) zu nutzen. Dabei wurde der WFH-Anteil in Deutschland gesteigert (von 13 % vor der Krise auf 25 %; DESTATIS, 2022). Dies ist auch international der Fall (Herhold, 2020).

Neben den Vorteilen in der Krise haben sich noch andere Vorzüge offenbart. Mitarbeiter*innen schätzen reduzierten Stress, mehr Zeit für die Familie und eine bessere Work-Life-Balance. Unternehmen profitieren von einer besseren Bindung ihrer Mitarbeiter*innen, höherer Produktivität und weniger Fehltagen (Chimote and Srivastava, 2013). Dieser Trend wird von vielen als langfristig und nachhaltig angesehen (Aksoy *et al.*, 2022). In welchem Ausmaß er sich durchsetzen wird, ist noch nicht abzusehen, da unterschiedliche Erwartungen zwischen Unternehmen und Beschäftigten existieren, die Ausgestaltung der Arbeitsorganisation sehr individuell ist und berechtigte Gründe für die Arbeit vor Ort vorliegen (Heidt *et al.*, 2023a).

Für Unternehmen gilt es, WFH optimal in die Arbeitsorganisation zu integrieren und mit anderen Modellen zu kombinieren. Dabei existieren diverse Modelle für die Arbeitsorganisation an verschiedenen Orten (siehe Abbildung 13).

Die Arbeit in Räumlichkeiten des arbeitgebenden Unternehmens stellt nach wie vor einen großen Teil der Arbeitsorganisation dar. Bei *work from office* (WFO) arbeiten Beschäftigte zum Beispiel in Büros des Unternehmens. Dies ermöglicht gemeinsame Arbeit mit Kolleg*innen und Führungskräften vor Ort. Kurze Kommunikationswege und direkte, soziale Interaktion sind dabei beispielhafte Vorteile. Viele Unternehmen sind – auch historisch gewachsen – auf diese Form der Arbeit ausgelegt. In vielen Berufen, wie zum Beispiel im verarbeitenden Gewerbe, oder bei Tätigkeiten, die einen direkten Kontakt zu Menschen erfordern, ist WFO die dominierende Arbeitsart.

Die Zunahme von digitalen Technologien zur Arbeitserbringung begünstigt jedoch alternative Formen der Arbeit. *Remote work* (RW) bezeichnet dabei Arbeit außerhalb des Büros. RW kann unter anderem aus der eigenen Wohnung (WFH) oder an beliebigen Orten durchgeführt werden (*work from anywhere,* WFA). *Hybride Arbeit* (*hybrid work*, HW) bezeichnet die Kombination von WFO und RW und ist wohl eines der relevantesten Modelle (Masood *et al.*, 2021), da viele Berufe einen gewissen Grad der Arbeit vor Ort erfordern.

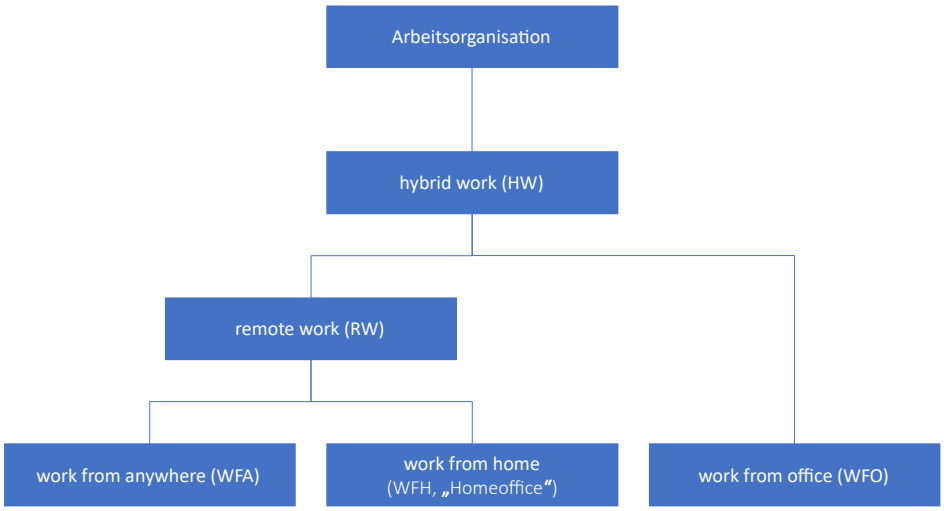



Abbildung 13: Arten der Arbeitsorganisation in Bezug auf den Ort der Arbeit

Um hybride Arbeit optimal zu ermöglichen, müssen Herausforderungen und potenzielle Einflussfaktoren auf diese bekannt sein. Dies stellt die Grundlage für zielgerichtete Maßnahmen durch Unternehmen, Führungskräfte und Beschäftigte dar. In der aktuellen Literatur werden zwar vereinzelt Herausforderungen, wie arbeitsbezogene Voraussetzungen (Gratton, 2021b), Koordination (Gratton, 2021a) oder die Arbeitskultur (Hirsch, 2021), genannt. Eine detaillierte, übergreifende Bewertung möglicher Herausforderungen existiert jedoch nicht. Hier setzt die in diesem Beitrag vorgestellte Studie an, deren Ziel es ist, ein umfassendes Bild von den Herausforderungen für HW zu zeichnen. Des Weiteren wird in der Literatur beschrieben, dass Herausforderungen bei WFH, wie Distanz oder Isolation, durch die von den Mitarbeiter*innen empfundene Unterstützung seitens der Organisation positiv beeinflusst werden können (Heidt *et al.*, 2022; Deschênes, 2023). Da dieser Aspekt auch Auswirkungen auf die Herausforderungen im Kontext von HW haben könnte, wird er als mögliche Einflussgröße in der Studie berücksichtigt.

Dieser Beitrag dient somit dem besseren Verständnis von Herausforderungen bei der Adaption von HW und bietet einen sowohl wichtigen als auch für die Praxis relevanten Einblick in deren optimale Umsetzung. Untersucht werden zwei Fragestellungen. Erstens: Was sind mögliche Herausforderungen bei der Umsetzung von HW? Und zweitens: Werden diese Herausforderungen positiv durch eine höhere Zufriedenheit der Mitarbeiter*innen beeinflusst?

## 5.3 Methode

Eine schematische Darstellung der Methode ist in Abbildung 14 zu sehen. Basierend auf einer Literaturanalyse wurde eine explorative, qualitative Untersuchung aus semistrukturierten

Expert*innen-Interviews durchgeführt. In diesen Interviews wurden mögliche Herausforderungen in der Praxis diskutiert, gesammelt und kodiert, bis Konsens über die Benennung und Bedeutung herrschte (Gläser and Laudel, 2009). Dazu wurden, falls nötig, Expert*innen zum Teil auch im Nachhinein zur Einschätzung der Bedeutung und Abgrenzung der Herausforderungen konsultiert.

Die 15 Expert*innen für diese Arbeit setzen sich aus Mitarbeiter*innen verschiedener Branchen und Hierarchieebenen mit unterschiedlichen Erfahrungen zusammen. Die einzige Gemeinsamkeit ist, dass die Expert*innen HW praktizieren. Die Interviews (30 Minuten) wurden im Oktober 2021 durchgeführt.

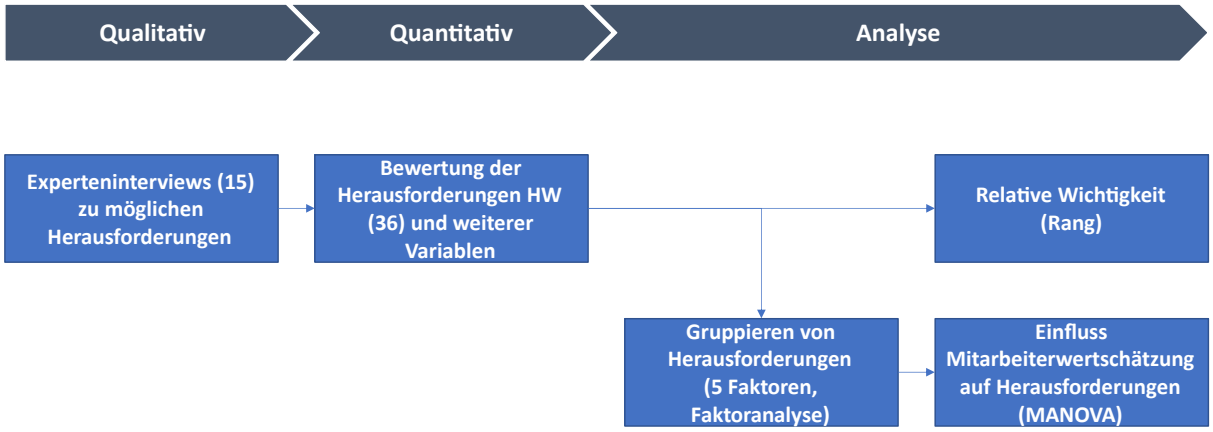



Abbildung 14: Methode

Teilnehmer*innen der anschließenden quantitativen Befragung arbeiten hybrid und kommen aus Deutschland. Sie wurden über Clickworker ermittelt und beantworteten im Dezember 2021 einen Fragebogen. 263 Datensätze von Mitarbeiter*innen, die HW praktizieren, konnten generiert werden (Drop-out-Rate: 19,1 %). Durchschnittlich sind die Befragten zu 42,82 % in WFH beschäftigt, mit einer Standardabweichung von 25,8 %. Die verwendeten Variablen werden im Folgenden beschrieben.

***Unabhängige Variable:*** Der positive Effekt von Mitarbeiterzufriedenheit bzw. -wertschätzung bei WFH ist bekannt (Heidt *et al.*, 2022; Deschênes, 2023). Um einen möglichen Effekt bei HW und auf die Herausforderungen zu ermitteln, wurde das Konstrukt *Perceived Organizational Support (*POS) mit 8 Items erhoben (Eisenberger *et al.*, 1986). Um eine Vergleichbarkeit zwischen zufriedenen und unzufriedenen Mitarbeiter*innen zu erreichen, wurden die Teilnehmer*innen in Gruppen eingeteilt: $POS_{Hoch}$ ($N$ = 197, Mittelwert ≤ 4) und $POS_{Niedrig}$ ($N$ = 63, Mittelwert > 4).

***Abhängige Variable:*** Zur Analyse eines möglichen Effekts der empfundenen Unterstützung und Wertschätzung durch die Organisation (POS) auf die wahrgenommenen Herausforderungen wurden diese zu Faktoren zusammengefasst, um aussagekräftige und interpretierbare Ergebnisse zu erhalten.

Mithilfe einer explorativen Faktoranalyse wurden 5 Faktoren gebildet. Alle Anforderungen an die Daten in Bezug auf die Analyse wurden untersucht und sind erfüllt (51,94 % der Varianz werden erklärt; Cortina 1993). In Tabelle 12 sind die Faktoren dargestellt, die im Folgenden als abhängige Variablen untersucht werden.

| Nr. | Beschreibung | Mittlerer Rang ($POS_{Niedrig}$/$POS_{Hoch}$) | CRA | Anzahl Items |
|---|---|---|---|---|
| 1 | Zusammenarbeit (Teamarbeit und -struktur, Vertrauen, Unterstützung, etc.) | 127,62/132,10 | 0,89 | 8 |
| 2 | Kommunikation (Mimik/Gestik, Meetings etc.) | 137,66/128,84 | 0,85 | 6 |
| 3 | Akzeptanz von HW (Führungskräfte, Akzeptanz im Team, Präferenzen, etc.) | 172,09/117,65 | 0,82 | 7 |
| 4 | Prozessuale Voraussetzungen (digitale Arbeitsprozesse, flexible Wahl Arbeitsort, etc.) | 147,57/125,62 | 0,78 | 9 |
| 5 | Organisationale Voraussetzungen (Kultur, Büroflächen, Tools, etc.) | 110,65/137,61 | 0,67 | 6 |

Tabelle 12: Mittlere Ränge und Cronbachs Alpha der Konstrukte

(eigene Darstellung)

In der Analyse wurden die Herausforderungen mit einem Rang versehen, der die durchschnittliche, relative Bewertung der Wichtigkeit durch die Teilnehmer*innen darstellt. Des Weiteren wurden Gruppenunterschiede hinsichtlich der Herausforderungen (Faktoren) in Bezug auf Mitarbeiter*innen mit hoher bzw. niedriger Zufriedenheit (POS) mittels einer einfaktoriellen MANOVA („multivariate analysis of variance“) bewertet. Diese Methodik ist geeignet, um den Einfluss mehrerer abhängiger Variablen auf Gruppen einer abhängigen Variablen zu untersuchen. Dabei gelten für die multivariate Varianzanalyse jedoch einige Voraussetzungen (Mertler and Vannatta, 2016): Normalverteilung der Gruppen, keine Multikollinearität, keine multivariaten Ausreißer sowie Homogenität der Fehlervarianzen zwischen den Gruppen und der Kovarianz-Matrizen. Sind diese Voraussetzungen gegeben, kann mit der MANOVA ein Unterschied der Effekte von unabhängigen Variablen auf Gruppen

nachgewiesen und mittels sogenannter Post-hoc-Untersuchungen detaillierter analysiert werden.

## 5.4 Erkenntnisse

Im Folgenden werden die Ergebnisse der empirischen Untersuchung dargestellt und einer Analyse unterzogen.

### 5.4.1 Relative Wichtigkeit der Herausforderungen

Die 36 ermittelten und bewerteten Herausforderungen sowie ihr Rang sind in Tabelle 13 abgebildet. Der Rang basiert auf der durchschnittlichen Bewertung (Wert > 4: mehrheitliche Zustimmung). Die meisten Items (28) wurden als relevant wahrgenommen. Auch die verbleibenden 8 Items wurden von mindestens einer teilnehmenden Person als sehr relevant bestätigt.

| Rang | Herausforderung HW | Durchschnitt |
|---|---|---|
| 1 | Zu HW passende Firmenkultur | 5,23 |
| 2 | Fehlende bzw. unpassende Tools für Kommunikation u. Kollaboration | 5,16 |
| 3 | Voraussetzung unmittelbare Erreichbarkeit u. unterschiedliche Bewertung WFO/WFH | 5,13 |
| 4 | Ungeeignete Offices für HW (Sitzplätze, Meetingräume, Telefon-Bereiche) | 5,11 |
| 5 | Abwägung Aufwand fürs Pendeln | 5,03 |
| 6 | Wechselseitiges Verständnis zw. Mitarbeiter*innen fehlt (z. B. individuelle Erreichbarkeit) | 4,99 |
| 7 | Inoffizielle Kommunikation, man erreicht manche Mitarbeiter*innen schlecht | 4,94 |
| 8 | Erschwertes Onboarding in Team u. Beruf | 4,84 |
| 9 | Fehlende Digitalisierung | 4,73 |
| 10 | Fehlende Unterstützung durch Führungskraft | 4,59 |
| 11 | Fehlender Spaß bei der Arbeit durch Distanz | 4,59 |

| | | |
|---|---|---|
| 12 | (Implizites) Lernen von Kolleg*innen ist erschwert | 4,56 |
| 13 | Unterschiedliches Equipment bei WFO/WFH | 4,55 |
| 14 | Eingeschränkte Flexibilität (Art der Arbeit) | 4,54 |
| 15 | Aufbau von Beziehungen ist herausfordernd | 4,52 |
| 16 | Zwischenmenschliche Kommunikation ist erschwert | 4,51 |
| 17 | Erhöhter Kommunikationsaufwand aufgrund von HW | 4,47 |
| 18 | Aufwendige Synchronisation mit Kolleg*innen für Arbeit vor Ort | 4,42 |
| 19 | Isolation von Mitarbeiter*innen bei WFH | 4,40 |
| 20 | Technische Probleme | 4,38 |
| 21 | Erschwerte Zusammenarbeit (z. B. unterschiedliche Arbeitszeiten) | 4,32 |
| 22 | Durchführung Workshops und Meetings erschwert (Nachteile für Mitarbeiter*innen in WFH) | 4,25 |
| 23 | Erschwerter Kontakt zur Führungskraft (Distanz u. fehlender persönlicher Austausch) | 4,25 |
| 24 | Variierende/ungleiche Erwartungshaltung bzgl. Produktivität bei HW | 4,24 |
| 25 | Notwendigkeit angepasster Kommunikation | 4,18 |
| 26 | Fehlende Wertschätzung der geleisteten Arbeit (mangelnde Transparenz bei WFH) | 4,16 |
| 27 | Vertrauen in Mitarbeiter*innen und Arbeitserbringung variiert zwischen WFH u. WFO | 4,11 |
| 28 | Gruppenbildungstendenz im Team wegen verschiedener Präferenzen für WFO/WFH | 4,03 |
| 29 | Mangelnde Akzeptanz von WFH durch Kolleg*innen/Führungskraft | 3,99 |
| 30 | Unterschiedliche Eignung von Meetings für WFH | 3,84 |
| 31 | Transparenz des Arbeitsfortschritts ist bei WFH gemindert | 3,81 |
| 32 | Eingeschränkte Flexibilität (private Gründe) | 3,77 |
| 33 | Führungskraft nutzt HW selbst nicht und hat daher keine Vorbildfunktion | 3,75 |

| | | |
|---|---|---|
| 34 | HW kann Konflikte zwischen Mitarbeiter*innen verursachen | 3,72 |
| 35 | Wahl des optimalen Arbeitsortes für Mitarbeiter*innen herausfordernd | 3,62 |
| 36 | Mitarbeiter*innen müssen sich für den gewählten Ort der Arbeit rechtfertigen | 3,46 |

Tabelle 13: Herausforderungen und relative Wichtigkeit

(eigene Darstellung)

### 5.4.2 Einfluss von Zufriedenheit mit der Unterstützung durch die Organisation

Diverse Vorbedingungen für die MANOVA wurden überprüft. Normalverteilung der abhängigen Variable (Shapiro-Wilk-Test: $\alpha = 0{,}05$) und geringe Korrelationen zwischen den abhängigen Variablen ($r < 0{,}90$; keine Multikollinearität) sind gegeben. Drei multivariate Ausreißer wurden identifiziert und entfernt (Mahalanobis-Distanz: $p > 0{,}001$). Die Homogenität der Fehlervarianzen zwischen den Gruppen (Levene-Test: $p > 0{,}05$) und die Homogenität der Kovarianz-Matrizen (Box-Test: $p > 0{,}001$) sind gegeben.

Die Durchführung der MANOVA bestätigt einen signifikant unterschiedlichen Effekt zwischen den Gruppen ($N_{POS,\ Niedrig}$ und $N_{POS,\ Hoch}$) für die 5 Faktoren ($F(5, 254) = 7{,}842$; $p < 0{,}001$; partielles $\eta^2 = 0{,}134$; Wilk's $\Lambda = 0{,}866$).

Eine Post-hoc-Untersuchung ergibt signifikante Unterschiede für die Faktoren F3, F4 und F5. Für F1 und F2 konnten keine signifikanten Unterschiede bestimmt werden. Die Ergebnisse sind in Tabelle 14 dargestellt.

| Abhängige Variable | $F$ | $p$ | $\eta^2$ |
|---|---|---|---|
| Zusammenarbeit (F1) | 0,003 | 0,959 | 0,000 |
| Kommunikation (F2) | 0,492 | 0,484 | 0,002 |
| Akzeptanz von HW (F3) | 25,200 | 0,001*** | 0,089 |
| Prozessuale Voraussetzungen (F4) | 4,167 | 0,042* | 0,016 |
| Organisationale Voraussetzungen (F5) | 8,194 | 0,005** | 0,031 |

Tabelle 14: Ergebnisse der post-hoc Untersuchung

N = 260; *, **, ***: Signifikanz in Bezug auf 0,1 %, 1 % und 5 % Niveau; Freiheitsgrade Zähler (df1): 1; Freiheitsgrade Nenner (df2): 258.

### 5.4.3 Analyse der Ergebnisse

Die Bewertung der 36 Herausforderungen durch die Probanden erbrachte mehrere Ergebnisse. 28 Items wurden mehrheitlich als herausfordernd beschrieben (Mittelwert > 4), 8 Items mehrheitlich nicht (≤ 4) (siehe Tabelle 13). Grundsätzlich scheinen jedoch alle Items relevant zu sein, auch wenn die Wahrnehmung sehr individuell sein kann. Es ist anzumerken, dass die ranghöchsten Herausforderungen verschiedenen Faktoren und Themen zugeordnet werden können. Sowohl in Bezug auf Voraussetzungen als auch in Bezug auf Kultur, Verständnis und Kommunikation liegen hohe Bewertungen vor. Auffallend ist jedoch, dass Items, die sich auf organisationale Voraussetzungen beziehen, hoch bewertet wurden. Dies scheint darauf hinzudeuten, dass vor allem die von den Unternehmen beeinflussbaren Voraussetzungen besonders wichtig sind.

Die MANOVA (siehe Abbildung 15) ergab drei zentrale Ergebnisse:

Erstens: F1 und F2 weisen keine statistisch signifikanten Unterschiede in der Wahrnehmung der Herausforderungen zwischen den POS-Gruppen auf. Diese Faktoren scheinen also unabhängig von der Wertschätzung relevant zu sein. Eingeschränkter nonverbaler Austausch oder eine erschwerte Durchführung von Meetings und Workshops sind zentral für die Arbeit bei HW und betreffen jede der Teilgruppen gleichermaßen.

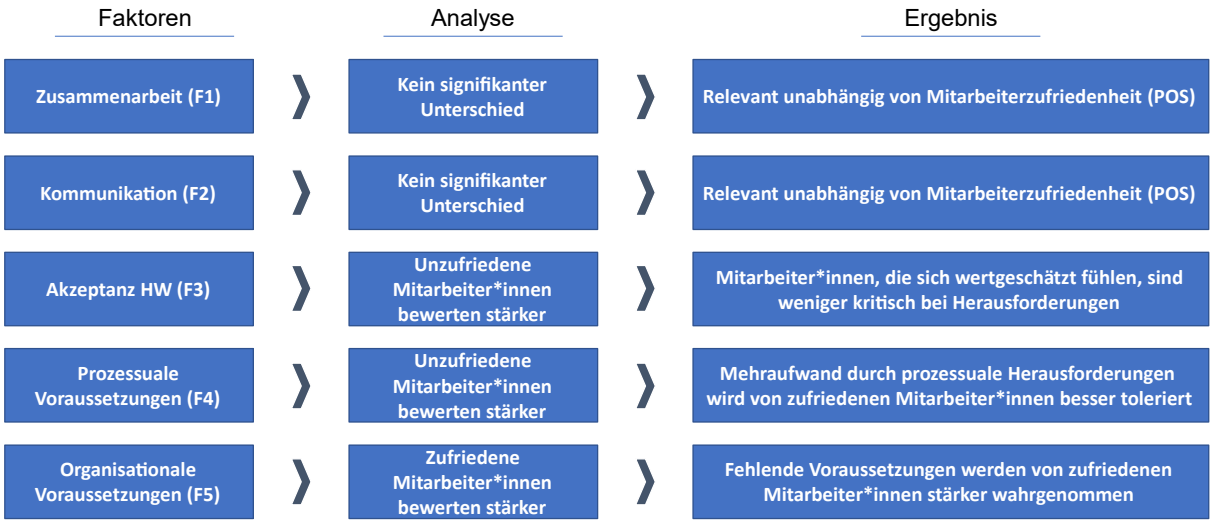



Abbildung 15: Ergebnisse MANOVA Analyse

Zweitens: F3 und F4 werden je nach empfundener Wertschätzung signifikant unterschiedlich wahrgenommen. Fehlende Akzeptanz betrifft sowohl Kolleg*innen als auch Führungskräfte. Fehlender Kontakt und Vertrauen, mangelnde Transparenz bezüglich der Arbeit und fehlende Unterstützung werden von Mitarbeiter*innen, die sich nicht wertgeschätzt fühlen, kritischer

bewertet. Dies passt zu Erkenntnissen aus der Literatur, die POS als Einflussfaktor auf wahrgenommene Distanz bzw. Isolation beschreiben (Deschênes, 2023). Mitarbeiter*innen, die mit der Unterstützung zufrieden sind, können sich grundsätzlich des Vertrauens und der Wertschätzung sicher sein, was Herausforderungen abmildern kann. Wenn die Art der Arbeit nicht zu HW passt (prozessuale Voraussetzungen), wird dies von unzufriedenen Mitarbeiter*innen stärker wahrgenommen. Es ist anzunehmen, dass das Ausführen der Arbeit angesichts dieser Hindernisse aufwendiger oder herausfordernder ist. Personen, die eine hohe Wertschätzung genießen, können davon ausgehen, dass dieser Mehraufwand honoriert wird, und sind daher weniger kritisch.

Drittens: Bei Wertschätzung wird F5 höher bewertet. Motivierte, zufriedene Mitarbeiter*innen könnten die fehlende Bereitstellung von grundlegenden Voraussetzungen wie Arbeitsausstattung durch das Unternehmen somit als fehlende Wertschätzung verstehen und darauf kritischer reagieren als bereits unzufriedene Beschäftigte.

## 5.5 Fazit/Ausblick

Die vorliegende Arbeit hat gezeigt, dass es eine große Anzahl von relevanten Herausforderungen bei HW gibt (36). Diese lassen sich verschiedenen Themen zuordnen (5 Faktoren). Sie werden unterschiedlich bewertet, jedoch scheinen alle eine gewisse Relevanz zu haben. Auch bei den als besonders relevant bewerteten Items ist keine klare Tendenz erkennbar, vielmehr gibt es hohe Bewertungen in allen Bereichen. Unternehmen sollten sich folglich nicht nur auf einige wenige Problemfelder konzentrieren. Insbesondere, wenn HW auch in Zukunft höchst relevant bleibt, ist die Kenntnis aller bestehenden Herausforderungen von großer Bedeutung.

Die quantitative Untersuchung unterstreicht den Stellenwert von Unterstützung insbesondere bei HW. Herausfordernde Umstände werden durch Personen mit unterschiedlicher Zufriedenheit teils auch deutlich unterschiedlich wahrgenommen. Für Unternehmen ist es daher umso relevanter, Unterstützung anzubieten und sich der möglichen Auswirkungen auf den Erfolg von HW bewusst zu werden.

POS als Prädiktor stellt einen neuen Einblick in die Zusammenhänge von HW dar. Dieses Konstrukt zeigt auch in diesem Kontext wichtige Auswirkungen. Darüber hinaus gibt es weitere denkbare Prädiktoren, die nicht Teil dieser Untersuchung waren, aber lohnenswert für zukünftige Analysen erscheinen. So könnte beispielsweise *Erfahrung mit HW* ein weiterer relevanter Prädiktor für Probleme bei HW sein.

Der vorliegende Beitrag zeigt die Herausforderungen bei HW in der Praxis, deren Bewertung sowie neue Erkenntnisse über Wirkzusammenhänge von POS zur aktuellen Forschung. Die 36 identifizierten Items geben einen sehr umfassenden und aktuellen Überblick über mögliche Herausforderungen bei HW und sind dabei verschiedenen Bereichen zuzuordnen. Die Bewertung angesichts einer recht großen Stichprobe liefert erstmalig Einblicke in den Stellenwert verschiedener Herausforderungen. Letztlich kann der Beitrag durch die Untersuchung von POS bestehende Erkenntnisse im Bereich WFH bestätigen, diese auf HW übertragen und quantitativ untersuchen.

In der Zukunft wird die optimale Integration von WFH in die Arbeitsorganisation immer bedeutsamer werden. Eine der wichtigsten Aufgaben wird es daher sein, HW bestmöglich zu etablieren, unabhängig davon, welche Anteile WFH und WFO dabei jeweils einnehmen. Damit dies erfolgreich gelingt und die Vorteile von HW auch perspektivisch genutzt werden können, ist es unabdingbar, der Unterstützung der Mitarbeiter*innen einen angemessenen Stellenwert einzuräumen.

# 6 Agility in hybrid forms of work: The impact on teamwork and work success

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| Titel: | Agility in hybrid forms of work: The impact on teamwork and work success |
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**Abstract:**

Companies are increasingly confronted with dynamic and uncertain environments. The COVID 19 pandemic has shown that adaptability and flexibility are crucial in crises. This can be achieved through organizational agility, which is reflected, among other things, in strategy, methods and, not least, in the behavior and actions of its employees, who must carry out their activities in the challenging context of uncertainty and dynamic requirements.

This article quantitatively examines the contribution of agile work to work success and compares agility over a two-year period. In addition, the correlations between employee agility and their teamwork are analyzed. For this purpose, a survey was conducted with 790 hybrid working participants from Germany to determine various components of employee agility and their adaptability in terms of agility.

The results of the survey show that agile working as a whole has changed only marginally between 2021 and 2023, but that some aspects such as collaboration among employees have improved. Furthermore, the study can demonstrate that agile work has a significant positive and direct effect on worker success, which can, however, be explained in terms of a partial mediation on the improved teamwork due to the characteristics of agile employees.

Despite limitations such as the focus on German participants in the survey and a short time period of two years, this paper provides important insights for companies. These can increase resilience to crises in the sense of adaptability by taking advantage of the agility of employees or by contributing to success through an expansion of teamwork.

## 6.1 Introduction

Companies are increasingly confronted with turbulent, dynamic and uncertain situations (Horney *et al.*, 2010). In addition to long-term trends and transformations such as digitalization and globalization, the crisis triggered by the COVID-19 pandemic has also presented companies with challenges: Companies have had to deploy employees variably, organize the workforce and its activity outside the office, balance supply chain impacts, and successfully manage or survive in the face of uncertainty (Worley and Jules, 2020). It has become apparent that many companies were only able to adapt to this change to a limited extent. At the same time, adaptability, often described as "agility," was one of the key success factors for companies (Wanasida *et al.*, 2021).

Agility in the sense of adaptability and flexibility can be defined and implemented in different ways. Methods, culture, leadership behavior or strategy can be designed agilely (Weber and Tarba, 2014; Felipe *et al.*, 2017; Iivari and Iivari, 2011; Parker *et al.*, 2015). This results in an agile organization that is more resilient to future change (Overby *et al.*, 2006).

The employees of an organization play a central role in achieving agility. They are confronted with uncertainty, dynamic requirements, and changing roles (Sherehiy *et al.*, 2007). This requires an adaptability and flexibility of the employees, which can also be described as "agility" (Heidt *et al.*, 2022; Breu *et al.*, 2002). This agility describes behaviors and attitudes of employees that enable them to solve uncertain and dynamic tasks, adapt, constantly learn and collaborate effectively (Sherehiy *et al.*, 2007). This was especially important during the COVID 19 pandemic, as changes such as the massive expansion of alternative work methods like work from home (WFH) altered the way we work together (Murugan *et al.*, 2020). Employees and companies had to find ways to operate and adapt successfully despite distance, new communication channels, and market uncertainty. Since the COVID-19 pandemic is only one disruptive change of our time, it can be assumed that agility will continue to be relevant (Worley and Jules, 2020). However, this raises the question of the role played by employee agility and how this develops over time.

Another characteristic that defines agile employees is the ability to work successfully in a team. Many of the characteristics attributed to agile employees relate to collaboration and teamwork: self-organization, efficient collaboration, and communication are just a few examples (Sherehiy *et al.*, 2007). Teamwork represents an important part of work delivery for both companies and employees (Salas *et al.*, 2015). The effective use and understanding of the interdependencies of agility and teamwork is therefore an important goal for companies with regard to more successful work in increasingly dynamic and uncertain environments.

This paper therefore makes two key contributions. First, based on the existing literature and existing constructs on employee agility (agile work), a quantitative investigation is conducted. This clarifies to what extent agile work is critical to success. Additionally, a comparison of agile work over time in 2021 and 2023 is conducted to identify potential changes in agility and an adaptation to the crisis. This extends existing literature on agile work (Sherehiy and Karwowski, 2014) and provides deeper insights into agility as a response to crisis and uncertainty. Second, it elaborates on the extent to which teamwork and employee agility are related and develops a research model. This relationship is also quantitatively tested and a possible mediation of teamwork is explored. This work therefore expands both the current state of the literature in the field of agile work and the understanding of the cause-and-effect relationships with teamwork, and sheds light on how companies can become more resilient and adaptive in the future by making the most of their employees' agility.

## 6.2 Theoretical framework and hypotheses

Agility is a phenomenon that is considered in many facets in the literature. Agility is described as part of various areas of the company and its employees, for example as a characteristic of the organization (Overby *et al.*, 2006), their methods (Conforto *et al.*, 2016), their (leadership) culture (Horney *et al.*, 2010; Felipe *et al.*, 2017) and their employees (Salmen and Festing, 2022). The overarching concept of agility is mostly associated with adaptability to change and flexibility in dynamic situations (Overby *et al.*, 2006; Muduli, 2017). Other characteristics may include decentralized or autonomous decision making, cross-departmental collaboration and teams, continuous learning and adaptation, employee empowerment, and efficient communication or collaboration (Sherehiy *et al.*, 2007; Harraf *et al.*, 2015)

Many of these characteristics can be attributed to the capabilities of companies or employees, which are described in the literature as "Dynamic Capability" (Batra, 2020; Eisenhardt and Martin, 2000). Agility is a success factor in order to survive in uncertain, dynamic markets and situations characterized by change (Horney *et al.*, 2010). Employees in particular play a central role as an important part of value creation, since an organization can only be agile because of its employees (Coff, 1997; Muduli, 2017). Various concepts exist for the agility of employees or the workforce, which set a different focus, but always have adaptability and flexibility in terms of employee skills and behaviors at their core (Salmen and Festing, 2022): Employee Adaptability (Sony and Mekoth, 2022), Employee Flexibility (Beltrán-Martín and Roca-Puig, 2013) or Adaptive Workforce (Pulakos *et al.*, 2006) are just a few examples. A major strand of research in this area relates to the so-called "Agile Workforce" or "Workforce Agility" (hereinafter "Agile Work) (Sherehiy and Karwowski, 2014; Breu *et al.*, 2002). This concept describes employees who are able to quickly adapt to or take advantage of new circumstances,

thereby ensuring a company's competitiveness in the context of change (Muduli, 2017). Employees in the sense of an "Agile Workforce" learn quickly and continuously, anticipate and tolerate change well, collaborate successfully and share information through targeted communication (Muduli, 2017; Sherehiy *et al.*, 2007; Breu *et al.*, 2002). This concept therefore represents a decisive advantage, especially in dynamic markets and crises such as during the COVID-19 pandemic (Raut *et al.*, 2022) and has proven itself suitable in particular also for WFH (Heidt *et al.*, 2022). In general, agility is associated with success for companies in volatile, uncertain, complex situations and crises (Troise *et al.*, 2022). Together with the aforementioned willingness to learn and adaptability, the question arises as to whether agility also strengthens or changes over time.

Agile work also includes facets and aspects that are strongly focused on collaboration and communication and are geared towards cooperation or teamwork. Self-organizing teams, spontaneous and occasion-based collaboration and interpersonal adaptability are some examples here (Gunasekaran, 1999; Sherehiy *et al.*, 2007; Dyer and Shafer, 2003; Pulakos *et al.*, 2000; Griffin and Hesketh, 2003). In particular, successful work in virtual teams without a fixed workplace is a characteristic of teamwork by agile teams and can even positively influence agility (Breu *et al.*, 2002; Sherehiy and Karwowski, 2014). Agile employees therefore seem to be able to work particularly successfully in teams.

Team success is defined very differently in the literature and there are various research directions regarding the determinants of success through teamwork. Central, however, is the understanding of the importance and the need of teamwork for the modern working world (Salas *et al.*, 2015). Teamwork in this context can be understood as a group of two or more people working towards a common goal through joint exchanges (Salas *et al.*, 2008). In addition to the actual work, teamwork is therefore an important facet of achieving goals (Burke *et al.*, 2003). For teams to be successful, various factors are described, some of which are also found in agile work: Cooperation, coordination, efficient communication and information exchange, and a suitable culture are just a few examples according to Salas *et al.* (2015). Shared responsibility and shared leadership also contribute to the success of teams (Daspit *et al.*, 2013). The behavior of managers as an enabling element is also of central importance (J. Hu and Liden, 2011). If teamwork is successful, a company can also be successful: teamwork increases the productivity of an organization, for example (Agarwal, S., & Adjirackor, T., 2016; Tohidi, 2011). This also applies to projects that are carried out according to agile methods (Fatema and Sakib, 2017).

By combining the described correlations, the following hypotheses can be formulated for this paper: In summary, agile work appears to be a success factor in uncertain and dynamic

environments (hypothesis 1), but agile work could also have a positive influence on teamwork due to its team orientation (hypothesis 2). Teamwork, in turn, influences productivity and thus work success (Hypothesis 3). In addition, the effect of agile work can therefore be explained to a certain extent by its impact on teamwork (hypothesis 4). These correlations are shown in Figure 16 and will be empirically examined in the further course of this work. In addition, based on the willingness to learn and the adaptability of agile employees, an increase in agile work can be assumed after the period of crisis (hypothesis 5).

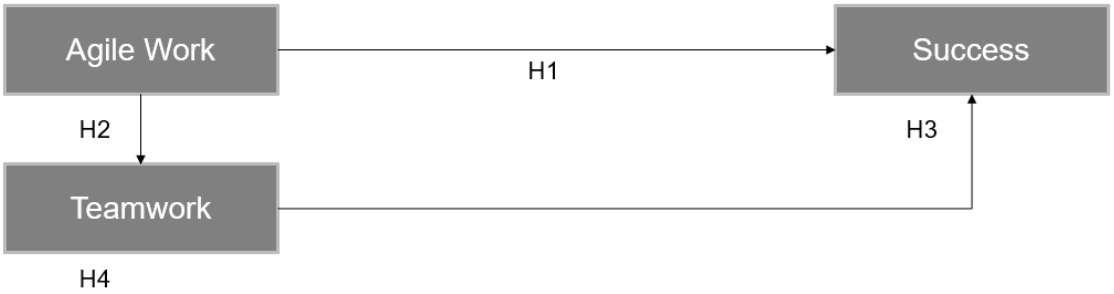


Figure 16: Research model for the present work

## 6.3 Methodology

### 6.3.1 Sample and procedure

The data for the study of this paper were obtained through a quantitative survey. This survey was conducted online and consisted of mostly closed-ended questions on 7-point Likert scales. The questions were answered by the subjects in January 2023. A total of 1170 participants were obtained. All participants in this study are from Germany. The average age of the subjects is 37.6 years, with a standard deviation of 10.8 years. The participants worked an average of 39.37% of their working hours from the home office. Thus, the participants work hybrid. Further information on the demographic characteristics of the sample can be found in Table 15.

### 6.3.2 Data collection

The subjects in this study were not required to have any special prerequisites. Of the participants in the sample (N = 1170), 34 were excluded due to conflicting information, e.g., age or household size. Because subjects were randomly assigned blocks of questions due to the length of the questionnaire, a total of 790 participants answered the questions relevant to this paper, making it the relevant sample. 75 participants of this sample have already evaluated

their work in terms of agility 2 years ago. These identical subjects will be covered in a separate evaluation later on. The subjects were identified via the Clickworker platform (clickworker GmbH, 2023). According to the literature, Clickworker does not show any deviating quality from classical methods (Lutz, 2016).

Table 15: Demographic data for the total sample

| | | M. | S.D. |
|---|---|---|---|
| Age (years | | 37,60 | 10.80 |
| Work experience (years) | | 12.13 | 10.05 |
| Workhours per weak (hours) | | 34.67 | 10.41 |
| | | | |
| | | Frequency | % |
| Gender | Female | 369 | |
| | Male | 418 | |
| | Divers | 3 | |
| Own workroom | No | 389 | |
| | Yes | 401 | |
| Children in house | No | 512 | |
| | Yes | 278 | |
| Occupation | Salaried employee | 625 | |
| | Civil servant | 44 | |
| | Self-employed | 79 | |
| | Freelancer | 42 | |
| Sector | Public | 232 | |
| | Service | 243 | |
| | Industries | 147 | |
| | Logistics and chemical | 93 | |
| | Other | 75 | |

| | | | |
|---|---|---|---|
| Leadership | No | 152 | |
| | Yes | 638 | |

N = 790; M. = Mean, S.D. = Standard Deviation

### 6.3.3 Measures

#### 6.3.3.1 Agile work (independent variable)

The independent variable, "Agile Work," summarizes requirements and behaviors associated with adaptability and flexibility in relation to work. Employees in the sense of agile work are thus able to adapt to change and work successfully in uncertainty or in a dynamic environment. Agile Work is measured using a scale adapted to hybrid work (Heidt *et al.*, 2022), which is based on a scale by Sherehiy and Karwowski (2014). Agile Work comprises three constructs: Work characteristics, workforce and organization. These are described briefly below and are shown inTable 16.

Table 16: Sub-constructs and dimensions of Agile Work

| Construct | CRA | Dimension |
|---|---|---|
| Work Characteristiks | 0.88 | Uncertainty |
| | | Autonomy |
| | | Complexity |
| | | Requirements |
| | | Skills |
| Workforce | 0.77 | Proactivity |
| | | Adaptability |
| | | Resilience |
| Organization | 0.80 | Collaboration |
| | | Participation |

Source: Own illustration based on Sherehiy and Karwowski (2014) and Heidt *et al.* (2022)

*Work characteristics:* Work characteristics: This construct describes the nature of the work and how employees perform the work. This dimension consists of five constructs and is based on the work of Sherehiy and Karwowski (2014). *Uncertainty* refers to the behavior of employees in unknown situations or the ability to work in uncertainty. In this context, uncertainty is not seen as negative, as is usually the case, but rather as a motivating factor. Uncertainty can relate to requirements, roles and tasks that are new or unknown. The second dimension is *autonomy*. The nature of the work requires autonomous and independent action and decision-making, for example, to respond to change. This refers to the chronological order of the work, but also to the way in which this work is done (Sherehiy and Karwowski, 2014). Employees in the sense of agility value autonomy and demand it. Autonomy can therefore be seen as a prerequisite for agile work (Sherehiy *et al.*, 2007). *Complexity* describes the extent to which the work is perceived as "difficult" and involves complex issues and tasks. *Demands* describes how mentally and physically demanding the work is. *Skills* describes how many different skills the work requires, but also how many of the employee's skills are used by this work or to what extent these skills alternate. The construct "Work Characteristics" has an internal reliability of 0.88 and is thus in an acceptable range.

Workforce: This dimension summarizes characteristics and behaviors of employees in relation to change and consists of ten items (Sherehiy and Karwowski, 2014). According to Sherehiy *et al.* (2007), these include proactive, reactive, and tolerant approaches to change. Proactivity refers to the behavioral approach to change that anticipates this change and adapts current actions to it (Sherehiy *et al.*, 2007). In doing so, employees proactively initiate activities that impact a changing environment. Problem-solving skills, taking the initiative and improvisation in a crisis can be counted among them (Sherehiy *et al.*, 2007; Dyer and Shafer, 2003).

*Adaptability* is the second dimension. This refers to the ability to adapt various components of the work to new circumstances (reactively) and to transfer experience to new requirements (Sherehiy *et al.*, 2007): Learning new things, interpersonal and cultural adaptability, and successful work in changing roles, for example, can be counted among these. But also reflecting on one's own behavior and the need for adaptation derived from this can be counted among them (Griffin and Hesketh, 2003). Especially in times of uncertainty and change, adaptability appears to be an important dimension. The last dimension of workforce focuses on the tolerance of change: *Resilience*. It describes the maintenance of performance despite a changing environment or when proactive or reactive behaviors have not been successful (Sherehiy *et al.*, 2007). These include, for example, a positive attitude towards change, tolerance of uncertainty, acceptance of different opinions, and dealing with stress (Sherehiy and Karwowski, 2014). The internal consistency (Cronbach's alpha) of the Workforce construct is 0.77, which is acceptable.

The third construct ("Organization") describes the agility in the collaboration in the organization and consists of two dimensions. The first dimension, *collaboration*, refers to cooperation within the company and the workforce. This includes, for example, the efficiency of collaboration across functional areas, but also cross-functional collaboration between departments, for example in projects (Breu *et al.*, 2002). Furthermore, self-organizing and self-deciding employees are to be counted among them (Gunasekaran, 1999). The second dimension, *participation*, describes the extent to which employees are involved in decisions and can influence them, and the extent to which they are empowered to participate (Muduli, 2017). This can be done, for example, through an appropriate culture (Breu *et al.*, 2002). The Cronbach's alpha for the construct "organization" has an acceptable value of 0.80.

#### 6.3.3.2 Teamwork (mediator)

Teamwork represents an important part of many employees' work delivery. Although this is widely recognized in the literature (Kozlowski and Bell, 2003; Salas *et al.*, 2015) , there are different views on success factors (J. Hu and Liden, 2011). For the investigation, this article is based on an established scale that emerged from an investigation at Google, among others: The construct "teamwork" in the sense of successful work is measured on the "High-Performance-Team-Survey (HPTS)" scale (Fischer *et al.*, 2020). The scale was used in the short version with five items. This scale measures success factors for teamwork such as the importance of teamwork and dealing with errors.

#### 6.3.3.3 Dependent variable: Work success

In order to clarify the research question of this thesis, the effects on work success are investigated. In this study, work productivity is measured using an adapted scale ("work productivity at home") by Gamal Aboelmaged and Mohamed El Subbaugh (2012). However, for this paper, the questions were also adapted to office productivity to reflect the participants' hybrid work.

#### 6.3.3.4 Control variables

In order to exclude unwanted effects in the analysis, control variables are included in all analyses. For this purpose, typical control variables in the context of studies of hybrid work were used, for example, gender (Bloom *et al.*, 2015). Having your own workroom in your own apartment or house can also have a positive impact on the success of WFH ("own workroom" - dummy variable). Fewer interruptions can lead to higher productivity. Similarly, children in the household can also influence WFH work (Toscano and Zappalà, 2021). This effect is checked with the dummy variable "children".

Means, standard deviations and correlations are presented for all variables (independent and dependent variable, mediator and control variables) in Table 17. Even if there are isolated moderate correlations, the results with reference to the literature are sufficient for further proceeding (Ratner, 2009).

Table 17: Mean, Standard deviation and correlations of the used variables

| Variables | | M | S.D. | 1. | 2. | 3. | 4. | 5. | 6. |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Success | 5.12 | 0.84 | 1 | | | | | |
| 2. | Agile work | 4.95 | 0.77 | .377** | 1 | | | | |
| 3. | Teamwork | 4.97 | 1.13 | .398** | .620** | 1 | | | |
| 4. | Gender | 1.54 | 0.51 | .031 | .027 | .006 | 1 | | |
| 5. | Own workroom | 0.51 | 0.50 | .117** | .119** | .055 | .104** | 1 | |
| 6. | Children | 0.35 | 0.48 | .105** | .134** | .072* | .020 | .068 | 1 |

Notes: M = mean, SD = standard deviation and Pearson-Correlations (2-sided); **. * denotes significance at the 1 % and 5 % level, respectively

### 6.3.4 Empirical method

The study consists of two steps. In order to compare the change in agile work during the COVID-19 pandemic with the time after the pandemic, a portion of the subjects (N = 75) were surveyed about their agile work in 2021 and in 2023. The values obtained will be compared over time to identify possible changes.

To test the research model, a mediation analysis is conducted. The approach of (Baron and Kenny, 1986) is still used in the literature, but there is increasing criticism of their approach and its validity (Dul and Ceylan, 2014). Therefore, this paper follows an alternative approach (Zhao *et al.*, 2010) and uses the bootstrapping approach of Hayes (2009) for this purpose. In this procedure, the first step is to test whether an indirect effect exists. Subsequently, the direct effect is examined to find out whether it still exists, e.g. to diagnose a partial mediation effect (Dul and Ceylan, 2014).

SPSS and the PROCES macro from Hayes were used for the study (Hayes, 2023). To study the research model, "Model 4 - Simple Mediation" was used (Hayes and Little, 2018). 10,000 bootstrap samples were generated based on the data of the 790 participants and the

confidence intervals (CI) were evaluated. If 0 is included in the CI, the effect is considered insignificant (Hayes, 2009).

## 6.4 Results

The comparison of agile work at the 2021 and 2023 time points was performed analytically using a simple mean comparison. The results can be seen in Table 18. Agile work as a whole has changed only insignificantly over the two years. However, when looking at the individual constructs, differences emerge. According to the results, the "Workforce" value has decreased. This seems to be due to a decrease in the demands of the work. Characteristics have hardly changed, even though Proactivity is less pronounced. However, the agility of the organization has increased. Cooperation in particular has developed positively.

Table 18: Agile work at the times of the survey

| Dimension | | 2021 | 2023 | Change |
|---|---|---|---|---|
| Workforce | | 5.01 | 4.86 | ↘ |
| | Autonomy | 5.04 | 5.10 | |
| | Skill | 5.03 | 5.48 | |
| | Demands | 5.25 | 4.42 | |
| | Complexity | 5.25 | 5.18 | |
| | Uncertainty | 5.08 | 5.13 | |
| Characteristics | | 5.13 | 5.06 | → |
| | Adaptivity | 5.24 | 4.88 | |
| | Proactivity | 4.90 | 4.58 | |
| | Resilience | 4.88 | 5.10 | |
| Organization | | 4.88 | 5.01 | ↗ |
| | Participation | 4.96 | 4.97 | |
| | Cooperation | 4.81 | 5.05 | |
| Agile Work | | 4.88 | 5.01 | → |

N = 75, Mean values on 7-Likert scale

The mediation analysis has yielded the following results. First, a positive and significant effect of Agile work on the success of the work can be observed: B= .395, p< .001. In the next step, the mediator (teamwork) was added to the model. The effect of Agile Work on Teamwork is also significant and positive: B=.917, p<.001. Teamwork, in turn, has a positive and significant effect on Work Success: B=.201, p<.001. The results of the regressions are shown in Table 19

Table 19: Results of the hierarchical regression analysis

| | Mediator: Teamwork | | | Outcome: Success | | |
|---|---|---|---|---|---|---|
| | *B* | *SE* | *p*-Value | *B* | *SE* | *p*-Value |
| Constant | .495 | .241 | .040 | 2,942 | .207 | .000 |
| Gender | -.020 | .064 | .755 | .026 | .053 | .630 |
| Own workroom | -.040 | .065 | .533 | .124 | .055 | .023 |
| Children | -.024 | .065 | .712 | .096 | .058 | .097 |
| Agile work | .917 | .042 | .000 | .211 | .051 | .000 |
| Team | | | | .201 | .032 | .000 |
| adj-$R^2$ | .384 | | | .194 | | |

The examination of the indirect effect yields the following result: The indirect effect of agile work on work success results in B=0.184, 95%CI[.125,.247]. This leads to the following direct effect in the model with the mediator: .211, 95%-CI[.050,.273] (see Table 20).

Table 20: Summary of the mediation study esp. on the indirect effect

| Bootstrapping (10,000 Samples) | Direct effect | Indirect effect | Boot SE | 95% confidence interval | |
|---|---|---|---|---|---|
| | | | | LLCI | ULCI |
| Agile work → Teamwork → Success | .2111*** | .184 | .031 | .125 | .247 |

Notes: N = 790; LLCI: lower level confidence interval; ULCI: upper level confidence interval; *SE:* robust standard errors; ***, ** and * denote significance at the .1 %, 1 % and 5 % level, respectively

Examination of the control variables yielded mixed results. Own workroom has a significant influence on worker success. This is consistent with findings in the literature. Children only has an influence at a 10% significance level. This can possibly be explained by the fact that the dependent variable refers to remote work and on-site work. Gender has no significant influence, neither on the mediator nor on work success.

In summary, there is a partial mediation, which partially mediates the positive direct effect of Agile Work on work success. Thus, the overall effect is B=.395. With these results and the demonstrated significance, it can be confirmed that the positive effect of agile work on worker success can be partially explained by improved teamwork. The effects and relationships are shown in Figure 17:

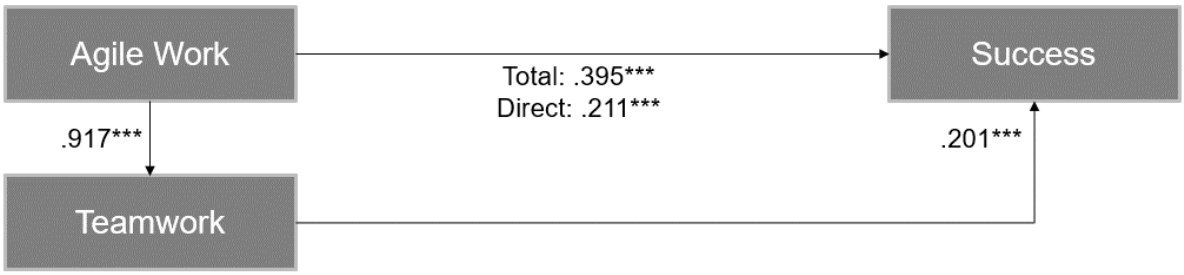


Figure 17: Results of the mediation analysis

***, ** and * denote significance at the .1 %, 1 % and 5 % level, respectively

## 6.5 Discussion

This analysis quantitatively examines the correlations of agile work and teamwork on work success as well as the change in agile work over time. The results show that employees with a high value for agile work are generally more successful, i.e. more productive, regardless of where they work. However, part of this positive effect can be explained by the use and success of teamwork. On the one hand, employees with a high value for agile work are also more successful when working in a team. This teamwork, in turn, positively influences overall success. It can be seen that Agile work enables good teamwork but is also dependent on it to ensure success. The comparison over time reveals that agile work has remained almost constant, but the demands and uncertainty have decreased. The organization of work and collaboration have improved during this time.

The comparison over time between 2021 and 2023 shows that the value of agile work has changed only insignificantly among the subjects overall and that agile work still seems to be important. However, the respective constructs have undergone changes. While regulations and constraints fell away after the COVID-19 pandemic, uncertainty and also the nature of work has been revealed to be less complex and demanding. At the same time, it can be seen that collaboration and cooperation have progressed in terms of agile work. This may also have implications for the success of teamwork. However, since the overarching value has hardly changed, hypothesis 5 must be rejected.

Agile work has a significant positive effect on worker success. The characteristics associated with this construct, such as adaptability and working in uncertain and dynamic contexts, appear to have a positive influence on productivity regardless of the place of work. This applies not only to WFH, but also to traditional on-site work. Adaptability seems to be helpful not only at a distance from WFH, but to be beneficial in general. This confirms hypothesis 1.

Agile work and its components that are geared toward teamwork also exhibit a positive effect on teamwork. Employees who want to work collaboratively, participate in decision-making, and have a shared sense of responsibility are also more successful in teams. This is interesting, as facets such as autonomy could also point to opposite effects. Teamwork as a typical example of modern work is therefore particularly suitable for agile employees. This confirms hypothesis 2. Teamwork, in turn, also positively influences productivity. Even though different views exist in the literature, this finding is in line with many other contributions. It should be emphasized that teamwork in particular shows this effect both in WFH and on-site. This is noteworthy since challenges with teamwork are reported in hybrid work models (Heidt *et al.*, 2023b). However, agile employees seem to be able to overcome these problems, which confirms hypothesis 3. This is also reflected in the results of the mediation analysis. The effect of agile work on work success in the sense of this study is partially explained by teamwork - there is partial mediation. Thus, not only agile work is a success factor, but also in particular the effect via teamwork. Hypothesis 4 can thus also be confirmed.

In summary, this paper makes three main contributions to current research. First, it examines, to the authors' knowledge for the first time, the timing of agile work. This contribution is further enhanced by the timing of the surveys (during and after the COVID-19 pandemic). In particular, the insight into the responses of the seventy-five subjects reveals insights into the changing demands on employees during this time. Second, the effect of agile work in WFH and on-site is examined. Even though there has been previous research (Sherehiy and Karwowski, 2014; Heidt *et al.*, 2022) have each of these focused on on-site or remote work. However, the new reality probably envisages a mixture as a hybrid form in many areas. In this respect, this

study expands the understanding of agile work as a whole. A third aspect can be found in the investigation of teamwork in relation to agile work or in the cause-effect relationships between them. Although teamwork is explicitly provided for in agile work, or the characteristics of agile employees are designed for collaboration, the mediated effect determined shows how these constructs interact with each other and demonstrates in detail the interrelationships here. Finally, the importance of the large sample (at least for the study of agile work and teamwork) should also be emphasized here.

### 6.5.1 Practical and Theoretical Implications

This paper provides important practical implications. On the one hand, agile work still seems to be relevant, but the work-related areas are less pronounced compared to 2021. Nevertheless, the area of organization with collaboration and participation in particular has been assessed more strongly. On the one hand, companies seem to promote these dimensions more strongly or there has been a learning effect during the crisis. However, this is also an opportunity for practitioners in particular to further strengthen this area through appropriate measures, culture and cross-functional collaboration. In addition, agile work continues to be a success factor for worker success or productivity. According to Sherehiy *et al.* (2007), measures to increase agile work could be, for example, team building, networking in the organization, mentoring, delegating more to use autonomy, involvement in planning, or training in problem-solving skills. Here, this analysis shows that this is a learning process that can take time. Teamwork also has high practical relevance. Teamwork is indeed used in many companies and many companies also rely on agile methods. However, this work shows why agile employees are particularly successful at teamwork and thus contribute to the success of the work. Practitioners can take advantage of this and offer teamwork to agile employees in a targeted manner and promote this in a targeted manner.

### 6.5.2 Limitations

Despite its contributions, the present work is subject to some limitations. The sample used, although relatively large in the aggregate, is reduced to only 75 subjects who have already participated in the survey in 2021. Although this reduction can certainly be partially explained by the time span, a larger sample would have been desirable. The comparison over time, especially by focusing on agile work during or after the COVID-19 pandemic, is a new contribution to the state of research. Nevertheless, simple comparison using mean values is only one way to compare these time points. More complex methods for time series may provide

further insights in the future. The time points also represent a limitation of the significance. For one thing, only two points in time were compared. A more long-term or more closely meshed tracking of the development would be desirable. Similarly, the dates 2021 and 2023 must always be seen in context. At the first point in time of the survey, the first wave of COVID-19 was broken in Germany, but the impressions were still very fresh and the work-related restrictions were still present. In 2023, these restrictions have largely disappeared. However, it cannot be ruled out that the time in 2021 was chosen at a particularly uncertain time, or that the 2023 results only represent an interim state of the development of agile work after the pandemic.

Another limitation is the choice of the dependent variable. Work success in the sense of work productivity is only one facet of success. Other concepts such as satisfaction, reduced stress, or tendency to change jobs could also be considered. Furthermore, employees working both on-site and at WFH were considered. Other locations (so-called third work locations such as workation or coworking spaces) were not included. A differentiation of the groups could also add value.

Finally, the focus on Germany is also a limitation. Although Germany, as an economically strong country in Europe, certainly makes sense for an investigation, the significance could be increased by an international comparison.

In summary, agile work is shown to be beneficial both during and after the COVID-19-pandemic, but also for work in the WFH and in the field, and ultimately in teams but also without teamwork. In the context of further global crises and uncertainty, but also the flexibilization of work concepts, agility seems to continue to be a success factor for companies and employees in the future.

# 7 Thesis Conclusion and Contributions

## 7.1 General conclusion

This paper examines the connections between agility and working outside the office, or in new forms of work characterized by a flexibilization of the workplace. This addresses two key trends in literature, practice, and also society: RW and the adaptability to uncertainty and rapidly changing contextual factors. The work thus addresses key challenges for companies and employees. Agility and RW, as well as different variations, are therefore part of many scientific papers as well as discussions in practice. Not least, the COVID-19 pandemic has highlighted the need for adaptability and increased out-of-office work. Despite diverse literature in each field, no holistic picture of Agile Work in the context of RW exists. This thesis has explored this context as well as possible support measures (Enablers) by companies.

The five articles included in this cumulative dissertation are used to answer the research questions formulated in Section 1.1 (cf. Figure 2 and Figure 4). The first research question, '*What is the connection between remote work and agility?'* is explored in research Articles 2 and 5. Research Article 2 conducts a broad, quantitative investigation in this regard. First, the article positions agility within the research context of dynamic capabilities for the purposes of this thesis. Based on a literature review, the article defines a construct, "Agile Work". For this, the work transfers existing constructs from other fields to the specific context of RW. Additionally, the article postulates a research framework that provides the basis for the research questions of this dissertation. Specifically, the benefits of Agile Work in RW are hypothesized. Furthermore, the influence of enablers, based on the specific requirements of agility, is derived. Based on a large, international sample, it can be shown that Agile Work has a direct, positive, and significant impact on success in RW. However, this effect may vary depending on other characteristics, part-time employment, or experience. Additionally, the article demonstrates that enablers have an effect as a mediator in this relationship. About half of the influence of Agile Work can be explained by the use of specific enablers. This is based on the assumption that support is especially relevant in RW, Agile Work requires individual support, and that employees are particularly receptive to some enablers in the sense of Agile Work. The statements in Article 5 confirm this observation of Agile Work in RW, and show that the positive effect is persistent, or increased by employee experience in this particular context. In this respect, the two articles answer Research Question 1 by demonstrating a clear positive effect and, moreover, by fundamentally confirming the research context of this dissertation also with respect to enablers (HRM, teamwork). Insofar, they also provide important insights for the remaining two research questions.

Following on from this, the other three articles provide insights, particularly in relation to the use of enablers, thereby answering Research Questions 2 and 3: '*What framework conditions and measures support remote work?'* and '*How can the company increase or support agility in this context?*'. Article 3 qualitatively and quantitatively examines the relationship between enablers in the form of policies on RW. Various policies were identified from expert interviews and a quantitative survey. These policies differ considerably in terms of their flexibility and autonomy. The design is always individual and depends on various contextual factors. The paper proposes a framework to select an appropriate policy. The findings show that the choice of organizational context as an enabler plays an important role. However, the article also provides insights regarding the third research question. Flexibility and autonomy are not only important in RW but are also central facets of agility. Thus, policy selection should consider flexibility and autonomy as part of the work or their impact on Agile Work. Article 4 again explores the relationship between enablers and RW by focusing on potential challenges and the impact of perceived support by employees on those challenges. The article empirically identifies 36 possible challenges in the context of HW. These challenges can be assigned to different dimensions and provide insight into possible specific challenges. Based on a quantitative survey, the relevance of these 36 items is determined. Building on this, an empirical analysis shows that POS has a direct influence on the perception and relevance of some of these challenges. This knowledge is central to address challenges actively. Additionally, POS and its derived influence on challenges can be identified as another enabler in the context of RW. Complementarily, Articles 2 and 5 present the importance of HRM and teamwork, respectively, as further enablers. The positive influence of Agile Work on RW can be positively influenced by the effect of these enablers. Thus, Articles 2, 3, 4, and 5 answer the second research question (cf. Figure 18). Flexible and autonomous policies for RW, the target-oriented use of HRM, enhancement of POS, and focus on teamwork are measures to increase the success of RW, not only, but especially in the context of Agile Work.

Article 1 complements the findings of Article 3 to answer Research Question 3. The article examines the connections between agility and change or change management. Qualitative expert interviews reveal how CM and agile PM methods act as enablers to facilitate change and adaptation. Central to this is the finding that CM assists in the shift to agility as a change in its own right. Complementarily, agility can help CM manage change and realize adaptability in agile PM methods. The article shows that agility can be influenced by companies, but also that the change must be accompanied to that end. Articles 2 and 5 also help clarify this research question. The role as mediator of HRM, teamwork, and other enablers shows that employees use and perceive specific enablers in Agile Work. Thus, to make the best use of Agile Work, teamwork and specific enablers should be used. Articles 2 and 5 thus contribute to multiple

research questions through the function of enablers. In summary, the articles show that the framework and measures in terms of enablers must offer specific context factors for Agile Work. Autonomy, flexibility, participation, appropriate leadership behaviour, a corresponding (error) culture, and the active handling of change are enablers that can positively influence Agile Work.

The findings of the articles in respect to the relationships between RW, Agile Work, and enablers, and thus in relation to the research questions, are summarized in Figure 18.

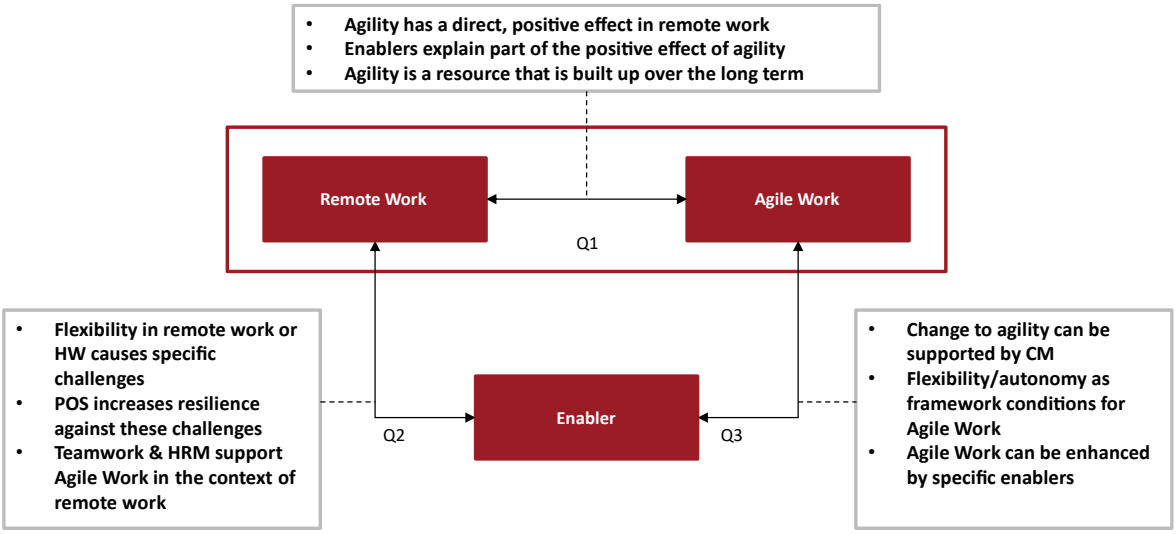


Figure 18: Selection of article findings in relation to the research context of this thesis

## 7.2 Theoretical contributions

The findings of the five articles provide an important contribution to various theories and, in particular, to key cause–effect relationships. The thesis develops a research context that unifies the connections of the studied theories and thus provides insights into causal relationships. In doing so, it contributes to the literature in the areas of agility and agile workforce, dynamic capabilities, organization, and CM, as well as to the overarching topic of RW or HW. The dissertation extends the existing findings on agility and enablers and transfers them to the context of RW.

The JD-R theory captures job demands and resources, depending on the work context, and postulates that each has positive or negative effects on success, i.e., the work context has specific but highly relevant effects. The theory can be applied to RW (Bakker and Demerouti, 2007). In this context, this thesis proposes Agile Work and Enablers as possible, positive influencing variables. An important contribution is the transfer of the established construct POS into the specific context of RW. A new finding is that POS is particularly suitable in this context to positively influence the specific challenges. Also, the importance of HRM and the

work organization via flexible and autonomous policies expands the understanding of cause–effect contexts and influences on employees.

Arguably, one of the most significant results is the link between agility and RW. From the extensive body of research on agility, flexibility, and adaptability, one construct was identified, adapted, and applied to RW. This is relevant in three ways. First, a construct for agility could be derived and adapted, anchored in dynamic capabilities theory, and empirically applied in the context of RW. This extends the existing literature of diverse approaches to flexibility and adaptability by providing a construct that foregrounds capabilities and behaviours of employees and their work organization. Agility is often conceptualized in the literature as a property of an entire organization or conceptualized in methods or frameworks (Overby *et al.*, 2006; Cervone, 2011). The construct of "Agile Work" in this thesis transfers and adapts a concept that was originally applied primarily in manufacturing. It turns out that the idea of an "agile workforce" with adaptations in RW is equally relevant. Therefore, the second contribution is that the significant, positive effect of Agile Work on success in RW could be empirically proven.

Third, it becomes increasingly apparent that the context of RW particularly requires skills in the sense of agility. Uncertainty, isolation, distance, and difficult communication in the sense of JD-R are classically rather "demands". Agile employees appreciate new tasks, see change as necessary, like to adapt, can take on complex tasks and roles, and are proactive in communication as well. This frames the characteristics of RW not as demands but as "resources". Agile work can thus be seen as a job resource in the JD-R sense and should be developed by companies and employees in the long term. However, while agility is helpful in change, the shift to greater agility is also a not insignificant change that needs to be accompanied by companies. This expands the existing literature on CM in increasing agility.

Ultimately, the research context used expands the understanding of the cause-and-effect relationships between RW, Agile Work, and enablers. The respective research foci are described in detail in the literature, but are rarely found in this combination. In addition to the described relationship between Agile Work and RW, another significant contribution is the role of enablers, especially HRM and teamwork: the effect of enablers is not marginal, but explains a significant portion of the effect of agility and Agile Work. This expands the understanding of the interdependencies as well as influencing factors, and impressively shows that companies should value employees as the most important resource in the company (Coff, 1997); moreover, it provides them with appropriate support and framework conditions.

Overall, the thesis also contributes new insights to the diverse contributions in the context of the COVID-19 pandemic or its impact due to its timeliness and topic focus. The research context

can explain why agile employees were better able to implement a transition to RW (Krzywdzinski, 2022), why potential uncertainty and dynamics were better managed in the wake of the crisis, and why agility and flexible RW offerings are an advantage in dynamic environments.

## 7.3 Implications for practice

In addition to theoretical implications, the thesis also offers numerous practical implications. In the selection of methods and topics, equal emphasis was always placed on practical relevance, which can be seen, for example, in qualitative interviews with experts from the field. Particularly in recent years, companies have been confronted with the question of how successful working remotely, or in new forms of work, can function in the face of uncertainty and dynamics and how a company can support employees.

Agility is highly relevant in practice as globalization and digitalization bring new dynamics to companies. Companies' agility is often driven by IT, new product development, and strategy. However, agility and thus Agile Work also shows benefits in RW. This broadens the field and shows an overarching advantage. For companies, the targeted increase, anchoring, and expansion of agility among employees can therefore be a corresponding, and also strategic goal. This could increase the company's resilience, build dynamic capabilities, and further strengthen the skills of the employees as a central resource of the company. In particular, agility seems to be a competitive factor, especially if RW remains relevant in the future. In addition, employees are demanding RW in part because benefits have become apparent in recent years. In order to avoid employee dissatisfaction, reduce fluctuation, and remain attractive to applicants, RW should therefore be offered and agility should be targeted as a success factor.

Increasing agility is therefore desirable in several respects. This can be achieved through training, for example. Existing frameworks and methods, such as Scrum, also offer approaches for increasing the willingness to change in the sense of agility. It is important to understand the expansion of agility as a profound change that should be accompanied by CM measures. Last but not least, decision-makers and managers should also become aware of their role and influence on agility. A suitable culture and management style to match agility are correspondingly important. A high practical relevance is also given by the subgroup analysis of the thesis. It seems relevant for managers that employees who work part-time or are rather inexperienced, for example, react less or differently to agility and enablers. An individual consideration of the employees therefore seems all the more relevant.

With respect to RW, the thesis and its articles offer diverse implications. Of central and particularly practical relevance is the identification of potential challenges for HW. In the

future, companies that want to offer both RW and WFO will find themselves using HW. Knowledge of potential challenges is critical for targeted measures. Dedicated tools for communication and collaboration, appropriate offices, digitalization, and distributed meetings are challenges that can directly impact companies. Isolation, lack of managerial support, a difficult start in a new job, lack of interpersonal and informal communication, lower perceived appreciation, and necessary trust and understanding are all challenging social factors. Active measures to address these can mitigate the sometimes significant, negative impacts. It should be emphasized that employees choose their place of work highly individually. This depends on a multitude of factors, such as some availability and suitability of WFH, children in the household, preference to concentrated work/teamwork in WFH or WFO, commuting distance, need for direct communication, etc. Thus, individuality in terms of flexibility and autonomy seem advisable as long as the nature of the work and collaboration allows it.

This insight is closely linked to another, practical contribution: the design and definition of a suitable policy. During the interviews, it became apparent that many companies were not yet able to define a long-term policy due to the lack of proven concepts. The contribution of this dissertation is a qualitatively and quantitatively sound overview of possible policies. These policies can be individually varied in terms of flexibility and autonomy. In any case, however, this should always be done in relation to employee preferences and the nature of the work. A framework as part of this contribution helps decision-makers develop a policy in a structured and iterative way that is adapted to the individual requirements.

The thesis also offers new insights for HRM or departments and individuals working with enablers. HRM should specifically increase agility, both for RW and in response to uncertainty and dynamics. In particular, target metrics such as esteem and employee satisfaction or the perception of support, which are otherwise seen especially in the context of reducing turnover, have far-reaching implications in the context of RW. The ability to mitigate the impact of challenges is an important finding for practitioners.

Last but not least, the dissertation also broadens the focus for employees. It shows that adaptability, broad-mindedness for further development, proactivity, and autonomy are guarantors of success in many respects. Employees should be motivated to use possible flexibility and autonomy or to demand it in coordination with the company. In particular, the prospects of success through the use of enablers should motivate employees to use possible support or, if not available, to demand it with reference to its relevance. This applies all the more in RW.

## 7.4 Limitations and future work

In addition to the various practical and theoretical contributions of this thesis, limitations should also be mentioned. In addition to the limitations of the respective articles, which are also described there, overarching and summarizing limits are presented below. This also reveals various starting points for further research and investigations.

One limitation can be derived from the time period of the study. The study of RW during the impact of the COVID-19 pandemic must consider a uniqueness of transformation and dynamics. Uncertainties and other factors that affected the well-being and success of participants in the studies in RW may have an impact on results. The goal of the studies was to examine the impact of uncertainty and dynamics. Hence, while the timing of the study represents an opportunity, other influencing factors cannot be ruled out. Also, the generalization of challenges under the impression of adaptation to the world of work during and after the COVID-19 pandemic can be questioned or may not have been completed yet. In addition, only individuals in WFH or HW were eligible for some surveys. It cannot be ruled out that there may be some imprecision here. In addition, it could be assumed that especially during the COVID-19 pandemic measures, some subjects did not volunteer to work in the WFH, which may bias the assessment.

Three contributions make use of qualitative expert interviews. Even though the greatest care was taken to ensure a heterogeneous selection, it cannot be ruled out that there were unknown accumulations and selective choice.

Four of the five articles make at least partial use of quantitative survey methods. The participation of the test persons was partly achieved via Clickworker. Even though the literature states that this has no effect on the quality of the responses, this should be mentioned here (Brawley and Pury, 2016; Lutz, 2016). Many of the measured items were self-reported. Although there is controversy in the literature about how better to proceed here (Lucas, 2018), this is a limitation worth noting.

The research context under study was derived and defined in the first sections of this dissertation. However, there are reasonable arguments to define enablers differently, to examine other factors, to expand agility and the characteristics, etc. Thus, other facets of agility, such as customer feedback, were intentionally omitted for the context of the work. Certain areas were also excluded from the adaptation of the construct. Even though based on literature, where these definitions and decisions were chosen deliberately, it may be that there are other influencing factors and facets that were not investigated here. It also cannot be ruled out that the research context has other unknown dependencies, mediators, or moderators that are not part of this dissertation.

Finally, the measurement of success in RW must also be mentioned. Even if common scales were used or adapted here, the focus on productivity and satisfaction is only a small part of possible "successful" work. Further, the application of the JD-R model for this dissertation provides a context for situating and is not directly incorporated into the research. Even if the mechanisms of action are quantitatively proven and the connection between Agile Work and RW can be explained in this way, this thesis uses the model predominantly for a qualitative location of the quantitative contributions.

However, in addition to these limitations, the research context also provides approaches for future research. The research context used can help scientists build on the results of this dissertation, e.g., to introduce further enablers or to apply Agile Work to other, future forms of RW.

The specific situation described due to the COVID-19 pandemic in relation to RW also opens up the possibility of highlighting further adaptation processes, picking up on existing contributions (such as this thesis) and, for example, reassessing challenges. For challenges in particular, it can be argued that adaptation can overcome some of them and create new ones in their place.

The world of work and also the nature of work will continue to evolve. New trends will trigger disruptive changes that will also affect the contexts described in this thesis. Trends toward the "virtual office" or "metaverse" using virtual reality may change interaction. Negative effects of RW, such as isolation, distance, or lack of interaction, may be partially remedied by this. Likewise, "virtual meetings" could increase the quality of remote meetings, which would seem to make future research worthwhile.

The research context can likewise be expanded or detailed. Possible further influences could be modelled as mediators or moderators. Part-time work, for example, influenced the mediator effect reported in one article. Other effects may be suspected here. Differentiation by gender, industry, type of work, or age of children in the household could also be explored in detail. Although typical control variables were consistently used in the articles, further effects are nevertheless conceivable.

The constructs used could also be adapted. Agile Work comprises a relatively large number of individual items. An investigation of the detailed effect of these individual items could provide further information about which cause–effect relationships are particularly relevant. Further enablers could also be investigated in this context. An investigation into which equipment and features in the WFH allow employees to work in an agile manner seems extremely interesting. In addition to suitable technology, an environment for goal-oriented collaboration,

physical/digital whiteboards for collaboration, etc. could be special requirements here for Agile Work.

Last but not least, the articles in this thesis use quantitative surveys to measure and analyse correlations. Accompanying a company on its way to increasing Agile Work as a case study or even natural experiment could possibly reveal further cause–effect relationships. As presented, RW can be explained by the JD-R model, among others. This thesis examines influencing factors, whereas an overarching application with the help of the JD-R model could lead to further possible insights.

This cumulative dissertation deals with questions related to agility (Agile Work) in the specific context of RW and the interrelationships as well as the role of influence and support offered by companies and managers (Enablers). It can be shown that agility is not only a success factor in dynamic times, but also positively influences success in RW as a central example of new forms of work. Likewise, the support measures are highlighted, which explain a relevant part of this positive influence and give companies and managers the opportunity as well as the obligation to support RW and agility in the best possible way. The research context and the findings are particularly interesting because it can be assumed that RW and HW will continue to be a relevant part of the work of many employees, and companies will find an approach with agility in order to both adapt to the dynamic and uncertain corporate context, and successfully shape RW and new forms of work.

*Tempora mutantur, nos et mutamur in illis*

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Ich versichere hiermit, dass ich die vorstehende Arbeit

*"Agility and new forms of work: applications, challenges and potentials"*

selbstständig und ohne fremde Hilfe angefertigt, und dass ich alle von anderen Autoren wörtlich übernommene Stellen wie auch die sich an die Gedankengänge anderer Autoren eng anlehnenden Ausführungen meiner Arbeit besonders gekennzeichnet und die Quellen zitiert habe.

Die Arbeit ist in gleicher oder ähnlicher Form noch nicht veröffentlicht und noch keiner Prüfungsbehörde vorgelegt worden.

*Frankfurt*, den 25.01.2024

*(Lukas Otto Heidt)*