



Anna-Kaisa, Teronen

Employee performance, productivity, and efficiency in remote work environment

Scoping review

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Abstract

Author: Anna-Kaisa Teronen
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The work environment has gone through major changes in recent years due to rapid evolvement of digital technology and the COVID-19 pandemic, demanding organisations to reconsider the ways of working. New working models have been implemented and adopted while traditional offices have been replaced with digital platforms. The transition has revolutionised work dynamics, presenting both challenges and opportunities, one particularly concerning employee performance while adapting to the new normal. This master's thesis aimed at investigating and providing information about the impact of remote work on employee performance, focusing on efficiency and productivity. The purpose was to identify and understand the effects of remote work on employee performance.

The method chosen for this master's thesis was a scoping review which included eight publications selected via systematic literature search using pre-set inclusion criteria. The search was carried out in three databases: PubMed, ProQuest Central and Wiley Online Library. The selected publications were assessed for quality with the critical appraisal checklists by The Joanna Briggs Institute and the data was analysed using inductive content analysis.

The results show that the impact of remote work on employee performance varies, most of the studies indicating a positive association between remote work and productivity. Conflicting findings reveal that remote work might improve performance in terms of quality, while decreasing the overall productivity. The effectiveness of remote work is influenced by various factors, including the type of work and environment, personal and family-related factors, as well as organisational support and flexibility. Individual coping strategies, commitment orientation, effective supervision, and managerial support are identified as the key factors influencing remote work performance. Human resource practices, such as training and flexible work-family policies, positively impact employee performance. Understanding these aspects is essential for optimising remote work arrangements to enhance employee performance and job productivity. Adjusting work tasks and workplaces with the requirements of remote work enables collaboration and improves the overall performance.

Keywords: Employee performance, job productivity, work efficiency, remote work

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Digitaalinen vallankumous ja maailmanlaajuinen COVID-19 pandemia ovat aiheuttaneet merkittäviä muutoksia työympäristöissä, minkä seurauksena yritykset ja organisaatiot ovat joutuneet pohtimaan työskentelykäytäntöjään uudelleen. Uusien työskentelymallien jalkauttaminen on ollut välttämätöntä digitaalisten työskentelyalustojen yleistyessä samaan aikaan, kun perinteisten toimistoympäristöjen käyttöaste on vähentynyt. Muutoksen aiheuttamia mahdollisuuksia ja haasteita pohdittaessa esiin on noussut kysymys etätyön tehokkuudesta ja työntekijöiden suoriutumisesta uusia työskentelytapoja omaksuttaessa. Tämän opinnäytetyön tavoitteena oli tutkia ja lisätä tietoutta etätyön vaikutuksista työntekijän suoriutumiseen, etenkin tuottavuuden ja tehokkuuden näkökulmat huomioiden. Opinnäytetyön tarkoituksena oli tunnistaa ja ymmärtää etätyön vaikutuksia työntekijän suoriutumiseen.

Opinnäytetyö toteutettiin kartoittavana katsauksena. Kirjallisuushaku suoritettiin kolmessa tietokannassa: PubMed, ProQuest Central ja Wiley Online Library. Kirjallisuushaun ja etukäteen määriteltujen kriteerien perusteella kahdeksan tutkimuskysymyksen kannalta relevanttia julkaisua sisällytettiin katsaukseen. Julkaisujen laadun arvioinnissa hyödynnettiin Joanna Briggs -instituutin kriittisen arvioinnin tarkistuslistoja ja tutkimusaineisto analysoitiin induktiivisen sisällönanalyysin keinoin.

Tulokset osoittavat, että etätyön vaikutukset työntekijän suoriutumiseen ovat pääosin positiivisia. Esiin nousi myös ristiriitaisia vaikutuksia, joiden mukaan etätyö saattaa parantaa suoriutumista laadullisesta näkökulmasta, mutta heikentää kokonaissuoriutumista. Etätyön tehokkuuteen vaikuttavat monet eri tekijät, kuten työtehtävä ja työympäristö, henkilökohtaiset ja perheeseen liittyvät tekijät sekä yrityksen tuki ja joustavuus. Yksilölliset selviytymiskeinot, sitoutuneisuus, tehokas valvonta sekä esihenkilötuki osoittautuivat avaintekijöiksi etätyössä suoriutumiseen. Tulosten perusteella näiden tekijöiden ymmärtäminen yrityksissä on olennaista etätyökäytäntöjen optimoinnin näkökulmasta sekä työntekijän suoriutumisen ja työn tuottavuuden parantamiseksi. Työtehtävien ja työympäristöjen sopeuttaminen etätyöhön soveltuviksi edistävät yhteistyötä ja parantavat suoriutumista.

Avainsanat: Työntekijän suoriutuminen, tuottavuus, tehokkuus, etätyö

Tämän opinnäytetyön alkuperä on tarkastettu Turnitin Originality Check -ohjelmalla

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Appendix 1. Summary of Data Sources and JBI assessment scoring

1 Introduction

The evolution of digital technology and circumstances caused by the worldwide pandemic have accelerated the development and implementation of new types of working models in organisations (Ranki 2023; Sutela & Pärnänen 2021; Työterveyslaitos n.d.). Traditional offices have been replaced by digital and virtual platforms and work is now detached from place and time which eventually has led to unexpected challenges, as well as new opportunities (Työterveyslaitos n.d.). Remote work, which used to be an option for few, quickly expanded in most companies and organisations (Pokojski, Kister & Lipowski 2022). Remote work allows flexibility in adjusting work and social life which makes it convenient for various life stages, whether it is due to studying, family-reasons, growing old or other individual preferences (Mutiganda et al. 2022: 12).

Statistics show that full-time employees around the world are working remotely approximately 0.9 days per week. 67% of the employees continue to work on-site five days per week, while 26% utilise hybrid models and 8% work from home full-time. (Aksoy et al. 2023.) According to Työ- ja elinkeinoministeriö, Ministry of economic affairs and employment in Finland (2023) 12% of Finnish employees work remotely full-time. Additionally, 17% work remotely weekly, 5% monthly, and 11% occasionally. While COVID-19 pandemic increased the number of daily remote workers significantly in 2021, the proportion decreased in 2022, while the number of weekly remote workers increased at the same time. The most common frequency for remote work is 2-3 days per week (62%). (Työ- ja elinkeinoministeriö, Ministry of economic affairs and employment in Finland 2023.) There seems to be an imbalance between the number of remote working days desired by employees and the actual days allowed by employers as employees generally wish to work more days from home (Aksoy et al. 2023; JLL Finland 2024). In Finland 33% of employees would choose to work from home entirely if possible while 18% are currently working remotely full-time (JLL Finland 2024).

Transition to the new normal has raised fundamental questions concerning the effect of remote work on employee performance, particularly in terms of productivity and efficiency (Anakpo, Nqwayibana & Mishi 2023; Chiguvu & Bakani 2023; Meiryani et al. 2022; Mutiganda et al. 2022; Qu & Yan 2023).

This scoping review aims at investigating and providing information about the impact of remote work on how employees perform in terms of efficiency and productivity. The purpose of this scoping review is to identify and understand the effects of remote work on employee performance, specifically focusing on efficiency and productivity in context of remote working environment. By examining these aspects, this master's thesis contributes valuable information to organisations and professionals for optimising remote working strategies to enhance employee performance and overall work outcomes. Method chosen for this master's thesis is scoping review, which is ideal for identifying existing evidence (Munn et al. 2018: 2).

2 Theoretical background

2.1 Employee performance

Performance of employees refers to employees' actions which represent the contribution to the organisation (Krausert 2009: 170; Utin & Yosepha 2019: 3). These behaviours lead to results and outcomes which may depend on other activities as well. Employee performance and its evaluation, as well as the results of the work are dependent on the work itself. (Krausert 2009: 170.) The word "performance" originates from words "actual performance" and "job performance" which is explained simply as work performance or achievement by a person. Performance covers the quality and quantity of work accomplished by an employee while completing tasks in the assigned role and responsibilities. (Utin & Yosepha 2019: 3.)

The primary target of human resource management operations is to form a staff which provides the organisation the work input required. Quality over quantity applies in this case as it is essential that every person hired for the company is able to perform according to the goals and objectives set by the organisation. Efficient employee performance relies on strong competence, motivation, work well-being and commitment, as well as on stable physical and emotional working conditions. Performance is dependent on how realistic the goals are and how accurately the workload is measured. (Viitala 2021.)

AMO model presents three essential factors indicating employee performance: ability, motivation, and opportunity. According to the AMO theory, the work by an individual is productive when he/she has the knowledge required, motivation for executing and possibilities to influence or make a difference. All the three contributing factors can be

influenced by creating and implementing successful human resource management operations. (Viitala 2021.)

2.1.1 Productivity

Employee productivity is essential for any company regardless of the industry or purpose of the organisation (Anakpo et al. 2023). Productivity refers to the ability to achieve more or better results with the same inputs of labour, materials, energy, and capital. It reflects how efficiently a company utilises its production inputs. Company's productivity depends on the quality and quantity of products or services in relation to the input. High productivity enables higher wages and company profits. For an individual company, productivity is the key factor affecting profitability and competitiveness. While purchase and sale prices also impact profitability, the company may have less influence over them. Improving productivity means cost-effectiveness and better products. (Tuottavuus n.d..)

Employee productivity is often referred to as revenue per employee which is the key tool used to assess how efficiently a company utilises its workforce. A higher relation of revenue per employee leads to increased productivity meaning that the company is effectively using its human capital. The relation is calculated by dividing total revenue by the number of employees, and it is a useful tool for comparing companies within the same industry and for tracking changes over time. Factors such as employee turnover and company age can also influence this metric. (Kenton 2020.) One primary goal for any organisation is to increase productivity, achieving higher output with the same or fewer resources which can be achieved by enhancing employee efficiency (Fragouli & Ilia 2019).

2.1.2 Efficiency

Efficiency refers to the quality of the work produced, completing tasks using fewer resources or minimising wasted time. Employees who are efficient accomplish their responsibilities with minimal resources using various time-saving methods. By enhancing employee efficiency, time can be allocated to other tasks, which leads to improved overall productivity. The highly competitive working environment today demands enhancing efficiency and adopting new techniques at the same time as adapting the latest technological advancements. Multiple factors contribute to improving employee efficiency, some requiring organisational changes such as

adjustments to the work environment or leadership styles, while others involve individual actions. (Fragouli & Ilia 2019.)

2.2 Performance management

Performance management covers all activities which are taken to enhance the overall performance of an organisation, whether it concerns individual performance or performance of a work group (Utin & Yosepha 2019: 3). Managing performance is an essential human resource management function in every organisation, as the company's competitiveness depends on effective employee performance strategies and practices. The success and reaching organisational objectives is determined by the contribution of staff which is why employees should be seen as an asset rather than expense. (Schraeder & Jordan. 2011: 1.)

Caldwell (2002) lists six other significant advantages, in addition to expanding organisation capability, which can be achieved with effective performance management: improved employee performance, communication, and job satisfaction, increased self-management leading to decreased external management and organisational alignment. Madlabana & Petersen (2020: 1) concur that appropriately managed human resource management processes serve in creating organisational culture with shared vision, inspiration, and collaboration. Performance management is a process with consecutive activities which all impact the overall outcome. There are no easy or quick solutions for successful performance management, as it requires long-term commitment to become part of the organisational culture. Committed people and supportive organisational culture enable effective performance management functions. Management and supervisors as representatives of the values, beliefs, and behaviours of the company, have a significant role in implementing successful performance management practices. (Caldwell 2002.)

Performance management and the association with job motivation is studied widely and the results are somewhat consistent. The study by Daneshkohan et al. (2014: 153) point out, that employees are mostly motivated by decent management, support by supervisors and well-functioning relationship with the colleagues. The research by Dieleman & Toonen & Touré & Martineau (2006) indicates that employees are mainly motivated by responsibility, recognition, training, and salary which can all be influenced via performance management practices. Mathauer's & Imhoff's (2006) study emphasises the meaning of human research management tools and other than

financial incentives for enhancing motivation. Wieser & Abraham (2024) argue that financial compensation mitigates the reluctant attitude towards digital monitoring for employees working from home.

Organisations are using different types of methods and strategies in managing the performance of employees. For some reason, many organisations are using performance management practises which suppress employee motivation, job engagement, and even innovation (Bititci 2016: 81). Commonly used performance management methods are performance appraisals, financial compensation, education and training, resource access, setting objectives and goals, enabling participation, empowerment, as well as coaching and feedback (Caldwell 2002).

2.3 Remote work

Remote work is considered as a flexible way to organise work, which relies on voluntarism and mutual agreement when work is performed outside the physical workplace (Akava 2019; Rauramo 2017). Remote work can be carried out in an environment where it is most beneficial from the viewpoint of the employer, the employee, and the work itself (Akava 2019; Rauramo 2017; Qu & Yan 2023: 198). Remote work is typically done at home, in a vacation home, as mobile work while travelling, or another location agreed upon with the employer (Akava 2019; Rauramo 2017; Larson 2023). Remote work has various synonyms including work from home (WFH), telecommuting, telework, distributed work, e-work, or even smart working in some countries. Although there are some differences between these terms, people often use them flexibly in practice. (Larson 2023; Qu & Yan 2023: 198.) In this report, terms remote work and work from home are applied as equals.

First experiments of remote work were performed in the 1970's by an American research director Jack Nilles, who is also considered as the creator of telecommuting. The initiative for his studies emerged from the concern of long commute times for both workers and the environment. The results of Nilles' studies suggested that remote work could increase productivity while decreasing polluting and energy consumption. The next major step in the field of telecommuting was executed by technology company IBM, which had about 2000 employees working remotely by 1983. In the following years and decades organisations became more comfortable with working remotely as the use of portable computers and laptops expanded. The amount of full days worked from home nearly tripled from the 1980's to 2000 in the United States, but the share

remained relatively small, estimated 1,7% of all working days in the year 2000. At the beginning of this millennium, the development of voice and video technology systems advanced the possibility of communicating and collaborating with each other and by 2010 the share of remote workdays had increased to 2,8% of all working days in the United States. While virtual meeting and instant messaging systems developed, by 2019 almost 5% of all full workdays were executed remotely. (Larson 2023.)

After slowly expanding in the matter of decades, the remote work practices exploded when COVID-19 pandemic forced a rapid transition from offices to working from home within weeks as remote working options were suddenly the only option for many. By April 2020, 64% of all people in the United States worked entirely from home. Due to the worldwide pandemic, companies realised how much work could be done remotely and managers noticed the benefits of flexible working models. Frustration also appeared among leaders with suspicions that some employees might take advantage of the more flexible working models and not work as efficiently as possible. (Larson 2023.)

Remote work can be organised for part-time or full-time and as occasional or regular arrangement, which requires flexibility from the employer and the employee. Combining remote and on-site work is referred to as hybrid work. (Rauramo 2017.) Not all types of work and not all types of people are suitable for remote work, however it can be considered as a benefit for employees with personal reasons or needs for more flexible working environment. Remote work suits best for people working in expert positions, however partial remote work is possible to apply for most work and various tasks. (Akava 2019.)

Communication technology supports interaction and networking while working remotely. Information systems and virtual workspaces serve as platforms to support the work of both groups and individuals. In most cases, the equipment for remote work is given by the employer. A framework agreement for remote work is conducted at the level of European Union, as well as various collective agreements addressing the conditions and rules of remote work. (Akava 2019; Rauramo 2017.)

2.4 Employee performance and remote work

Martin & Hauret & Fuhrer (2022) have studied how using digital tools for collaboration and communication impact the development of productivity and employee well-being, during and before the first COVID-19 lockdown. Active usage and mastering of digital

tools appear to improve productivity, while similarly lowering job satisfaction due to minimal social interactions. Research highlights the importance of tackling issues due to lacking digital skills among different employee groups, especially regarding older and less educated employees. (Martin & Hauret & Fuhrer 2022.) Productivity and job satisfaction are closely related as employees who are not happy with their job, often underperform or quit. The possibility to work remotely increases job satisfaction leading to improved productivity. By ensuring that the employees are happy and satisfied with their work, organisations can minimise employee turnover. (Frack 2022.)

Organisation's attitude towards remote work influences the support provided for the remotely working employees, and on the assessment of efficiency while working outside office (Pokojski et al. 2022).

Work outcome is not only dependent on performance by an individual employee, because most work requires collaboration. Remote work performance is therefore influenced by colleagues working from home, as well. Individual performance is found to improve when co-workers work on-site instead of working remotely. The extent of co-workers working from home directly affects the performance of an individual employee. Less physical contact and direct communication weakens the performance of employees. Digital platforms cannot not replace physical encounters. Managers report similar thoughts concerning team performance as team productivity seems to be higher when colleagues work remotely maximum of one day per week. (Van der Lippe & Lippényi 2019.)

Research by Rožman & Sternad & Zabukovšek & Bobek & Tominc (2021) investigated differences between genders of remote working employees in work efficiency, work engagement and work satisfaction during the global pandemic. Study showed significant differences between genders in all inspected areas of interest due to increased household and childcare duties for women.

3 Purpose, aim and research question

This master's thesis aims at investigating and providing information about the impact of remote work on how employees perform in terms of efficiency and productivity. The purpose is to identify and understand the effects of remote work on employee performance, specifically focusing on efficiency and productivity within the context of remote working environments.

Research question: What kind of impact does remote work have on employee performance in terms of efficiency and productivity?

4 Methods

The method chosen for this master's thesis is a scoping review. Scoping literature reviews are ideally used for defining the amount and comprehensiveness of literature on a specific topic, and for identifying knowledge gaps on a certain area of interest. Scoping reviews are typically used for identifying and mapping existing evidence, but it can also be used for clarifying key concepts, as well as for examining the most typical research methodologies. Scoping reviews are also used prior to a systematic review. (Munn et al. 2018: 2.)

While considering which approach would be more appropriate, systematic, or scoping review, authors should critically consider the purpose and the aim of the review. Systematic reviews are often used for seeking answers to specific questions, unlike scoping reviews which provide an outline or map of the evidence. Systematic reviews are also expected to provide implications for practice, which is not the case for scoping reviews. (Munn et al. 2018: 3.) This scoping review follows a five-stage framework by Arksey and O'Malley (2005: 22) from identifying the research question and relevant studies to study selection, charting the data, and finally collating, summarising, and reporting the results.

4.1 Search strategy

The search strategy for conducting a scoping review needs to be as extent as possible considering the time and resource related restrictions for identifying both published and unpublished sources and reviews. Restrictions made regarding language or time frame must be justified and clearly explained. Inclusivity should be prioritised. Clarity of the review question helps in developing a search strategy, makes the literature search more efficient and enables a transparent structure for developing scoping review. The title, research question and inclusion criteria ought to be consistent while conducting a scoping review. (Peters et al. 2020a.)

4.1.1 Search words and search terms

The research question and the search terms for this scoping review have been formed using PCC method. PCC consists of words population, concept, and context (Peters et al. 2020a: 416). PCC tool helps in forming clear and sensible title and research questions for a scoping review. While conducting a scoping review, inclusion criteria should determine the main characteristics of the participants, meaning population. The relevant concept or concepts of the scoping review, also need to be explained. Concepts may include elements which are identical with the ones in traditional systematic reviews, like outcomes, phenomena, or interventions. The context of scoping review depends on the objective and research questions, possibly including details concerning geographic location, culture, or gender. Specifying the context helps in defining a specific scope for the review. (Peters et al. 2020b.) Search terms of this scoping review, which were formed by using the PCC tool, are presented in Table 1.

Table 1. PCC elements used in this scoping review.

<p style="text-align: center;">Population (P)</p> <p style="text-align: center;">Employees</p>	<p style="text-align: center;">Concept (C)</p> <p style="text-align: center;">Employee performance (productivity, efficiency)</p>	<p style="text-align: center;">Context (C)</p> <p style="text-align: center;">Remote work</p>
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The search process begins with initial limited search of at least two relevant databases (Peters et al. 2020a: 420). The preliminary search for this scoping review, was executed on Wiley Online Library and ProQuest databases. Librarians from Metropolia University of Applied Sciences were consulted at this stage of search process. The initial search was performed using search terms “employee performance” and “remote work”. Additional search terms were identified via screening the titles and abstracts, as well as the keywords of the publications from the initial search, after which search words “productivity” and “efficiency” were added. Final search terms were determined by using four search words and their synonyms shown in Table 2. The final search also included PubMed database.

Table 2. Search words and synonyms used for data search.

<p>Employee performance</p> <p>Work performance Job performance Individual performance</p>	<p>Remote work</p> <p>Telecommuting Telework Work from home</p>
<p>Productivity</p> <p>Work productivity Job productivity</p>	<p>Efficiency</p> <p>Work efficiency Job efficiency</p>

The search term used for Wiley Online Library was ""employee performance" OR "individual performance" OR "job performance" OR "work performance"" and "productivity" and "efficiency" and ""remote work" OR telework OR telecommut* OR "working from home"". The data search in ProQuest Central was conducted with search term ("employee performance" OR "work performance" OR "individual performance" OR "job performance") AND ("work productivity" OR "job productivity") AND ("work efficiency" OR "job efficiency") AND ("remote work" OR "telecommuting" OR tele work" OR work from home"). Finally, the search term used for PubMed was ("employee performance" OR "individual performance" OR "job performance" OR "work performance") AND (productivity OR efficiency) AND (remote work OR telework* OR telecommut* OR work* from home). The final search terms are presented in Figure 1.

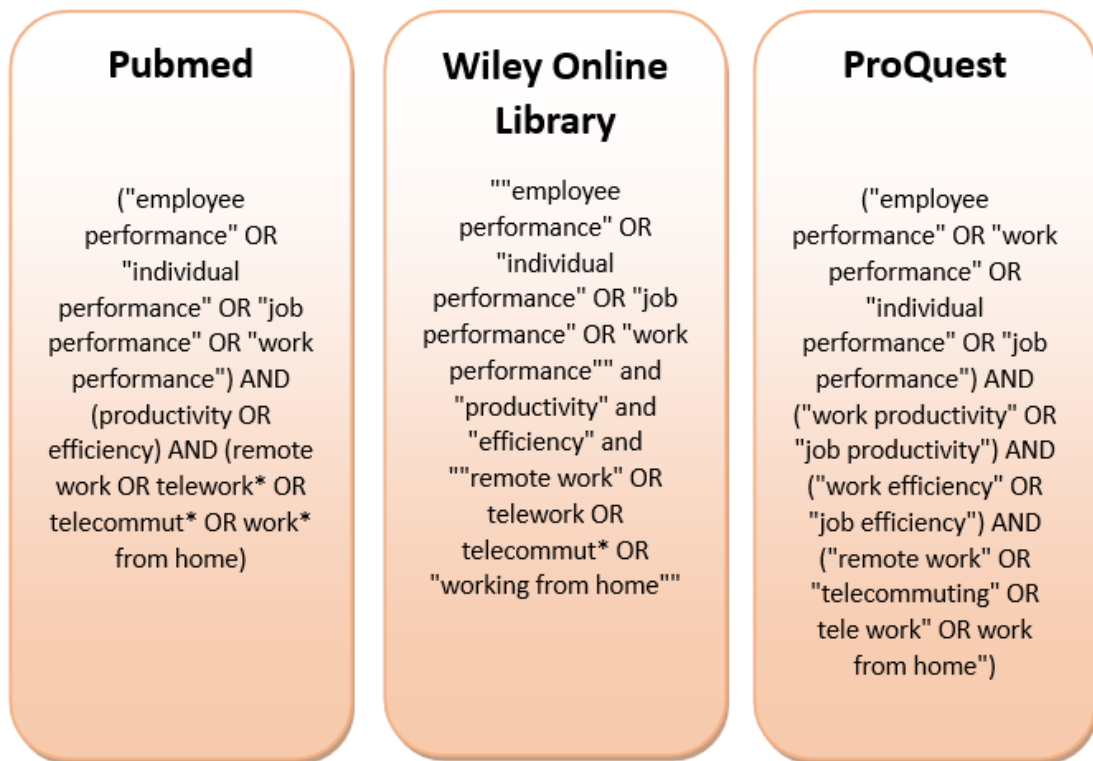


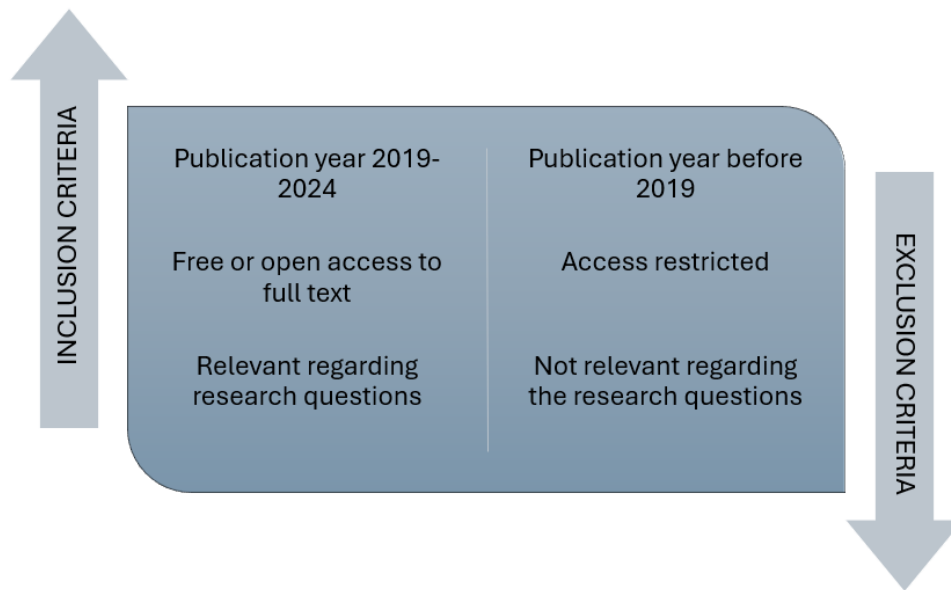
Figure 1. Search terms by database.

4.1.2 Inclusion and exclusion criteria

Inclusion criteria helps in clarifying the scope of the review for readers and guide the reviewer in decision making for source inclusion or exclusion. Inclusion criteria guide the review process while considering which sources are to be included in the review. (Peters et al. 2020a: 418.) Inclusion criteria in scoping reviews have a wider scope meaning that there are less restrictions regarding the inclusion criteria (Peters et al. 2020a: 411). For this scoping review, restrictions were not made considering the form of publications, however the final selection did not contain other than published and peer-reviewed material.

The research question guides the development of specific inclusion criteria for the scoping assessment (Peters et al. 2020a: 416). For this scoping review search results were restricted by the publication year from 2019 to 2024 due to the relevancy of the topic within the last few years. Topics and issues related to remote work have been of increasing interest amongst researchers during and after the COVID-19 pandemic as new types of working models have been implemented. All criteria for inclusion and exclusion of search results are presented in Table 3.

Table 3. Inclusion and exclusion criteria.



4.1.3 Data review

The process of data review for this master's thesis was conducted systematically in several stages. The search for relevant publications was conducted in three different databases: Wiley Online Library, ProQuest Central and PubMed. The databases were chosen for their comprehensive coverage of literature related to the topic. Initial search resulted in a total of 597 publications identified through the database searches. Considering the timely interest regarding the topic, focus was set on recent literature by narrowing the search covering publications from the past 5 years. After adding the temporal limitation and excluding the results with restricted access, 255 publications were listed in the search results. During the next stage of the data review, the titles, and abstracts of all 255 publications were carefully screened to assess the relevance to the topic of interest and to remove possible duplicates. One duplicate and publications which were not relevant considering the research question, were excluded, leading to an exclusion of 231 publications all together. After the initial screening, full texts of the remaining 24 publications were carefully reviewed to determine their suitability for inclusion for the final analysis and review. After the full text review, 16 publications were excluded based on their irrelevance to the research question. Finally, eight publications met the pre-set criteria and were included in the final review. The process of data review is presented in Figure 2.

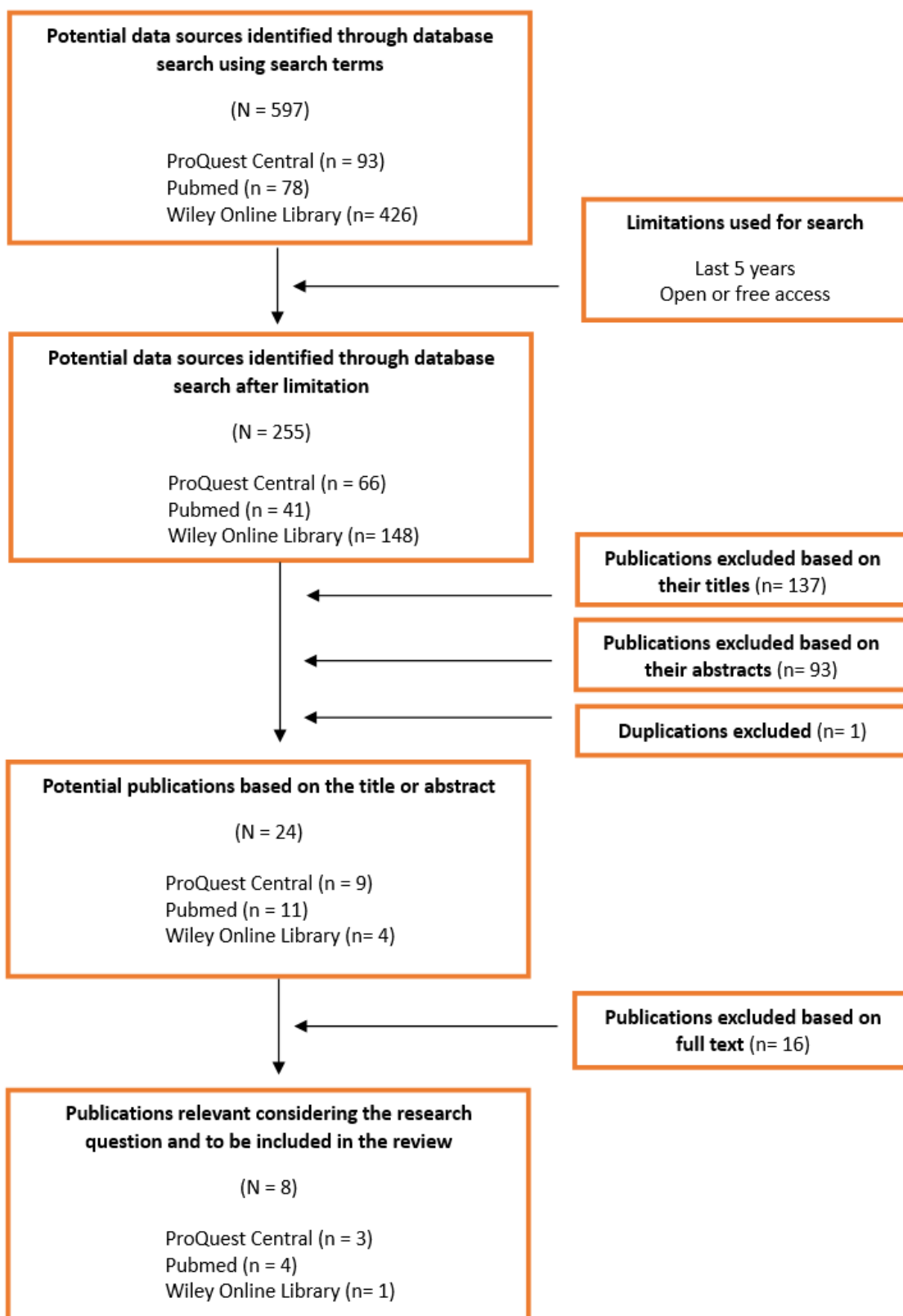


Figure 2. PRISMA diagram of publication selection

4.2 Quality assessment

The objective of quality assessment using critical appraisal is to evaluate the methodological quality and bias minimisation in conducting research. While quantitative studies focus on minimising bias for validity, textual evidence appraisal involves screening opinions, investigating source credibility and motives, also considering global context. Validity in textual evidence relates to the content, source credibility, and motivations. The standardised appraisal tools by The Joanna Briggs Institute are recommended for scoping reviews. (Peters et al. 2020a.)

All eight publications underwent a quality assessment based on Critical Appraisal Tools by The Joanna Briggs Institute (Critical Appraisal Tools 2024). Two of the selected articles were systematic reviews which were assessed using the checklist for systematic reviews and research syntheses. Two of the studies used a qualitative approach and were hence assessed with the checklist for qualitative research. Two articles went through assessment using the checklist for quasi-experimental studies, and the two questionnaire studies were assessed with the checklist for analytical cross-sectional studies. JBI scores for quality assessments are shown in table in Appendix 1. Quality assessment did not lead to further exclusions.

4.3 Data analysis

Content analysis is a research method which can be used in both quantitative and qualitative approaches to draw meaningful conclusions from diverse data sources over long periods. The method helps in comparing objects, uncovering individual traits or motivations, and examining characteristics of specific time periods. Qualitative content analysis involves coding data to reveal both explicit and implicit meanings of categories. Conventional content analysis employs an inductive approach to develop categories directly from the data. Through repetitive coding and analysis, key concepts are identified and categorised based on similarities and differences found in the coded data. (Im et al. 2023.)

The data collected for this master's thesis is analysed by using inductive content analysis which enables a systematic and objective data analysis for the study. Inductive content analysis aims at describing the phenomenon in a well condensed and general form. The objective in analysing qualitative data is to increase informational value by creating clear, meaningful, and understandable information on the phenomenon at hand. (Tuomi & Sarajärvi 2002.)

The first stage of data analysis is data reduction which begins with getting familiar with the material. After reading through the data, reduced expressions are pointed out and listed to find similarities and differences between them. Reduced expressions are categorised into themes for further classification. After clustering, the data is abstracted which means separating essential information and forming concepts out of the selected data. (Tuomi & Sarajärvi 2002.) The process of data analysis for this master's thesis resulted in two main categories formed out of eight subcategories presented in the following chapter.

5 Results

The search process for this scoping review resulted in a total of 24 publications based on their titles and abstracts. After reading through the full texts of each article, 8 publications were included in the final review. The selected articles were published in China, South Africa, Malaysia, Botswana, Germany, Belgium, Jakarta and Switzerland. Articles were published between 2021 and 2023. The selected articles included two systematic reviews, two questionnaire studies, one comparative study, one empirical investigation research, one qualitative exploratory study and one descriptive qualitative research. All articles were published in English.

Based on the analysis of publications conducted for this scoping review, eight subcategories and two main categories were identified. Overall impact of remote work on performance included conflicting effects as both positive and negative impacts on productivity and outcomes were described. Factors influencing performance on remote work varied from the type of work and working environment to personal and family related factors. Organisational support and flexibility were also identified as features which impact employee performance in context of remote work.

5.1 Overall impact of remote work on performance

The reviewed material indicated conflicting effects of remote work on employee performance on an individual level, as well as from the organisational perspective. Both positive and negative impacts were identified on performance and productivity. The promoting effects of remote work on employee performance and productivity were highlighted in most studies reviewed for this master's thesis. All identified categories and subcategories under the first main category "Overall impact of remote work on performance" are presented in Image 1.



Image 1. Overall impact of remote work on performance.

5.1.1 Positive impact on productivity and performance

Increased productivity and positive correlation with employee performance and work from home were noted in most of the reviewed publications (Anakpo et al. 2023; Chiguvi & Bakani 2023; Deole, Deter & Huang 2023; Meiryani et al. 2022; Mutiganda et al. 2022; Zürcher et al. 2021). Positive effects of remote work appear especially amongst employees and supervisors who can choose to work from home as they evaluate their performance higher than the ones working in the office. Remote workers were also found to perform better in creative assignments compared to their colleagues at the office. (Mutiganda et al. 2022: 10.) According to Deole et al. (2023: 15) increased amount of remote work positively influenced productivity, especially among male employees. A systematic review by Anakpo et al. (2023: 13) showed that the outcomes of remote work may be either positive or negative while multiple factors influence the reported outcomes. Most studies indicated positive impact and only few negative or no significant difference on employee productivity.

5.1.2 Negative impact on productivity or outcomes

A systematic review conducted by Mutiganda et al. (2022) pointed out few studies which found that work from home does not significantly enhance productivity or job performance. Increased remote work among colleagues affect team performance negatively, especially regarding team productivity. Informal remote work arrangements and flexible work options are associated with improved employee performance due to increased commitment and job satisfaction. Deteriorating effects of remote work on organisational performance were also reported. Compared to other family-friendly initiatives, remote work programs are found less effective. A direct negative correlation between working from home and return on labour was indicated, especially in dynamic business environments. (Mutiganda et al. 2022: 6-8.)

The other systematic review conducted by Anakpo et al. (2023: 15) pointed out results which showed negative or reduced impact on productivity as well as increased levels of stress among remotely working employees.

5.1.3 Conflicting effects

The impact of remote work arrangements on employee performance is not always definite, but on the contrary, the effects might be conflicting (Qu & Yan 2023; Mutiganda et al. 2022; Ahmad, Asmawi & Samsi 2022). Depending on several factors

such as working conditions, personality, and the type of tasks, remote work may be interpreted differently, either positively or negatively impacting employee performance (Mutiganda et al. 2022: 10). According to Qu & Yan (2023: 212) working from home enhanced job performance in terms of quality while leading to a decrease in productivity which suggests that remote work does not always have a strictly positive or negative impact on overall performance. In the research by Ahmad et al. (2022: 5), employees' perception of their work performance varied from being unsatisfactory to highly productive.

5.2 Factors influencing performance on remote work

Employee performance in remote work settings is impacted by a variety of factors including the nature of tasks, the surrounding workspace, individual characteristics, family related aspects, as well as the supportive measures and actions taken by the organisation and management. All identified categories and subcategories under the second main category “Factors influencing performance on remote work” are presented in Image 2.

Image 2. Factors influencing performance on remote work.



5.2.1 Various influencing factors

The effects of remote work on employee performance vary and are influenced by many different factors (Anakpo et al. 2023: 13; Mutiganda et al. 2022: 10). The nature of work, personality, industry, and home environment all have an impact on employee productivity while working remotely (Anakpo et al. 2023: 15). Technology issues and lack of childcare reduced productivity during the COVID-19 pandemic. Communication with colleagues, support from management as well as other specific factors including commuting time, distractions, or feelings of isolation, can impact employees differently, reducing productivity for some. Various work-family policies, like flexibility considering work location, can indirectly influence employee performance via work-family conflict, employee well-being, and personal preferences, social encounters, and the use of virtual technology. The diverse findings in studies are likely due to differences in the performance measuring tools applied. (Mutiganda et al. 2022: 10.) Study by Chiguvu & Bakani (2023: 111) showed that remote work has a positive effect on productivity due to better concentration and increased autonomy and flexibility for completing tasks.

5.2.2 The type of work

The type of work determines the effects of remote work according to the reviewed studies. Working from home is suitable in specific tasks, such as the work in call centres. On the contrary, studies covering diverse organisations often showed negative or neutral effects on remote work performance or outcomes. The type of activities performed by organisations, may influence the association between remote work and outcomes. (Mutiganda et al. 2022: 10.)

Anakpo et al. (2023: 13-15) also highlighted the meaning of the nature of work on employee productivity as remote work is not adjustable to all work. Certain tasks require infrastructure or onsite presence, which make remote work impractical or impossible. Remote work suits well for tasks which do not require collaboration. Academic researchers, for instance, tend to be more productive when working remotely, especially in tasks related to preparation of manuscripts, and reading or analysing materials. Assignments which demand communication with the team, succeed better while working in the office.

Ahmad et al. (2022: 1891-1892) reported that irregular working hours increase work pressure and affect work-life balance which eventually leads to decreased employee well-being and work effectiveness.

5.2.3 Working environment

Majority of the reviewed studies indicated that remote work settings and home environment have a significant impact on employee performance and productivity (Qu & Yan 2023; Anakpo et al. 2023; Ahmad et al. 2022; Chiguvi & Bakani 2023; Mutiganda et al. 2022; Zürcher et al. 2021; Meiryani et al. 2022).

Lack of workspace and limited access to information resources hinder the effectiveness of remote work (Ahmad et al. 2022: 1891). Lack of resources provided by employer negatively influence job productivity as many employees are dependent on their personal internet connection while working from home. Communication breakdowns also decreased remote work productivity. (Chiguvi & Bakani 2023: 110-111.) Similar observations have been noted by Meiryani et al. (2022: 11) pointing out that network issues cause problems in communication and work processes which affect the overall work outcomes.

Optimal working conditions increase focus, concentration and creativity leading to improved productivity (Qu & Yan 2023: 212). Participants in the research by Chiguvi & Bakani (2023: 110) also reported that working from home enables focusing on tasks without being interrupted. Zürcher et al. (2021: 8) ended up in similar conclusions as their study pointed out that remote work and reduced distractibility are closely linked together which highlights the importance of privacy. Lower distractibility positively effects employee performance and productivity.

Anakpo et al. (2023: 15) found out that employees who could save money on commuting costs may be less stressed and hence more productive. Deole et al. (2023: 15) argued that remote work productivity increases especially among male employees due to longer transportation times compared to female employees. Instrumental support, for example getting help with household chores or food deliveries, also has an impact on remote work productivity according to Ahmad et al. (2022: 1893).

5.2.4 Personal and family related factors

The overall performance while working from home is affected by various personal and family related characteristics. According to Ahmad et al. (2022: 1892-1893) individual coping strategies have a positive influence on the effectiveness of remote work. Coping strategies refer to emotional mechanisms used by employees to cope with the remote work challenges. These strategies include situation and time management, as well as

attitude and emotional management, which are all linked to positive experience regarding the work from home. Commitment orientation also impacted the effectiveness of remote work. (Ahmad et al. 2022: 1895.) The study by Anakpo et al. (2023: 14-15) noted that employees with more experience, often perform with greater productivity as well as the ones with proper information technology skills. Job satisfaction mediates work-life balance and job productivity. Remote work has led to greater responsibility for employees, which eventually increases job satisfaction and furthermore job productivity.

Personal factors such as gender and living with dependent children have a significant impact on remote work outcomes. For individuals with childcare responsibilities, especially during the pandemic lockdown, working from home may be less beneficial compared to the employees without such responsibilities. Childcare duties often lead to feelings of being overwhelmed with work which causes a work-family conflict. The correlation between work-life balance and gender inequality is evident, as females often take care of the household duties, impacting their productivity and job satisfaction. Gender roles affect employee productivity, especially regarding female employees whose performance is more prone to the change in work arrangements. Remote work makes domestic responsibilities easier for female employees, which can be less advantageous regarding performance while working from home. Productivity is often positively linked to perceived effectiveness, regardless of gender. The disparity may be explained with additional responsibilities, such as whether female employees have dependent children affecting remote work productivity. (Anakpo et al. 2023: 14.)

Ahmad et al. (2022: 1890) also reported that the effectiveness of remote work is influenced by household, particularly the number and age of household members. Distractions caused by younger children or spouses' impact on employees who are married especially. The importance of work-home boundaries is highlighted particularly in large households with shared space. Deole et al. (2023: 12) discovered that the productivity of mothers with younger children and of the ones taking care of childcare responsibilities during lockdown weakened compared to the ones with older children or no related responsibilities. Ahmad et al. (2022: 1894) pointed out that the emotional support from family members has a positive impact on employee effectiveness while working remotely.

Deole et al. (2023: 15) found out on their study that female employees who have the possibility to work remotely, and who have more autonomy over their work pace and

hours, tend to be more productive while working from home compared to their counterparts.

5.2.5 Organisational support and flexibility

If remote work is implemented effectively with proper procedures which do not lead to employee laziness, it can enhance employee performance. Lack of supervision may have a negative effect on employee performance, which highlights the importance of supervision and sanctions. Implementing friendly remote work models improves employee performance by offering flexibility and comfortable work environment, which enables more efficient completion of tasks. (Meiryani et al. 2022: 11.) Mutiganda et al. (2022: 11) pointed out that during the pandemic, remote and hybrid work, relied on effective surveillance and support from the management, such as providing information and communication technology infrastructure, training, and ergonomic support. These factors were crucial for ensuring positive remote working experiences and maintaining employee productivity. In addition to supportive management style, the outcomes of remote work on both individual and organisational level are influenced by prior remote work experience of the employee. (Mutiganda et al. 2022: 11.)

Qu & Yan (2023: 212) discovered on their study that working from home influences employee performance due job control and job demand, which are affected by social support. Remote work provides employees with flexibility and autonomy to choose when they work, which leads to selecting times when they feel most productive. This causes improved job quality due to increased focus, concentration, and creativity. Despite the higher job quality, remote workers often face greater job demand, which may not increase job productivity compared to working from the office.

Chiguvi & Bakani (2023: 110) noticed that the increased employee productivity was linked to autonomy in executing tasks and the ability to create personalised work schedules. This highlights autonomy as a motivating factor for employees to take on additional tasks and responsibilities. Deole et al. (2023: 15) came to a similar conclusion as they found out that employees with higher autonomy over their work, showed higher remote work productivity compared to their counterparts. On the contrary, Anakpo et al. (2023: 15) reported no significant correlation between job autonomy and employee performance based on their study.

The possibility to utilise flexible working times improves job satisfaction and employee well-being which increases productivity. Employees who face difficulties in balancing

responsibilities from work and home, often report negative experiences while working remotely. This is particularly common with the employees who are limited to regular working hours. The lack of temporal flexibility leads to dissatisfaction. (Ahmad et al. 2022: 1894.)

Chiguvi & Bakani (2023: 110) reported that employees who felt the need to impress their supervisors or gain their trust due to the lack of supervision, perceived themselves being more productive while working remotely. The lack of trust as well as rigid expectations from superiors have a negative impact on remote work effectiveness (Ahmad et al. 2022: 1891-1892).

Implementing different types of work-family policies, may have an indirect impact on job performance via employee well-being, family-work conflict, socialising with supervisors and members of family, employee preference for work segmentation, and utilising virtual connection technologies (Mutiganda et al. 2022: 10).

6 Discussion

The impact of remote work on employee performance varied according to the reviewed studies. The studies by Anakpo et al. (2023), Chiguvi & Bakani (2023), Deole & Deter & Huang (2023), Mutiganda et al. (2022), Zürcher et al. (2021) and Meiryani et al. (2022) reported positive effects of remote work on performance. Positive impact was noted especially among employees who have the possibility to choose the workplace (Mutiganda et al. 2022). Remote work seems to be most beneficial in specific task demanding creativity (Mutiganda et al. 2022). Results also suggested negative effects of remote work on performance as it might lead to decreased team productivity, for instance (Anakpo et al. 2023; Mutiganda et al. 2022). Similar findings have been reported by Van der Lippe & Lippényi (2019). Conflicting results show that remote work might improve the quality of performance while decreasing the overall performance (Qu & Yan 2023). The diverse findings in studies indicate differences in the applied measuring tactics (Mutiganda et al. 2022: 10).

The type of work and working environment affect the outcomes of remote work. Even though remote work can be beneficial for some groups with specific tasks, the effects might be neutral or negative in organisations with diverse work tasks (Anakpo et al. 2023; Mutiganda et al. 2022). Performance may also vary within a profession, increasing productivity in certain independent tasks, but hindering it while working with

more collaboration-dependent assignments. Remote working environment also has a clear impact on employee performance and productivity. Communication difficulties, lack of workspace, and limited access to resources hinder productivity, while optimal working conditions improve concentration and creativity, positively affecting employee performance. (Ahmad 2022; Chiguvu & Bakani 2023; Meiryani et al. 2022; Qu & Yan 2023.) Financial savings from reduced commuting costs may also improve productivity via reduced stress (Anakpo et al. 2023). Instrumental support, such as help with household chores, also positively impacts remote work productivity (Ahmad et al. 2022).

The perceived benefits of working on-site include socialising with colleagues, face-to-face meetings, and setting boundaries for work and personal time, while the advantages of remote work include no commute, less expenses, and flexibility over working hours (Aksoy et al. 2023). Similar findings have been reported by Müller, Schubert, Bergsiek & Henseler (2022) on their study concerning the effects of workplace suitability and tasks on performance and collaboration while working remotely. The study showed that suitable tasks and suitable workplace positively influence work performance among office employees working remotely during the COVID-19 pandemic. The suitability of tasks for remote work facilitates professional development opportunities and feedback, as well as social support and autonomy which improve collaboration and performance. Appropriate work environment directly impacts performance by providing an undisturbed remote setting conducive to productivity. The study highlighted the importance of aligning work tasks and workplaces with the requirements of remote work to enable collaboration and enhance work performance of professionals and managers. (Müller et al. 2022.)

Individual coping strategies seem to have a positive influence on remote work effectiveness. Research by Troll, Venz, Weitzenecker & Loschelder (2022) showed congruent findings as they found out that employees who have higher self-control perform better in their jobs, even when facing different situational demands or considering their past performance. A Romanian study has found out that employees working remotely more frequently often show higher performance technically which suggests that increased remote work allows employees to adapt effective routines and strategies compared to those who work more on-site (Kifor, Săvescu & Dănuț 2022). Job satisfaction affects work-life balance and productivity association, with remote work eventually leading to increased job satisfaction and productivity. Gender and household composition also impact remote work outcomes, with childcare responsibilities having a

negative impact on productivity, especially for female employees. (Anakpo et al. 2023.) Rožman et al. (2021) came to similar conclusions on their study which showed significant differences between genders due to household and childcare duties. Kifor, Săvescu & Dănuț (2022) confirmed that having young children negatively impacts technical performance which may be due to challenges in dividing workdays between family and work responsibilities. Marital status, age and number of household members in general, as well as emotional support from family members also affect remote work productivity (Ahmad et al. 2022; Deole et al. 2023).

Effective supervision and managerial support, along with friendly remote working systems enhance employee performance (Meiryani et al. 2022; Mutiganda et al. 2022). Remote work influences performance via job demand, control, and social support while temporal flexibility improves job satisfaction and productivity. Autonomy in performing tasks as well as personalised working schedules serve as motivating factors for employees which eventually lead to increased productivity. Trust and flexible work-family policies from employer's side indirectly impact performance via employee well-being, family-work conflict, and social interactions. These results are consistent with studies by AlAbri et al. (2022) and Irshad et al. (2021) which show that human resource practices often positively impact employee performance. Investing in human resource processes such as providing education and training, diversifying work tasks and utilising performance appraisal can significantly enhance employees' adaptive performance which highlight the importance for organisations to focus on implementing human resource management practices that promote employee adaptability to improve the overall organisational performance (AlAbri et al. 2022).

Employees working remotely often implement strategies which positively influence job performance, however some effective strategies, such as adopting a positive work attitude, are not commonly in use. Certain strategies related to temporal flexibility are used despite the limited effectiveness which highlight the opportunity for organisations to educate remotely working employees in optimising their working strategies. (Härtel, Hüttemann & Müller 2023.)

6.1 Ethical considerations

The guidelines for research integrity have been considered throughout the master's thesis process. Ensuring research integrity is essential considering the trustworthiness of the research process and outcomes (All European Academics 2023: 3). Proper research methods and practices rely on the fundamental policies of research integrity.

These principles serve as a guideline for individuals, institutions, and organisations in their work and with the challenges they face while conducting research. The European Code of Conduct for Research Integrity include four principles which are considered in this master's thesis: reliability, honesty, respect, and accountability. (All European Academics 2023: 5.) The person conducting research is primarily responsible for the observation of liability. Honesty, carefulness, and openness, as well as respecting the work of other researchers is essential while conducting research such as master's thesis. (Arene 2020: 9). The research process of this master's thesis with all stages is documented and methods and results reported in an open and transparent manner. All references are carefully cited with respect to the researchers and authors.

6.2 Reliability and validity

Evaluating the reliability of research and results requires critical assessment of the "soundness" of study compared to relevancy and adequacy of the chosen methods, as well as the integrity considering the final conclusions (Noble & Smith 2015).

The aim while conducting a literature review, is to ensure reproducibility and minimise the risk of bias. This is achieved by establishing criteria for the process of selecting articles, conducting a comprehensive literature search, evaluating the methodological quality of included studies, and planning how information will be synthesised. The objective is to compile and integrate evidence from original studies to inform clinical practice effectively. (Malmivaara 2002.) For ensuring repeatability and transparency, the search strategy of this scoping review was described as detailed as possible. The inclusion process followed the PRISMA 2020 statement improving the transparency and trustworthiness of research findings. The PRISMA statement allows readers to evaluate the appropriateness of methods, helps in assessing the applicability, and assists policymakers in formulating recommendations. PRISMA 2020 simplifies replication, review updates, and inclusion in overviews and guidelines, reducing research waste. (Page et al. 2020.) The quality of the included publications for this scoping review were assessed using the critical appraisal tools by The Joanna Briggs Institute (Appendix 1).

Validity refers to the adequacy of tools, processes, and data used in qualitative research. Validity consideration includes critically assessing the appropriateness of methodology and design of research, as well as evaluating the sampling and analysis of data. Finally, the conclusions made regarding the results need to be valid considering the context and sampling. (Leung 2015.) The methods of data extraction

and analysis in scoping reviews depend on the review's purpose and are influenced by the author's creativity and judgement. Transparency and clarity considering the authors' chosen approach is essential in the processes of extraction and analysis, which includes explaining and reasoning as well as clearly presenting the extracted data and analyses. (Peters et al. 2020b.) The data analysis is described in detail in this report, and the categories formed as a result of the analysis, are presented openly and transparently. The aim, purpose and research question of this master's thesis were clearly defined in the beginning of the process. The research question guided the review process in all stages including the inclusion and exclusion of publications and the data analysis. Scoping review as research method suited well for answering the research question for this master's thesis.

6.3 Limitations of the study

The research question guides the process of forming specific inclusion criteria for the scoping assessment. For this review the search results were narrowed down to last five years due to the relevancy of the topic especially after the COVID-19 pandemic. The articles chosen for the final review were published in 2021-2023, which potentially excluded other potential publications and thereby limited the comprehensiveness of the review. The review process may have been susceptible to publication bias, as only published studies were included in the review. Using unpublished studies as well as gray literature is possible when conducting scoping reviews, however, this type of material was not included in this review, which has potentially led to an incomplete representation of literature.

7 Conclusions

Work environment has gone through a major transformation over the past few years while digital technology advancements and the global pandemic made companies and organisations consider new ways of working. This evolution has led to adoption of remote work models, replacing traditional office settings with digital platforms. The transition has had a major impact on work dynamics raising questions considering employee performance in the changing work environment.

Regardless of the varying and occasionally conflicting findings, the reviewed studies highlighted the positive effects of remote work on employee performance. With multiple influencing factors, individual coping strategies, commitment orientation, supervision

and support, and optimal working conditions are identified as the key factors improving work performance.

This master's thesis aimed at investigating and providing information about the impact of remote work on employee performance, focusing on efficiency and productivity. By using scoping review methodology, this master's thesis gathered information from the latest research on the subject. The findings provide valuable information for organisations about the effects of remote work on employee performance, as well as about the factors which influence efficiency and productivity in remote work settings. Understanding the benefits and challenges related to working from home is important for organisations in developing remote work strategies. The reviewed data suggests that optimising work tasks and workplaces to meet the requirements of remote work, enable better performance.

The topic for this thesis was influenced by the author's genuine interest and the relevance concerning current workplace and position. Future investigation can contribute to a deeper understanding of the dynamics between employee performance and remote work as well as the various aspects influencing productivity and efficiency while working away from the office. Studying the effects of remote work on employee performance in long-term or comparing performance between different industries could provide information about successful remote work arrangements, policies, and practices. Additional studies, especially qualitative studies, regarding employee and employer experiences about the effects of remote work on performance after the COVID-19 pandemic are needed while the society adapts to the new normal.

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Summary of Data Sources and JBI assessment scoring							
No	Source	Country of publication	Publication type	Method	Purpose of the study	Key findings	Quality assessment score (JBI)
1	Ahmad, Z., Asmawi, A. & Samsi, S. 2022. Work-from-home (WFH): the constraints–coping–effectiveness framework. <i>Personnel Review</i> , vol. 51, no. 8, pp. 1883-1901.	Malaysia	Scientific article	Qualitative exploratory study. Open-ended survey with 621 participants. The data was analysed using qualitative content analysis.	Developing a work-from-home framework using qualitative data.	Work from home boosts work productivity and personal well-being. 12 relevant research propositions were developed. Household and organisational factors may restrict remote work efficiency. Instrumental and emotional support enhance effectiveness while working from home. Temporal flexibility and commitment orientation serve as moderating factors.	7/10
2	Anakpo, G., Nqwayibana, Z. & Mishi, S. 2023. The Impact of Work-from-Home on Employee Performance and Productivity: A Systematic Review. <i>Sustainability</i> , vol. 15, no. 5, pp. 4529.	South Africa	Scientific article	Systematic review of 26 studies.	Providing a systematic review on the effects of remote work on employee performance and productivity.	The effects of remote work on employee productivity and performance depend on multiple factors including home environment, employer and industry traits, and the nature of work with the majority showing a positive influence and few reporting negative effects or no difference.	10/11
3	Chiguvi, D. & Bakani, K. 2023. Exploring the effects of remote work on employee productivity in Botswana amidst the COVID-19 Pandemic. <i>International Journal of Research in Business and Social Science</i> , vol. 12, no. 6, pp. 101-117.	Botswana	Scientific article	Descriptive qualitative study with in-depth interviews of 18 participants. Non-probability sampling technique and theme analysis were used for analysing the data.	Examining the impact of remote work arrangements on employee productivity in Botswana during the COVID-19 pandemic, specifically focusing on the Botswana Unified Revenue Service (BURS).	Working from home increased employee productivity, which highlights the meaning of proper resources for optimising remote work performance in organisations.	8/10

4	Deole, S., Deter M. & Huang Y. 2023. Home sweet home: Working from home and employee performance during the COVID-19 pandemic in the UK. Labour Econ. 2023 Jan; 80:102295.	Germany	Scientific article	Empirical investigation employing the longitudinal data of the Understanding Society from the UK which covers detailed information on 40,000 British households every year.	Investigating whether the frequency of remote work correlates with work performance during the COVID-19 pandemic.	The increased frequency of working from home positively influences employees' self-reported hourly productivity. Changes in the frequency of working from home are not related to weekly wages and weekly working hours during the same period. Substantial productivity of working from home was higher among female employees who have the possibility to work from home and who have higher autonomy over work pace and hours, compared to their counterparts. Male employees who travelled longer to the office considering time or distance, were more productive when working from home. The work from home productivity is weaker with parents who live with school-age children due to increased homeschool needs because of school closures.	9/9
5	Meiryani, Nelviana, Koh, Y., Soepriyanto, G., Aljuaid, M. & Hasan, F. The Effect of Transformational Leadership and Remote Working on Employee Performance During COVID-19 Pandemic. 2022. Front Psychol. 2022 Aug 12;13:919631.	Jakarta	Scientific article	Questionnaire distribution survey with 136 respondents in Jakarta. Quantitative approach.	Analysing the impact of remote work and transformational leadership on employee performance during the COVID-19 pandemic.	Transformational leadership has no significant impact and remote work has a significant impact on employee performance during the COVID-19 pandemic.	8/8

6	Mutiganda, J., Wiitavaara, B., Heiden, M., Svensson, S., Fagerström, A., Bergström, G. & Aboagye, E. 2022. A systematic review of the research on telework and organizational economic performance indicators. <i>Front. Psychol.</i> 13:1035310.	Belgium	Scientific article	A systematic review.	Compiling and synthesising previous study findings on the relationship between remote work and organisational financial outcomes in terms of actual employee turnover rates or intentions, organisational performance, and self-reported employee performance.	Employees working remotely reported higher performance compared to employees working on-site. The extent of the organisations' remote work practice and individual characteristics influenced the extent of change in performance. Remote work correlated with improved organisational performance, especially in homogenous samples and unique work tasks. Voluntary remote work decreases intentions to leave the organisation and hinders the actual employee turnover rates.	10/11
7	Qu, J. & Yan, J. 2023. Working from home vs working from office in terms of job performance during the COVID-19 pandemic crisis: evidence from China. <i>Asia Pac J Hum Resour</i> , 61: 196-231.	China	Scientific article	A quasi-experimental methodology, using entropy balance matching. Online survey was used to collect data, with a final sample of 861 participants.	Illustrating whether work from home can replace the classical working routine.	Work from home increases job quality but decreases job productivity. Work from home impacts performance via job control and job demand. Social support positively influences remote work productivity.	8/9
8	Zürcher, A., Galliker, S., Jacobshagen, N., Lüscher Mathieu, P., Eller, A. & Elfering, A. 2021. Increased Working From Home in Vocational Counseling Psychologists During COVID-19: Associated Change in Productivity and Job Satisfaction. <i>Front Psychol.</i> 2021 Dec 3;12:750127.	Switzerland	Scientific article	Questionnaire study with a sample of 238 participants.	Assessing how work from home corresponds with indicators of occupational wellbeing and job performance.	The increased work from home during COVID-19 pandemic correlated with higher productivity, lower distractibility, and higher job satisfaction. More frequent work from home did not significantly correlate with improved work-life balance.	8/8