UNIVERSITY OF LJUBLJANA
SCHOOL OF ECONOMICS AND BUSINESS

AMADEJA LAMOVŠEK

A CONFIGURATIONAL APPROACH TO WORK DESIGN FOR DIFFERENT FORMS OF WORK

DOCTORAL DISSERTATION

Ljubljana, 2024

AUTHORSHIP STATEMENT

The undersigned Amadeja Lamovšek, a student at the University of Ljubljana, School of Economics and Business, (hereafter: SEB LU), author of this written final work of studies with the title A configurational approach to work design for different forms of work, prepared under supervision of Professor Matej Černe, PhD.

D E C L A R E

1. this doctoral dissertation to be based on the results of my own research;
2. the printed form of this doctoral dissertation to be identical to its electronic form;
3. the text of this doctoral dissertation to be language-edited and technically in adherence with the SEB LU's Technical Guidelines for Written Works, which means that I cited and / or quoted works and opinions of other authors in this written final work of studies in accordance with the SEB LU's Technical Guidelines for Written Works;
4. to be aware of the fact that plagiarism (in written or graphical form) is a criminal offence and can be prosecuted in accordance with the Criminal Code of the Republic of Slovenia;
5. to be aware of the consequences a proven plagiarism charge based on this doctoral dissertation could have for my status at the SEB LU in accordance with the relevant SEB LU Rules;
6. to have obtained all the necessary permits to use the data and works of other authors which are (in written or graphical form) referred to in this doctoral dissertation and to have clearly marked them;
7. to have acted in accordance with ethical principles during the preparation of this doctoral dissertation and to have, where necessary, obtained permission of the Ethics Committee;
8. my consent to use the electronic form of this doctoral dissertation for the detection of content similarity with other written works, using similarity detection software that is connected with the SEB LU Study Information System;
9. to transfer to the University of Ljubljana free of charge, non-exclusively, geographically and time-wise unlimited the right of saving this doctoral dissertation in the electronic form, the right of its reproduction, as well as the right of making this doctoral dissertation available to the public on the World Wide Web via the Repository of the University of Ljubljana;
10. to have acquired from publishers, to whom I have previously exclusively transferred material copyrights for articles, all the necessary permissions for the inclusion of articles in the printed and electronic forms of this dissertation. These permissions enable the University of Ljubljana to save this doctoral dissertation in the electronic form, to reproduce it, as well as to make it publicly available on the World Wide Web via the Repository of the University of Ljubljana free of charge, non-exclusively, geographically and time-wise unlimited;
11. my consent to publication of my personal data that are included in this doctoral dissertation and in this declaration, when this doctoral dissertation is published;
12. that I have verified the authenticity of the information derived from the records using artificial intelligence tools.

Ljubljana, June 4th, 2024 Author's signature: _____

ACKNOWLEDGEMENTS

Reflecting back, it feels like just yesterday I was writing my motivational letter, full of excitement about tackling challenges and discovering the unknown. I counted to three, and now I am already at the end of this path. As I stand at the end of this incredible journey, my heart is overflowing with gratitude and joy. This PhD experience has been nothing short of transformative. I have learned to tackle challenges head-on, delve deep into research, and discover the unknown. My passion for research has only grown stronger, and I am more eager than ever to embrace new challenges and continue my exploration. Throughout this journey, I have learned so much, met friends for life, and created countless memories.

First and foremost, I want to thank my family for their endless support. To my wonderful mum, Urška, my angel dad, Tadej, and my amazing brother, Lovro – your encouragement has been my backbone. To all my other family members, thank you for always cheering me on. To my partner, Rok, your love, support, and time spent offline together in nature have been invaluable. And of course, to my dog, Giny, who deserves a PhD too for being with me every step of the way and being my ultimate stress relief and cuddle buddy.

A huge shoutout to my best friends, Lana and Lea, who have walked thousands of miles with me, offering free therapy sessions, shared laughs and growing together. To my colleagues Luka, Jure and Dejan, for all the stupid jokes, trips and great ideas we shared together, and to all the others who joined me for coffees and brainstorming sessions, thank you for your camaraderie. To my co-authors and committee members, Robert Kaše, Tomislav Hernaus, and Sut I Wong, your continuous feedback and support have been crucial to my success.

I have to give a special thanks to my mentor, Matej Černe. As I've said before and will say again – you are the best mentor in the world. Thank you for supporting all my crazy ideas, for all the amazing memories, opportunities, lessons, laughs, including me in numerous awesome projects and connecting me with people. You've trusted me and given me the freedom to explore, making my PhD journey the best ever. Our shared values, optimism and passion for research, growth, and new management practices has made this experience unforgettable. I am glad you are not just my mentor, but also a friend who I can deeply trust.

As I move forward, I am excited to keep exploring, researching, and working on cool projects. My purpose is to make a hybrid work option available for all knowledge workers. Therefore, I aim to educate managers and employees about the pros and cons of distributed work, implementation techniques, and best practices on that.

I've always believed in the power of teamwork and the saying "More heads are better than one." Collaborating with people who share similar goals and visions has been a true joy. Thank you to everyone who has crossed my path and helped me become who I am today. I couldn't imagine a better support system around me. I am so lucky and grateful for all of you. I can't wait to see what life brings me next – I am so excited!

SUMMARY

The dissertation addresses the evolving environment of distributed work, focusing on how to create a work design that is most favorable to employee outcomes for each form of work (i.e., on-site, hybrid work and remote). The core of this research lies in exploring the interplay between job design characteristics and the employee outcomes in different forms of work. It uses the extended Job Demands Resources Model to conceptualize and set up the analysis of how job demands and resources interact in shaping their work environment through behaviors such as job crafting and work motivation.

The primary motivation for this research is to address the gap in traditional work design theories, which are increasingly misaligned with the realities of modern, technology-driven work environments. The study aims to modernize these theories to better meet the needs of knowledge workers in different work environments, especially in light of the increase in distributed work and the significant impact of information and communication technology on work design. The main objective of this thesis is to improve the understanding of optimal work design for different types of work, taking into account some individual and contextual characteristics. It aims to identify the most effective combinations of job characteristics that lead to positive outcomes in different types of work. It seeks to identify the most effective configurations of job design characteristics that lead to positive outcomes in different forms of work. In this way, it intends to contribute both to practical aspects of work design in modern organizations and to the theoretical advancement of work design theories to capture the nuances of today's technologically advanced work environments.

The study is organized into four chapters, each dealing with different aspects of work design. The first chapter provides a short background of main examined constructs, i.e., job characteristics, (enriched) work design, The Job Demands Resources Model, as overarching theory, and forms of work, along with distributed work. Second part of this chapter provides a comprehensive overview of the development, current status and future directions of distributed work research, highlighting the shift in focus from the individual to the broader organizational and societal level. It reveals the proliferation of concepts and highlights the usual mistakes. The findings, in a summarizing manner, show how that concepts denoting distributed work differ in terms of the use of information communications technology, the location of the work and the geographical distribution. Last but not least, it illuminates the need for new frameworks for understanding and effectively designing distributed work. Building on that, next part of the chapter aims to examine the intersection of distributed work and work design, and past, present and future of this research. It shows that the research connecting distributed work and work design began in the organizational behavior/organizational psychology field and was connected to different individual-level outcomes. Later, the research on the topic has expanded considerably and became crucial to the fields of organization studies, information systems and technology, human resource management, and (strategic) management. This shows that distributed work became increasingly important for both theory and practice. While research during the first examined period focused more or less on the micro (individual in their work context) level, we can

derive from the identified theories that the next (second examined) period also focused on the macro level, putting forth the strategic, industrial economics and firm competitiveness perspective. The Resource-based view came to the forefront and examined various resources, including technology and work design, as one of the main factors of firms' performance and competitive advantage. This part of the chapter also develops an integrative framework of distributed work design, which builds up to the Work design questionnaire model, incorporating information communications technologies characteristics and some other individual, organizational and contextual characteristics revealed by co-citation, co-occurrence and topic modeling.

The second chapter deals with the complexity of work design configurations. Firstly, it introduces different, previously found, work design configurations, and highlights the importance of comprehensiveness. Next two parts of the chapter make an important contribution to understanding work design in the digital age and offers practical insights into optimizing human potential during technological advances and different forms of work. Enriched work design has been shown to be beneficial for all forms of work for both, task performance and work-life balance. Specifically for task performance, while we confirm the importance of enriched work design, several specific characteristics and their accompanying configurations (including compensatory effects) are highlighted with regard to the task performance achieved. These include high levels of task identity for all three forms of work. Work performed in a traditional on-site setting additionally requires greater task variety. Conversely, remote work requires high information processing and social support. The hybrid model calls for the most complicated work design that combines essential elements of both the on-site and remote work paradigms, namely task variety and information processing, and also for enhanced mechanisms for job feedback. The hybrid form of work is a universal social phenomenon still on the uptake that likely represents the future of work, and since it combines traditional settings with information and communication technologies, we also emphasize the importance of field-bridging future research of information systems and organizational design areas. When examining work-life balance, we took even more holistic view and integrated work design with new information and communication technology characteristics. The analysis of variance showed that workers who work in hybrid work environments generally have the highest work-life balance, followed by remote employees and onsite workers. Further, the analysis suggests that work design is important for work-life balance across all work forms, but it appears to be most salient for on-site work, followed by hybrid and then remote work. In addition, a necessity analysis reveals common work design requirements for all work forms, highlighting the gravity of information processing, skill variety, and social support. Task variety is critical for on-site and remote work, while IT presenteeism emerges as an important factor for hybrid work.

The third chapter examines the boundary conditions of individual characteristics and work context. Firstly, we examined whether organizationally imposed formalization and employees' individual adaptive personality traits (proactive personality and resilience) act as boundary conditions that strengthen this positive relationship. The results showed that enriched work design is positively related to work-life balance. Next, we proposed that

formalization moderates the positive relationship between enriched work design and work-life balance but could not find support for this hypothesis. We can conclude that formalization alone does not significantly alter the relationship between enriched work design and work-life balance; however, this finding opened avenues for the potential roles of additional moderators. We then examined the joint moderation of formalization and personality traits on the relationship between enriched work design and work-life balance. We found a significant moderation of formalization and proactive personality (but not resilience) on the relationship between enriched work design and work-life balance. Next part of the chapter takes a look at “the dark side” of digitally-mediated knowledge work. We conclude that both digitally-mediated work and flexible work arrangements can be "mixed blessings", that bring both benefits (work engagement) and burdens (burnout) under certain conditions. Last part of the chapter more closely examines the role of self-initiated modification mechanisms, i.e., job crafting and work motivation. It addresses work design challenges of contemporary digitized work by developing and validating an extended account of technology-optimized enriched work design, and exploring how this construct fosters employee work engagement. In doing so, we propose a key mediating role of self-initiated work modification mechanisms, addressing potential issues with causality between the two that have been underlined by prior research. We further compare these effects among different forms of work (i.e., on-site, hybrid, remote). Findings showed that work motivation is the driving force behind job crafting more so than the other way around, and that the relationship between tech-optimized enriched work design and work engagement is indeed mediated by work motivation and moderated by forms of work. It highlights the importance of incorporating information and communication technology characteristics into work design and considering forms of work as a key boundary condition for its effects. Furthermore, the study offers interesting theoretical contributions and practical implications related to designing jobs, the future of work, and work engagement.

The final chapter of the dissertation summarizes the key findings, theoretical contributions and practical implications, building a bridge between human resource management practices, work organization and the future of work. It emphasizes the main aim of the thesis and shows how it has improved understanding in these interrelated areas. The chapter highlights the importance of work design in the context of changing forms of work, particularly in the digital age, and its impact on individual outcomes. This synthesis of research findings and practical insights makes an important contribution to the debate on the future of work.

Keywords: *(enriched) work design; distributed work; forms of work; configurational approach*

POVZETEK

Konfiguracijski pristop k oblikovanju dela za različne pojavne oblike dela

Disertacija obravnava razvijajoče se okolje porazdeljenega dela, pri čemer se osredotoča na to, kako oblikovati delo, da bo najbolj ugodno za izide zaposlenih za vsako obliko dela (tj., delo na fizični lokaciji organizacije, hibridno delo in delo na daljavo). Bistvo tega raziskovanja leži v raziskovanju prepleta med značilnostmi delovnega mesta in izidi zaposlenih v različnih oblikah dela. Temelji na razširjenem Modelu zahtev in virov dela za konceptualizacijo in analizo interakcije med zahtevami dela in viri pri oblikovanju delovnega okolja, vključno z vedenji, kot sta samoiniciativno preoblikovanje delovnega mesta in motivacija pri delu.

Glavni cilj pričujoče disertacije je zapolniti vrzel v tradicionalnih teorijah oblikovanja dela, ki so vse bolj neusklajene z realnostmi sodobnih, s tehnologijo podprtih delovnih okolij. Disertacija si prizadeva posodobiti te teorije, da bi bolje ustrezale potrebam znanjskih delavcev v različnih delovnih okoljih, zlasti v luči naraščajočega porazdeljenega dela in pomembnega vpliva informacijsko-komunikacijske tehnologije na oblikovanje dela. Glavni namen disertacije je izboljšati razumevanje optimalnega oblikovanja dela za različne pojavne oblike dela, ob upoštevanju individualnih in kontekstualnih značilnosti. Disertacija identificira najučinkovitejše kombinacije značilnosti oblikovanja dela, ki vodijo do pozitivnih izidov pri različnih vrstah dela, in izpostavi najučinkovitejše konfiguracije značilnosti oblikovanja dela za različne oblike dela. S tem prispeva tako k praktičnim vidikom oblikovanja dela v modernih organizacijah kot k teoretičnemu napredku teorij oblikovanja dela, da bi zajele nianse današnjih tehnološko naprednih delovnih okolij.

Disertacija je razdeljena na štiri poglavja, ki obravnavajo različne vidike oblikovanja dela. Prvo poglavje podaja ozadje glavnih preučevanih konceptov, kot so značilnosti dela, obogateno oblikovanje dela, Model zahtev in virov dela kot osrednjo teorijo disertacije, in oblike dela, vključno s porazdeljenim delom. Drugi del tega poglavja ponuja pregled razvoja, trenutnega stanja in prihodnjih smeri raziskav porazdeljenega dela, in poudarja premik fokusa raziskave porazdeljenega dela od individualne ravni proti širši organizacijski in družbeni ravni. Razkriva razdrobljenost konceptov in izpostavlja pogoste napake pri obravnavi. Ugotovitve povzemajo, kako se koncepti porazdeljenega dela razlikujejo glede na uporabo informacijsko-komunikacijske tehnologije, lokacijo dela in geografsko razporeditev. Prav tako osvetljuje potrebo po novih vidikih razumevanja in učinkovitega oblikovanja porazdeljenega dela. Naslednji del poglavja preučuje presek med porazdeljenim delom in oblikovanjem dela, natančneje preteklost, sedanjost in prihodnost raziskav tega preseka. Prikazuje, kako se je področje, ki združuje porazdeljeno delo in oblikovanje dela, začelo razvijati na področju organizacijskega vedenja in psihologije ter se nato razširilo na področja študij organizacij, informacijskih sistemov, managementa človeških virov in strateškega managementa. Raziskava je postala pomembna tako za teorijo kot za prakso, pri

čemer se je osredotočila na mikro (posameznik v delovnem kontekstu) in makro (strateška, industrijsko-ekonomska perspektiva in konkurenčnost podjetij) raven. Ta del poglavja razvija tudi integrativni okvir oblikovanja porazdeljenega dela, ki temelji na modelu vprašalnika oblikovanja dela, vključno z značilnostmi informacijsko komunikacijskih tehnologij in drugimi individualnimi, organizacijskimi in kontekstualnimi značilnostmi, ki so bile odkrite tekom bibliometričnih analiz.

Drugo poglavje obravnava kompleksnost konfiguracij oblikovanja dela. Najprej predstavi različne, že najdene konfiguracije oblikovanja dela in poudari pomen celovitosti. Naslednja dva dela poglavja prispevata k razumevanju oblikovanja dela v digitalni dobi in ponujata praktične vpoglede v optimizacijo človeškega potenciala med tehnološkim napredkom in različnimi oblikami dela. Pokazalo se je, da je obogateno oblikovano delo koristno za vse oblike dela, tako za uspešno opravljanje nalog kot za ravnotežje med delom in zasebnim življenjem. Medtem ko potrjujemo pomembnost obogatenega oblikovanja dela za uspešno opravljanje nalog, izpostavljamo tudi nekaj specifičnih konfiguracij, ki pripomorejo k večji uspešnosti. Te specifike vključujejo visoke ravni zaokroženosti nalog za vse tri oblike dela. Delo, opravljeno na fizični lokaciji organizacije, dodatno zahteva večjo raznolikost nalog. Nasprotno pa delo na daljavo zahteva visoko obdelavo informacij in socialno podporo. Hibridni model zahteva najbolj zapleteno oblikovanje dela, ki združuje bistvene elemente obeh paradigem dela na fizični lokaciji organizacije in na daljavo, in sicer raznolikost nalog in obdelavo informacij, ter tudi za izboljšane mehanizme povratnih informacij o delu. Hibridna oblika dela je vseprisoten družbeni pojav, ki je še vedno v porastu in verjetno predstavlja prihodnost dela. Ker združuje tradicionalne nastavitve z informacijsko-komunikacijskimi tehnologijami, poudarjamo tudi pomembnost, da prihodnje raziskave povezujejo področja informacijskih sistemov in oblikovanja organizacije. Pri preučevanju ravnotežja med delom in zasebnim življenjem smo vzeli še bolj celosten pogled in integrirali oblikovanje dela z novimi značilnostmi informacijsko-komunikacijske tehnologije. Analiza variance je pokazala, da imajo zaposleni, ki delajo v hibridnih delovnih okoljih, na splošno v povprečju najvišje ravnotežje med delom in zasebnim življenjem, sledijo jim zaposleni, ki delajo na daljavo in nato zaposleni, ki delajo le na fizični lokaciji organizacije. Nadalje analiza kaže, da je oblikovanje dela pomembno za ravnotežje med delom in zasebnim življenjem pri vseh oblikah dela, vendar se zdi, da se učinke najbolj pokaže pri zaposlenih, ki delajo na fizični lokaciji organizacije, sledi hibridno in nato delo na daljavo. Poleg tega analiza razkriva skupne zahteve oblikovanja dela za vse oblike dela, pri čemer poudarja pomembnost obdelave informacij, raznolikosti spretnosti in socialne podpore. Raznolikost nalog je ključna za delo na mestu in na daljavo, medtem ko se IT prisotnost izkaže kot pomemben dejavnik za hibridno delo.

Tretje poglavje preučuje mejne pogoje posameznikovih značilnosti in značilnosti delovnega konteksta. Najprej smo preučili, ali organizacijsko vsiljena formalizacija in posameznikove prilagodljive osebnostne lastnosti (proaktivna osebnost in odpornost) delujejo kot moderatorji, ki krepijo ta pozitiven odnos. Rezultati so pokazali, da je obogateno oblikovanje

dela pozitivno povezano z ravnotežjem med delom in zasebnim življenjem. Nato smo ugotovili, da formalizacija sama po sebi ne spremeni bistveno tega odnosa, zato smo preučili skupno interakcijsko vlogo formalizacije in osebnostnih lastnosti v odnosu med obogatenim oblikovanjem dela ter ravnotežjem med delom in zasebnim življenjem. Ugotovili smo skupno moderacijo formalizacije in proaktivne osebnosti (ne pa tudi odpornosti) razmerja med obogatenim oblikovanjem dela in ravnotežjem med delom in zasebnim življenjem. Naslednji del poglavja pogleda na "temno stran" s tehnologijo podprtega znanjskega dela. Rezultati kažejo, da imata tako s tehnologijo podprto delo kot fleksibilni delovni pogoji pod določenimi pogoji tako pozitivne (delovna zavzetost) kot negativne (izgorelost) izide. Fleksibilna delovna okolja nudijo avtonomijo in neodvisnost pri dokončanju nalog, kar načeloma povečuje zavzetost zaposlenih. Vendar pa lahko koristi fleksibilnosti postanejo kontraproduktivne, če so spremljane z visoko ravnjo uporabe tehnologije. Visoka uporaba tehnologije in fleksibilnost lahko spodbujata samostojno delo in zmanjšujeta možnosti za družbene vire, kar zmanjšujejo zavzetost, vendar hkrati zmanjšuje izgorelost.

Zadnji del poglavja podrobneje preučuje vlogo mehanizmov samoiniciativega prilagajanja dela, tj. samoiniciativno preoblikovanje dela in motivacijo za delo. Naslavlja izzive oblikovanja dela sodobnih digitaliziranih delovnih mest z razvojem in validacijo razširjenega modela tehnološko optimiziranega obogatenega oblikovanja dela in preučevanjem, kako ta konstrukt spodbuja delovno zavzetost zaposlenih. Pri tem predlagamo ključno mediacijsko vlogo mehanizmov samoiniciativnega preoblikovanja dela, naš pristop pa naslavlja tudi potencialne izzive glede vzročno-posledičnega razmerja med obema mehanizmoma, kar so izpostavile prejšnje raziskave. Nadalje primerjamo te učinke med različnimi oblikami dela (tj. na fizični lokaciji organizacije, hibridno, na daljavo). Ugotovitve so pokazale, da je delovna motivacija gonilna sila za oblikovanje dela bolj kot velja obratno, in da odnos med tehnološko optimiziranim obogatenim oblikovanjem dela in delovno zavzetostjo resnično poteka preko posredne vloge delovne motivacije, to mediacijsko razmerje pa moderirajo oblike dela. Disertacija poudarja pomembnost vključevanja značilnosti informacijsko-komunikacijske tehnologije v oblikovanje dela in upoštevanja pojavnih oblik dela kot ključnega robnega pogoja za njegove učinke. Poleg tega študija ponuja zanimive teoretične prispevke in praktične implikacije, povezane z oblikovanjem delovnih mest, prihodnostjo dela in delovno zavzetostjo.

Četrto in zadnje poglavje povzema glavne ugotovitve raziskave in razpravlja o njenih teoretičnih prispevkih in praktičnih implikacijah. Poudarja pomen razumevanja in uporabe obogatenega oblikovanja dela v različnih oblikah dela, še posebej v kontekstu porazdeljenega dela. Prav tako izpostavlja potrebo po nadaljnjih raziskavah, ki bi raziskovale vpliv tehnologije in drugih kontekstualnih dejavnikov na oblikovanje dela. Disertacija zaključi z razmišljanjem o prihodnosti oblikovanja dela in kako lahko organizacije bolje izkoristijo potencial svojih zaposlenih v hitro spreminjajočem se tehnološkem okolju.

Ključne besede: *(obogateno) oblikovanje dela; porazdeljeno delo; oblike dela; konfiguracijski pristop*

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

sl. – Slovene

CFA – (sl. Potrditvena faktorska analiza); Confirmatory Factory Analysis

CFI – Comparative Fit Index

EWD – (sl. Obogateno oblikovanje dela); Enriched work design

ESM – Enterprise Social Media

EU – (sl. Evropska unija); European Union

FoW – (sl. Pojavne oblike dela); Forms of Work

fsQCA – Fuzzy Set Qualitative Comparative Analysis

GFI – Goodness of Fit Index

HR – (sl. Človeški viri); Human Resource

HRM – (sl. Management človeških virov); Human Resource Management

ICT – (sl. Informacijsko-komunikacijska tehnologija); Information and Communications Technology

IS – (sl. Informacijski sistemi); Information Systems

IT – (sl. Informacijska tehnologija); Information Technology

JCM – Job Characteristics Model

WD – (sl. Oblikovanje dela); Work Design

JD-C – Job-Demand-Control

JD-R – (sl. Model zahtev in virov pri delu); Job Demands Resources Model

KMO – Kaiser-Meyer-Olkin

LDA – Latent Dirichlet Allocation

LLCI – Lower-Level Confidence Interval

MCLL – Monte Carlo Lower Limit

MCUL –Monte Carlo Upper Limit

OB – (sl. Organizacijsko vedenje); Organizational Behaviour

OP – (sl. Organizacijska psihologija); Organizational Psychology

PCA – (sl. Analiza glavnih komponent); Principal Component Analysis

PWD – playful work design

QCA – (sl. Kvalitativna primerjalna analiza); Qualitative Comparative Analysis

RMSEA – Root Mean Square Error of Approximation

SD – Standard Deviation

SRMR – Standardized Root Mean Square Residual

TLI – Tucker Lewis Index

ULCI – Upper-Level Confidence Interval

UWES – Utrecht Work Engagement Scale

VT – Virtual Team

WDQ – Work Design Questionnaire

WLB – (sl. Ravnotežje med poklicnim in zasebnim življenjem); Work-life Balance

WoS – Web of Science

WoSCC – Web of Science Core Collection

INTRODUCTION

Designing of the work addresses the input information, the work process, the outcome of work and its context (Ferris et al., 2008). Parker (2014a) states that work design, involves determining the content of work and organizing the work, tasks, activities, relationships, and responsibilities. Specifically, the purpose of work design is to meet technological and organizational requirements on the part of the organization as well as social and personal requirements on the part of employees (Davis, 1966). Although job design is typically narrower, as it does not encompass the broader links between jobs and their environment, the terms work design and job design are often used interchangeably (Van den Broeck & Parker, 2017).

In the last decades, information-communication technology (ICT) has become a key component of all modern businesses (Reeves & Deimler, 2011). It is changing the global flow of information, trade, investment and ways to obtain firms' competitive advantage (H. Li et al., 2021; Reeves & Deimler, 2011). It has also changed the nature of work and, along with new organizational approaches, challenged traditional thinking of managers (Barley et al., 2017; Staples et al., 1999). By using modern technologies (e.g., user friendly computers, virtual private connections, digital telephone systems, electronic collaboration systems, etc.) employees can communicate and cooperate with their co-workers and managers continuously and constantly (Cox, 2009). This resulted in the establishment of distributed work, defined as »*an arrangement that allows employees and their tasks to be distributed away from the physical location of the company*« (Gajendran & Harrison, 2007). Since the outbreak of COVID-19, it has become the norm for many workers around the world, but many managers do not know how to prepare their employees for it or how to design such a work and its context at and across multiple levels to take full advantage of the functionality of technologies that support digitally mediated work (Davies, 2021). Organizations that introduced distributed work arrangements impose different levels of job characteristics from traditional ones, indicating the distinctive nature of their context-sensitive work design practices (Pérez Pérez et al., 2005). Depending on a variety of factors, technologies can positively or negatively impact work resources and demands, and affect employee well-being and performance (S. K. Parker & Grote, 2020).

Traditional theories of work (Hackman & Oldham, 1976; Humphrey et al., 2007) provide support for the idea that managers can use a variety of strategies to promote work design that should lead to more motivated employees and better outcomes, such as higher individual task performance, work engagement, work-life balance (WLB) and lower burnout. It has already been shown that job characteristics can encourage job crafting (Tims et al., 2012), and that job crafting influences employee motivation, which in turn affects different outcomes (Bakker & Demerouti, 2007). However, with different forms of work on the uptake, a key question is whether and how these strategies differ among different forms of work.

The academic and practitioners mainly distinguish between three different forms of work (FOW), i.e., remote work, on-site and hybrid work (Włodarkiewicz-Klimek, 2021). They believe that the hybrid work will be the future of work (Kane et al., 2021; McKinsey & Company, 2020), which confirms that this topic is important and needs to be researched in greater depth. Organizations whose working environment is not time and place bound need to redesign their working model – not only structurally, but also in terms of working methods, workspaces and culture – as their employees require different skills than they would under traditional working conditions (Arora & Suri, 2020). They usually have more flexible human resource management (HRM) practices, outsource more activities and are managed by objectives (Pérez Pérez et al., 2005). ICT usage affects the work design through shaping job demands and relations (B. Wang et al., 2020).

Doctoral dissertation takes a holistic approach to understanding the complexity of work design in different forms of work. In doing so, we are inspired by Tal Ben-Shahar's (2021) assertion that a comprehensive understanding of each part requires an appreciation of the whole. This perspective is critical to recognizing that the multi-layered nature of work design requires a broad, interconnected view to truly grasp its impact on individuals and organizations. The dissertation focuses mostly on concepts of work design, forms of work and outcomes. It takes a closer look at job design characteristics and examines which configurations (i.e., possible combinations of different levels of job design characteristics) of these job design characteristics lead to better outcomes based on different forms of work. To gain even greater and more comprehensive insights, it examines the effects of job design characteristics configurations being moderated with both, individual characteristics of employees and work context characteristics. The dissertation bases, theoretically, on the (extended version of) the Job Demands Resources Model (JD-R; Bakker & Demerouti, 2017), that offers a dynamic view of the interplay between job demands and job resources, by suggesting that employees can take self-initiated proactive employee behaviors (e.g., job crafting) and be active agents of their work environment. The JD-R paradigm states that job strain occurs when job demands are high and job resources are limited, regardless of the type of job or occupation. Work engagement, on the other hand, tends to increase when job resources are abundant, even when job demands are high. This dynamic shows how important the balance between expectations and resources is for the well-being and productivity of employees (Bakker & Demerouti, 2007).

The main motivation for this research stems from a pressing practical problem: how to design work in the evolving landscape of new forms of work. As the nature of work changes due to technological advances and changing employee expectations, traditional theories and practices of work design are increasingly being challenged. By focusing on this question, the thesis attempts to provide actionable insights and solutions that can help organizations adapt to the changing work environment, increase favorable employee outcomes, and decrease unfavorable ones. This practical problem, with its direct implications for the future of work, serves as the cornerstone of our research and guides us in exploring innovative work design strategies that can meet the demands of the modern workforce.

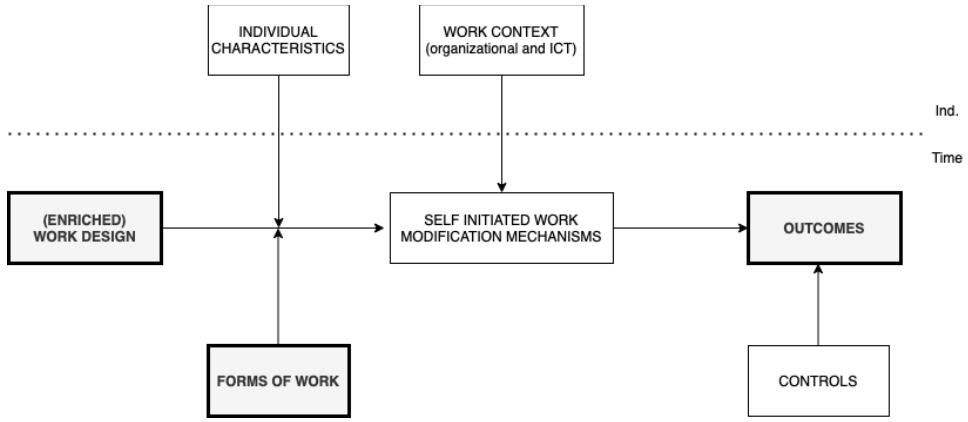
The main aim of the dissertation is to advance the extended JD-R theory by exploring the model through the lens of different forms of work, while also including consideration of various contextual and individual characteristics. All included constructs are carefully selected based on suggestions from previous research and own findings from bibliometric analysis and are logically positioned within the JD-R model. For example, autonomy, task variety, task significance, task identity, and feedback from the job enhance work motivation and reduce burnout through increased job satisfaction and engagement (Bakker & Demerouti, 2007; Morgeson & Humphrey, 2006). Next, job complexity, information processing, and problem solving, while potentially stimulating, can lead to burnout if not balanced with adequate job resources (Xanthopoulou et al., 2007). Skill variety and specialization foster personal growth and job satisfaction, mitigating the risk of burnout (Tims et al., 2013). Social support and feedback from others are crucial job resources that enhance motivation and help cope with job demands (Halbesleben, 2006). Job interdependence can act as both a job demand and a job resource, depending on the nature and management of interdependencies between team members. As a job resource, interdependence fosters collaboration and team cohesion and increases work motivation (Demerouti & Bakker, 2023; Van Der Vegt et al., 2001), while high interdependence without proper management and relying on others to accomplish tasks can lead to burnout and loss of control (Karasek, 1979). Furthermore, interaction outside the organization is primarily seen as a job resource that increases work motivation by providing employees with the opportunity to interact with clients, customers, and professionals outside the organization, which can lead to job satisfaction, a broader perspective on work, and opportunities for professional growth and networking(Bhave et al., 2019). Physical demands and poor work conditions are job demands that can lead to health impairments, whereas ergonomics and appropriate equipment use are resources that support well-being (Nielsen et al., 2010). ICT characteristics such as IT complexity, technology overload, and the pace of IT change are significant job demands that increase the risk of burnout (Suh & Lee, 2017; Tarafdar et al., 2007). Information exchange via ICT can be a double-edged sword, acting as a resource by facilitating communication but also as a demand leading to information overload (Fonner & Roloff, 2010). Individual characteristics like proactivity and resilience are personal resources that enhance work motivation and buffer against the effects of job demands (Bakker & Sanz-Vergel, 2013). The impact of work context, including formalization and technology use, varies, with potential to act as both resources and demands (Crawford et al., 2010). Forms of work such as on-site, hybrid, and remote arrangements offer different challenges and benefits. While on-site work provides structure and social support, hybrid and remote work offer flexibility but may increase isolation and reliance on ICT, affecting motivation and burnout differently (Allen et al., 2015; Golden et al., 2008).

The main purpose of the dissertation is to contribute to enhancing understanding of how to design an optimal work for different forms of work, taking into account individual characteristics and work contexts. The dissertation attempts to solve the practice-relevant problem of designing the most optimal work configuration for knowledge workers placed predominantly within a particular form of work, and the theory-relevant problem of traditional work design theories that need to be modernized to fit the technologically advanced new work environments.

The dissertation research is divided into four chapters. The first chapter introduces the concept of (enriched) work design, examining its various dimensions and theoretical frameworks. In addition, this chapter examines the importance of distributed work in today's globalized and technologically advanced world of work. Second chapter focuses on the multi-faceted nature of work design configurations. Third chapter includes and explains some boundary conditions. Last but not least, final chapter serves as an overview of the main findings, theoretical contributions, practical implications and future directions along with limitations.

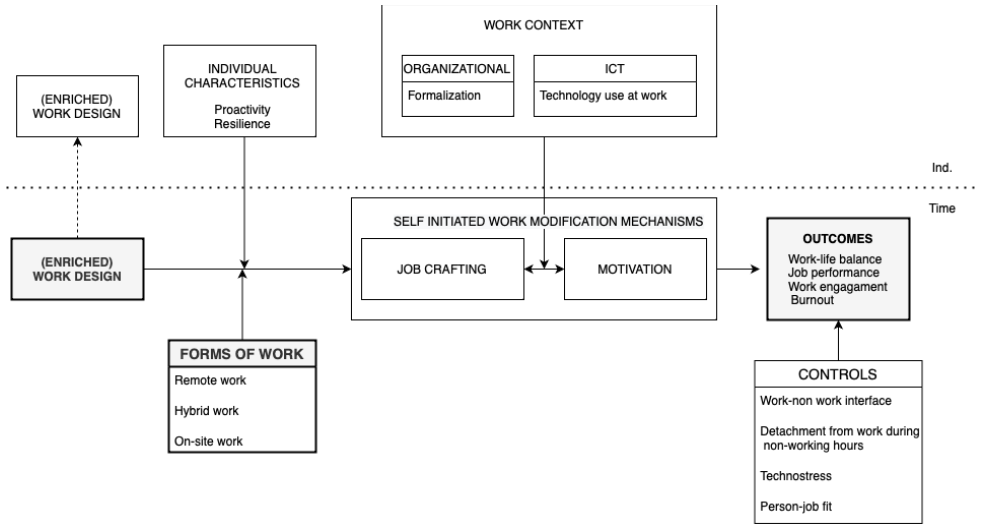
The full research model can be seen below (Figure 1 and Figure 2).

Figure 1: Overarching research model of doctoral dissertation[1]



Source: Own work.

Figure 2: Elaborated research model of doctoral dissertation[2]



Source: Own work.

[1,2]This research model is broken down into several parts and different papers/chapters. Grey and bolded rectangles represent a model that appears throughout all papers/chapters, other rectangles appear alternately.

1 CHAPTER 1: SYSTEMATIC AND BIBLIOMETRIC LITERATURE REVIEW OF THE FIELD

The main aim of this chapter is to provide literature review of the key research topics. To achieve this aim, this chapter begins with a literature review of (enriched) work design, JD-R theory, and forms of work, since these concepts and theory are being used throughout whole dissertation and the theory will serve as the basis for the conceptualization of all included constructs. This part of the chapter provides an overview of the main idea of the dissertation and its key concepts. In order to gain additional extensive knowledge of this area, this chapter also includes a bibliometric literature review of the field of distributed work and a bibliometric literature review of the intersection between distributed work and work design.

The second part of the chapter therefore attempts to advance the current overview of the distributed work field by presenting a compendious review of the development and current state of the field. This research area is a rapidly growing field of academic endeavor and practice, but at the same time, many different definitions, labels, and conceptualizations of distributed work exist, resulting in a fragmented field that is threatened by a proliferation of concepts. While reviews being focused only on specific subdomains, researchers are unlikely to see the entire conceptual landscape and fully understand the interconnections among different concepts describing distributed work, their background and conceptual space. Existing reviews either tackle a limited scope of distributed work phenomena, are narrative/subjective/not systematic, thus lack objectivity, comprehensiveness and reproducibility, or are not very recent. To address main identified gaps in the current overview, three bibliometric techniques (i.e., co-citation, co-occurrence and bibliographic coupling) was conducted.

The final part of the chapter advances the previous one by analyzing the relationship (overlap) between the field of distributed work and the field of work design. Methodologically, it connects previously described analysis with topic modeling, which further enhances the rigor and relevance of bibliometric review studies (D. Blei et al., 2010; Mohr & Bogdanov, 2013; Schmiedel et al., 2019). While previous contributions have been informative in providing guiding conceptualizing perspectives that connect the fields of ICT and individual/team work design (e.g., Handke et al., 2020; S. K. Parker & Grote, 2020; B. Wang et al., 2020), what is lacking is a comprehensive, systematic, cross-disciplinary, objective overview of the field that covers these important topics simultaneously, examining the theoretical underpinnings, current issues, and popular trends, including recent managerial solutions of designing distributed work characteristics that corresponded to the COVID-19 emergency in practice. This part contributes to the theory by producing a holistic integrative framework, guiding the harmonized managerial understanding of current conceptual space, offering practical advice which distributed work arrangements to use in organizations and highlighting the distributed work issues waiting to be addressed in the near future.

1.1 Literature review of (enriched) work design, the job demands resources model, forms of work and key outcomes topics

1.1.1 Job characteristics and (enriched) work design

Work design refers to the roles, responsibilities, tasks and activities involved in a job (S. K. Parker, 2014a, 2014b) and addresses input information, work process, work outcome, and work context (Ferris et al., 2008). Work design is strongly linked with a range of outcomes and therefore deserves the continued attention of researchers and managers (Van den Broeck & Parker, 2017). Studies suggest (e.g., Fried & Ferris, 1987; Humphrey et al., 2007; Knight et al., 2022; Morgeson & Humphrey, 2006; S. K. Parker, 2014a; Schaufeli & Bakker, 2004) that job characteristics play a pivotal role in determining several individual-level outcomes, such as work stress, job satisfaction, performance, creativity, absenteeism, work engagement, etc.

The socio-technical approach to work design emphasizes the importance of flexibility and adaptability to handle new challenges. A key aspect of this approach is the concept of skill redundancy, ensuring that workgroup members have more skills than are strictly necessary for their normal production tasks, also known as multiskilling. In addition, work activities should not be limited to routine tasks, but should also include discretionary tasks. Next, it is critical to view each member of a work team as an adjunct to a machine rather than its subordinate. This approach underscores the elimination of the dictatorship of the assembly line and emphasizes the importance of learning opportunities and variety in work activities. As Fred Emery, one of the pioneers of participative work design noted, optimal levels of variety, learning opportunities, decision-making latitude, organizational support, a sense of importance, and the opportunity to advance professionally are key factors in ensuring that work is both efficient and fulfilling for employees (Mumford, 2006; Taylor, 1975; Thorsrud, 1955).

During the 1970s and 1980s, task characteristics were the most common method for describing and evaluating jobs. Hackman and Oldham (1976) proposed the Job Characteristics Model (JCM). They suggested five core job characteristics (i.e., skill variety, task identity, task significance, autonomy and feedback from the job) that influence personal and work outcomes through critical psychological states. Skill variety, task identity, and task significance promote the experience of meaningfulness of work, autonomy makes the worker feel responsibility for work outcomes, and feedback conveys knowledge about the actual outcomes of work activities, and all these together increase the worker's internal work motivation, high quality of work performance, high job satisfaction, and lower absenteeism and turnover. The JCM, while insightful and important, takes only a limited view of work and ignores other crucial characteristics of work (such as the social and physical environment, cognitive demands, and work context). As a result, researchers focused on conceptually expanding the model to include a broader range of job characteristics. Morgeson and Humphrey (2006) conducted a meta-evaluation and provided an integrative typology – Work design questionnaire (WDQ) – for work design that classified 18 job characteristics into three categories: motivational (task and

knowledge), social, and contextual. Task characteristics include autonomy (i.e., the degree to which job allows employee freedom in work scheduling, decision making and work methods), task variety (i.e., the degree to which job requires employee to perform a wide range of tasks on the job), task significance (i.e., the degree to which a job influences the lives or work of others inside or outside of organization), task identity (i.e., the degree to which a job involves a whole piece of work, the results can be easily identified), and feedback from the job (i.e., the degree to which the job provides direct and clear information about the effectiveness of task performance). Next, knowledge characteristics include job complexity (i.e., the degree to which the task on a job are complex and difficult to perform), information processing (i.e., the degree to which a job requires attending to and processing data or other information), problem solving (i.e., the degree to which a job requires unique ideas or solutions), skill variety (i.e., the degree to which a job requires an individual to use a variety of different skills to complete the work), and specialization (i.e., the degree to which a job involves performing specialized tasks or possessing specialized knowledge and skill). Social characteristics cover social support (i.e., the degree to which a job provides opportunities for advice and assistance from others), interdependence (i.e., the degree to which the job depends on others and other depend on it to complete the work), interaction outside organization (i.e., the degree to which the job requires employees to interact and communicate with individuals external to the organization), feedback from others (i.e., the degree to which others in the organization provide information about performance). Finally, work context characteristics refer to ergonomics (i.e., the degree to which a job allows correct and appropriate posture and movement), physical demands (i.e., the degree to which a job requires physical activity or effort), work conditions (i.e., the degree to which the environment withing a job is performed includes the presence of health hazards), and equipment use (i.e., the degree to which the job requires the variety and complexity of the technology and equipment used; Morgeson & Humphrey). Throughout the thesis WDQ was predominantly utilized.

There are many approaches to work design, all with the same purpose - to increase the positive impacts of work and decrease the negative ones. Initially, research on work design focused on simplification/routinization and standardization, later researchers argued that employees would be more productive and satisfied if their jobs were enriched rather than simplified (Oldham & Fried, 2016). Arthur (1994) defines enriched work design as an approach, while Wood and de Menezes (2008) see it more as an orientation for designing high-quality jobs that allows employees some discretion and flexibility in performing and completing their primary tasks (Walton, 1985). Higher job enrichment is achieved by higher levels of job characteristics of the Job Characteristics Model (Hackman & Lawler, 1971; Hackman & Oldham, 1976). High job enrichment leads to many positive outcomes, such as better employee work motivation, job satisfaction, and work-life balance, although some studies have found that this relationship can sometimes be weakened by personal and organizational factors (Fried & Ferris, 1987; K. H. Roberts & Glick, 1981; Spector, 1985; Sushil, 2014). It has been shown that enriched work design promotes proactivity creativity, citizenship, employee learning and development. It allows for ambidexterity: both exploiting current capabilities and exploring new possibilities.

This can be achieved when leaders create a supportive context and individuals are empowered (Gibson & Birkinshaw, 2004; S. K. Parker, 2014a). Enriched work design motivates employees by making the work interesting while also increasing their responsibility, requires higher levels of skills and greater control over how to perform their work (Lunenburg, 2011). It has been shown that enriched work design promotes proactivity, creativity, citizenship, employee learning and development. It allows ambidexterity: both exploiting current capabilities and exploring new possibilities. This can be achieved when leaders create a supportive context and individuals are empowered (Gibson et al., 2019; S. K. Parker, 2014a).

1.1.2 The Job demands resources model

Karasek's (1979) work design typology classifies jobs into four categories — active, high-strain, low-strain, and passive — to illustrate how job demands (i.e., characteristics that require sustained physical and/or psychological effort and are hence associated with physiological and/or psychological costs) and levels of control affect employee stress and satisfaction. Karasek argued that high-strain jobs with high demands and little control can lead to stress and health problems, while active jobs, which offer a balance between high demands and a high level of control, often lead to greater satisfaction and personal development due to the combination of challenges and autonomy. Passive jobs, which are characterized by low demands and control, can lead to boredom and dissatisfaction from repetitive tasks. Finally, there are low-strain jobs that involve little work and give people control over their tasks, but it's not clear how these jobs affect people. Karasek's job demands-control (JD-C) model emphasizes the importance of job demands and control levels as key factors influencing work-related stress and satisfaction.

Building on Karasek's foundation, Bakker and Demerouti (2007) extended the model by emphasizing the role of job resources (i.e., characteristics that are essential for achieving work-related goals, reducing job demands and associated physiological and psychological costs, and promoting personal growth and development), such as support from colleagues and opportunities for professional development, in mitigating the negative effects of high job demands. They argued that resources can buffer the effects of high demands, especially in high-strain jobs, by providing support and development opportunities, which can lead to improved well-being and job satisfaction. Job resources can therefore shield employees from the unfavourable effects of job demands (Demerouti, Nachreiner, et al., 2001; Xanthopoulou et al., 2007).

The extended JD-R model further elucidates the complex dynamics of well-being at work by incorporating individual factors (e.g., optimism, resilience), interpreted as personal resources, as well as the concept of job crafting. Personal resources are designed to buffer the impact of job demands on stress and promote engagement by capitalizing on individual strengths (Bakker & Demerouti, 2017).

The multilevel JD-R model extends the traditional Job Demands-Resources framework by incorporating individual and organizational level analyzes. It examines how objective job characteristics and subjective employee perceptions combine to influence well-being and engagement. This approach recognizes the complex interplay between the structural aspects of work and individual experiences and focuses on a comprehensive view of work dynamics to better understand and improve employee outcomes (Li et al., 2023).

As distributed work is on the rise, it is important that the JD-R model also evolves to incorporate ICT and thus the distributed work design characteristics.

1.1.3 Forms of work

The organizational landscape is facing many new changes, ranging from increasing global competitiveness, demographic shifts in the workforce, increases in dependent employment and more individualized career paths, to the establishment of new forms of work enabled by ICT (S. K. Parker et al., 2001; S. K. Parker & Grote, 2020; Staniulienė & Jurova, 2021). Technological advances have enabled the rapid dissemination and sharing of information across geographic, temporal, and cultural boundaries, and ushered the growing community of knowledge workers, i.e., individuals who create, apply, and disseminate knowledge (Burke & Ng, 2006). The distributed work–the arrangements that allow employees to organize and perform their tasks away from the physical location of the company (Gajendran & Harrison, 2007)–imperative is continuously accelerated by technological developments (Hinds & Kiesler, 2002). The first case of teleworking was recorded in 1877, when the president of the bank in Boston had his business telephone installed at home, and has increased considerably over the last decade (J. A. Greer et al., 2002). It has been recently disruptively advanced by the COVID-19 pandemic (Ratten & Thaichon, 2021). Due to various government restrictions (e.g., social distancing), work-from-home has doubled in the European Union (EU); from 5.5% of workers aged 20-64 in 2019 to 12.4% of workers within the same age range in 2020 (Fana et al., 2020). In some countries (e.g., France and the United Kingdom), almost 50% of employees teleworked during the 2020 pandemic. On average, over half of the employees in highly digitized industries worked from home during the pandemic.

Even though there are many different distributed forms of work. Many different forms, definitions and conceptions of distributed work exist in the literature and practice, e.g., remote work, telework, telecommuting, distance work, work from home, virtual work, etc. (Haddon & Brynin, 2005; Martínez Sánchez et al., 2007; Raiborn & Butler, 2009). Common to these conceptualizations is the premise that individuals working together are not all co-located, and thus rely on computer-mediated communication technology for planning and coordinating with team members, as well as for informal and social interactions (Kirkman & Mathieu, 2005). Thus, adapting jobs for telework is necessary for organizations that want to take advantage of new opportunities, increase their business sustainability and keep ahead of the curve (Woolliams & Trompenaars, 2013).

Academics and practitioners mainly distinguish between three different forms of work, namely on-site work, hybrid work, and remote work (Włodarkiewicz-Klimek, 2021). Until recently, on-site work dominated among the other forms of work, but the tide is turning and shifting from traditional (psychical) work environments to emerging alternative (virtual) work environments (S. K. Parker et al., 2017). The 2021 survey by McKinsey & Company revealed that 37% of employees would like to work fully on-site, 11% fully remote and majority (52%) hybrid (A. Alexander et al., 2021).

As the label implies, on-site work assumes that employees work full-time on-site (e.g., in an office), while remote work assumes the opposite. Remote work is an umbrella term for all work that can be performed with or without ICT and where employees can change work locations and potentially work at a different location (that is different from the location of their supervisor and/or payer). Based on the location of work, we divide this category into three subgroups, namely: work from home or not (e.g., telecommuting, distance work, dispersed collaboration), non-home based (e.g., field work, regional center-based telecommuting), and home-based (e.g., regular work from home, home based telecommuting, working at home after hours; Lamovšek & Černe, 2023; Mokhtarian, 1991a; Olson & Primps, 1984). Distributed work has positive (e.g., less stress, lower costs of transportation, lower costs of clothes, more flexibility, higher work satisfaction) and negative consequences (e.g., social isolation, costs of technology, challenges with ergonomics) for employees (Burbach & Day, 2014; Duxbury & Halinski, 2014; T. W. Greer & Payne, 2014; Potter, 2003; R. J. Thompson et al., 2015). While remote working is considered to be more adaptable, enables independence and self-organization of employees, and in certain cases, greater efficiency, these benefits came at the cost of work intensification and an increased inability to remove oneself from work (Felstead & Henseke, 2017).

While on-site and remote work are two extremes, hybrid work is the mixture of both (partly on-site work and partly remotely; Wontorczyk & Rożnowski, 2022). This new model provides the employees with choice, enabling spatial management of workload, and the ability to interact in close proximity when they deem it necessary (Halford, 2005). It is combining the best of working on-site and working from home (Bloom et al., 2022). It is designed to reserve certain days for meetings and collaboration in the office and remote days for work with an individual focus (Ro, 2020). It provides better employee experiences, better access to talent, higher productivity for individuals and small teams, lower costs and more individual flexibility (A. Alexander et al., 2020). In a recent experiment, the results showed that hybrid form of work was highly valued by employees, turnover decreased, and job satisfaction increased. More messaging and video calls were made even when all employees were in the office, indicating a shift toward more electronic communication (Bloom et al., 2022). Another recent field experiment showed that hybrid working was associated with higher email volume, clear email recipients and clear information in emails. Hence, the supervisors evaluated their performance better (Choudhury et al., 2022).

1.2 A multi-technique bibliometric analysis of the field of distributed work: where it all began, where it is now and where it is going

1.2.1 Introduction and theoretical background

What we currently know about the research area of distributed work is that it is a rapidly growing field of academic endeavor and practice, made even more relevant by recent changes in today's work environment. At the same time, many different definitions, labels, and conceptualizations of distributed work exist, resulting in a fragmented field that is threatened by a proliferation of concepts. With such proliferation looming, and with reviews focusing only on specific subdomains, it is unlikely that researchers see the whole conceptual picture and completely understand the interrconnections among various concepts describing remote work, its background and conceptual space. There are already several reviews addressing some of these concepts (Abarca et al., 2020; Charalampous et al., 2019; Gajendran & Harrison, 2007; Garcia Carreño, 2020; Laine, 2009; Raghuram et al., 2019; Santana & Cobo, 2020; Shin, Liu Sheng, et al., 2000). However, they either tackle a limited scope of distributed work phenomena, are narrative/subjective/not systematic, thus lack objectivity, comprehensiveness and reproducibility, or are not very recent.

A review by Shin, El Shawy, Liu Sheng and Higa (2000) is "chronologically challenged" (more than 20 years old) and focuses only on three terms: telework, telecommuting and virtual organization. Moreover, it is narrative and qualitative. A study by Laine (2009) focuses only on the phenomenon of virtual communities and does not capture the whole picture of remote work. A study by Charalampous, Grant, Tramontano, and Michailidis (2019) systematically examines remote e-workers in the context of well-being at work, and is thus limited in scope of this specific research question. A review by Raghuram, Hill, Gibbs, and Maruping (2019) recently attempted to address some of these issues by providing a quantitative review of "virtual work" based on a single bibliometric technique of co-citation analysis. Even more recently, a study by Abarca, Palos-Sanchez and Rus-Arias looks (2020) at working in virtual teams and a study by Santana and Cobo (2020) looks at the future of work, including remote working in the analysis as one of the subsections of future of work. Both of these, albeit very recent and touching upon some of the concepts under investigation here, are clearly different in scope.

The study of Raghuram and colleagues (2019) is the most connected to ours. It is importantly contributing to our understanding of the concept of virtual work by presenting the intellectual structure which this field is based upon, and conducts a comparative review of the identified sub-fields (Telecommuting, Computer-Mediated Communication and Virtual teams) to propose a systematic approach for bridging research across clusters of different approaches to studying virtuality. Nonetheless, many issues and gaps worth addressing remain.

First, their ‘overview of the virtual work field’ is based on co-citation analysis, one of the bibliometric techniques. The authors interpreted its results as ‘research clusters constituting the field of virtual work’. However, co-citation analysis (Small, 1973) is a bibliometric technique that looks at the theoretical underpinnings, the intellectual origin of a particular scholarly field by discovering its main works (i.e., studies that the field cites and is built upon, not what a field actually consists of). Current driving force of the field with current trends and hot topics remains to be examined. Secondly, their analysis is limited in keywords they focused on, which results in an important conceptual deficiency in terms of representing a holistic all-encompassing portrayal of the field. Specifically, their search does not include key terms that could importantly capture aspects of distributed work related to remote work or work from home; these have been made even more relevant in the light of the current pandemic. Last but not least, while the co-citation results of Raghuram et al. (2019) provide a comprehensive (bundled) insight into the field's theoretical foundations, based on their review and others that we overviewed above, our understanding of how the field evolved over time – patterns of evolution of its schools of thought and sub-sections, their theoretical background, shifts over time and actual content – remains limited.

This paper attempts to provide an all-inclusive systematic overview of the development and current state of distributed work in an attempt to advance the current overview of the field. To do so, we posit the following three research questions: (1) *What is the intellectual structure of the field of distributed work, and how have its theoretical foundations developed and transformed over time?* (2) *What are the research areas associated with a distributed work?* and (3) *What is the intellectual structure of recent/emerging literature on the field of distributed work?* We answer these research questions by triangulating across three bibliometric techniques (i.e., co-citation, co-word and bibliographic coupling) that are complemented with interpretative logic stemming from the 'invisible colleges' framework (R. Vogel, 2012). Such an approach enables us to produce past, present, and future snapshots in order to identify the most influential topics, determine the underlying structure of the field and its development, and detect emerging trends. The four potential contributions to the literature are identified.

First, we intend to corroborate the study of of Raghuram, Hill, Gibbs & Maruping (2019) by providing an accurate and appropriate account of co-citation analysis used to graphically represent the intellectual structure and scolar communication of the intellectual structure (i.e., the secondary articles, which the field cites) informing the research field of distributed work and its various sub-domains, not actually representing the research area (i.e., primary articles that constitute the field). We apply the co-citation analysis to pinpoint the core theories used to inform it, and provide a basis for portraying the field's evolution. Second, we intend to expand their search in our analysis with other related and relevant terms, namely: work from home, home working, working remotely, and e-work. This is important, conceptually, as it provides a more comprehensive account of distributed work, specifically targeting remote work/working from home. In addition, it opens up a new topic of the emerging practice of the digital nomad, which is particularly important for post pandemic times and new generations (De’ et al., 2020).

Due to measures taken to contain the spread of infections, such as social distancing and quarantine, many organizations were forced to implement remote working. According to various data, pandemic caused millions of workers worldwide to work from home (Pruett, 2020; Tolette, 2020), and organizations responded with rapid implementation of different distributed work modes and arrangements (J. A. Greer et al., 2002; The European Commission's science and knowledge service, 2020). Third, we intend to further advance the exploration of the evolution of the field, mapping its trajectory and development by applying the 'invisible colleges' framework (R. Vogel, 2012). The identification and description of the clusters of studies that the field has already cited will be done. Next, we intend to portray evolutionary patterns of dynamic change in the field, showing the developmental path of specific schools of thought and how they have transformed over time. Fourth, we add two additional techniques - co-word analysis and bibliographic coupling - that allow us to complement our investigation of the past/theoretical foundations by exploring the semantic (conceptual) space and current hot topics in the literature. This enables us to explore, identify and portray the nomological net of the field, potentially contributing to the discussion about concepts used (and potentially proliferating) in the field, and on this foundation and on the basis of current trends in the literature, we are able to make content-based and more objective recommendations about aspiring future research areas carrying the field forward. Following Webster and Watson's (2002) suggestions on how to make an important contribution to setting directions for future research, we have also formed propositions stemming from our findings and the conceptual model of the field's nomological net.

1.2.2 Methodology and findings

To address these challenges in the current overview of this important field, we conducted three bibliometric techniques, namely: co-citation, co-occurrence and bibliographic coupling. Bibliometric analysis is not necessarily a new method for reviewing the literature (M. M. Kessler, 1963). but it has gained increasing scholarly interest in recent years, mostly due to online databases that contain almost every document ever published have become easy accessible. This expansion has as well been backed up by the development of new and improved bibliometric softwares (e.g. VOSviewer, BibExcel), which significantly facilitate the process of data structuring and analysis. Bibliometric techniques are deemed to be a form of science mapping and are used as classification and visualization tools that enable the evaluation and analysis of scientific literature with the aim of revealing the structure and dynamics of scientific fields (Donthu et al., 2021; Zupic & Čater, 2015). Their main goal is to reveal the relationships between publications. These relationships are based on the linkage of articles in bibliographic records, where the strength of the linkage is measured by the number of links between articles (Wallin, 2005). It allows researchers to demonstrate their opinion on a topic (Zupic & Čater, 2015). We must distinguish between two kinds of documents. The first are primary documents, which form the basis of the bibliometric review and are found through a keyword search. The other group are the secondary documents, i.e. the documents that are cited by the primary documents and therefore do not necessarily appear in the results of the keyword search (B. Vogel et al., 2020).

1.2.2.1 Database and search protocol

Firstly we used the Web of Science (WoS) (database most used in bibliometric studies (Zupic & Čater, 2015) for data search and export. We used the same search terms as Raghuram, Hill, Gibbs and Maruping (2019) and upgraded it with additional related and relevant terms, namely: *work from home, home working, working remotely* and *e-work.*

Final search terms included *"virtual team*" OR "virtual group*" OR "virtual work*" OR "distributed team*" OR "distributed group*" OR "distributed work*" OR "mobile work*" OR "remote work*" OR "dispersed group*" OR "dispersed team*" OR "dispersed work*" OR "technology-mediated work*" OR "technology mediat*team*" OR "technology-mediated group*" OR "computer-mediated group*" OR "computer mediat* team*" OR "computer mediat* work" OR "telework*" OR "telecommut*" OR "distance work*" OR "distance team*" OR "work* from home" OR "home working" OR "working remotely" OR "e-work*".*

Using these terms, we searched titles, abstracts, and keywords of journal articles published between 1900 and 2020, which resulted in 12.304 articles. Most of them (1.501) were from the Management field, Mechanics (1.120) and Computer science information systems (1.059).

The data obtained from WoS were analyzed using the VOSviewer software developed in 2010 by van Eck and Waltman. VOSviewer visualizes data based on influence and proximity measures. In this way, it is able to analyze and portray various bibliometric networks, such as those of citations, publications, journals, co-authorshops, or co-words (Eck & Waltman, 2010). Three analyses were performed.

1.2.2.2 Co-citation analysis

First, in order to test the semantic similarity between articles and to obtain a dynamic representation of the historic perspective of remote work, we performed a co-citation analysis (Small, 1973) on secondary papers (i.e., those that the field cites). By applying network analysis, a graph-theoretic approach to representing the main units of analysis and their relationships to each other (Nerur et al., 2008), we will (1) describe the subfields that make up the intellectual structure of distributed work research and identify their major knowledge areas, (2) determine the relationships between subfields, (3) identify papers (and authors) that play a central role in bridging two or more conceptual research areas, and (4) graph the conceptual foundations to visualize the relationships between intellectual areas (clusters of conceptual foundations).

To get better insights at the development of distributed work, we divided the search into three temporal parts. First one included articles up until 1995, the second one from 1996 to 2010 and the third one from 2011 to 2020. These time periods were selected in a way to produce relatively comparable time frames, with 1995 being a turning point with influential articles of

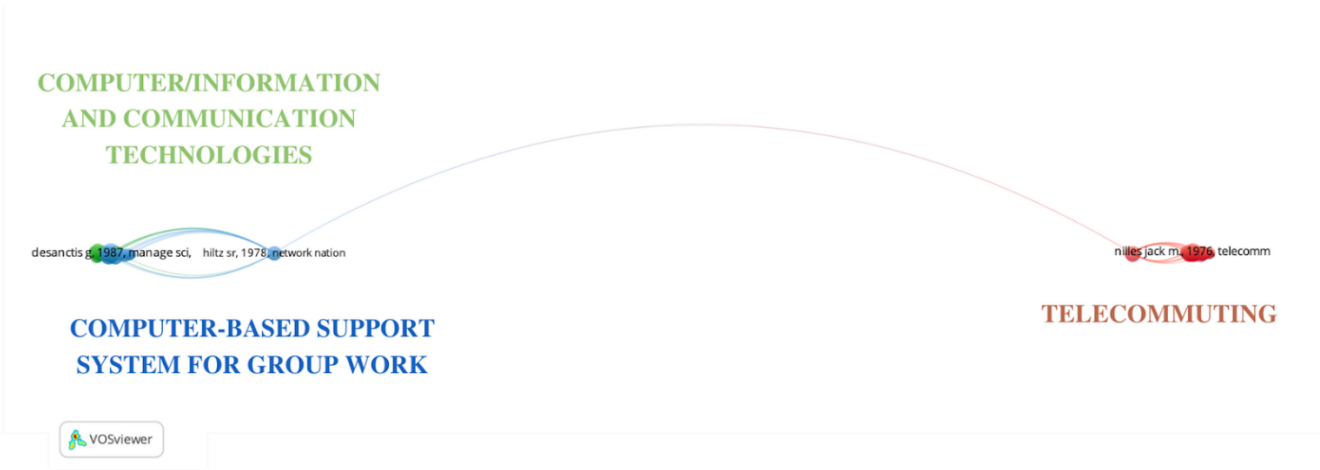
Handy (1995) and Mayer, Davis and Schoorman (1995) being published, and 2010 as another one, with Barack Obama signing the Telework Enhancement Act, which transformed Federal telework to unleash its potential as a strategic intervention to support agency effectiveness, achieve greater flexibility in managing their workforce, and help employees improve work-life effectiveness (Snyder, 2012). As expected, the first time period includes the least number of articles (592), the second one the something in between (3.649) and the last one the most (8.063). The number of articles is increasing according to the development and popularity of distributed work.

We followed the following steps: 1) create a map based on bibliographic data, 2) read data from bibliographic database files, 3) type of analysis: co-citation, unit of analysis: cited references, counting method: full counting. The 4) step was different for each time period. Time period from 1900 to 1995 had a minimum number of citations of a cited reference set on 4, time period from 1996 to 2010 had a minimum number of citations of a cited reference set on 28, and a time period from 2011 to 2020 had a minimum number of citations of a cited reference set on 54.

a) Time period up to 1995

In this time period 592 articles were analyzed. From that we got 75 items (objects of interest) forming 5 clusters. Total link strength was 1719 and there were 839 links between those articles. We found out that most of these articles were actually from the field of Mechanics and were clearly not related to our definition of remote work, but were instead related to Virtual work method, which talks about how to calculate structural deflections (Bathe & Bolourchi, 1979). This led us to the elimination of mechanical, mathematical and engineering fields. After this step we were left with 193 articles. We repeated previously described analysis, setting the minimum cited references on 3, which resulted in 63 items forming 3 clusters (see Figure 3). Total link strength was 1.294 and there were 684 links between those articles.

Figure 3: Co-citation map, documents between 1900 and 1995

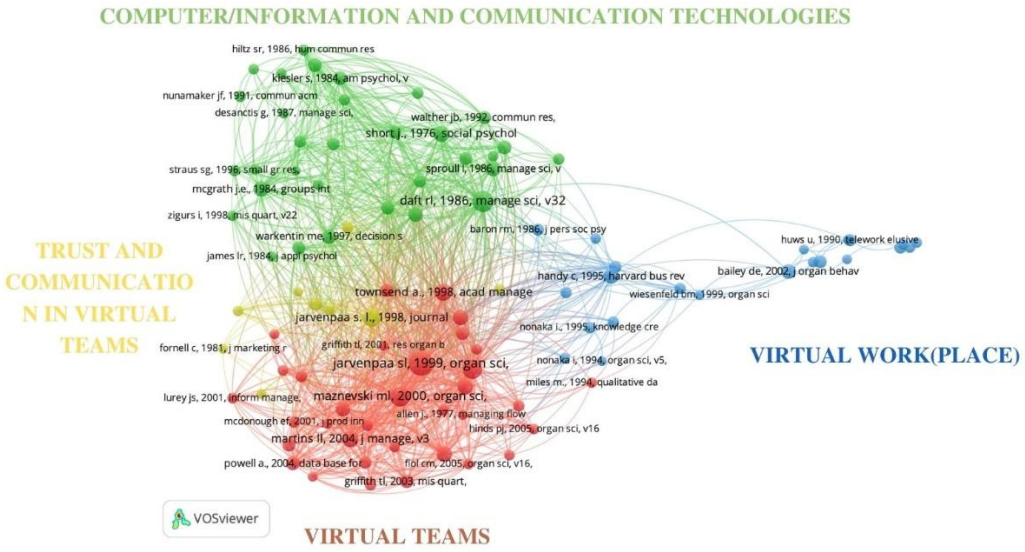


Source: Own work.

b) Time period from 1996 to 2010

In this time period 3.649 articles were analyzed. From that we got 97 items forming 4 clusters (see Figure 4). Total link strength was 21.083 and there were 3784 links between those articles.

Figure 4: Co-citation map, documents between 1996 and 2010

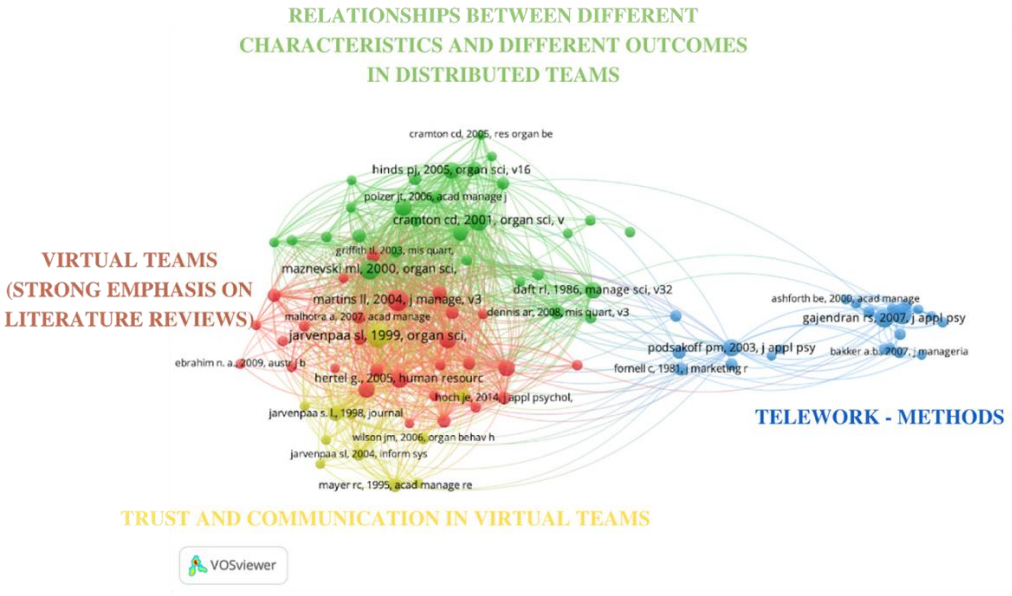


Source: Own work.

c) Time period from 2011 to 2020

In this time period 8.063 articles were analyzed. From that we got 90 items forming 4 clusters (see Figure 5). Total link strength was 33.278 and there were 3.473 links between those articles.

Figure 5: Co-citation map, documents between 2011 and 2020



Source: Own work.

The summary of these clusters can be seen in the Table 1, which encapsulates each cluster's label, main content, main authors, number of documents and indicates its evolution over time.

Table 1: Summary of the co-citation analysis results for the distributed work field

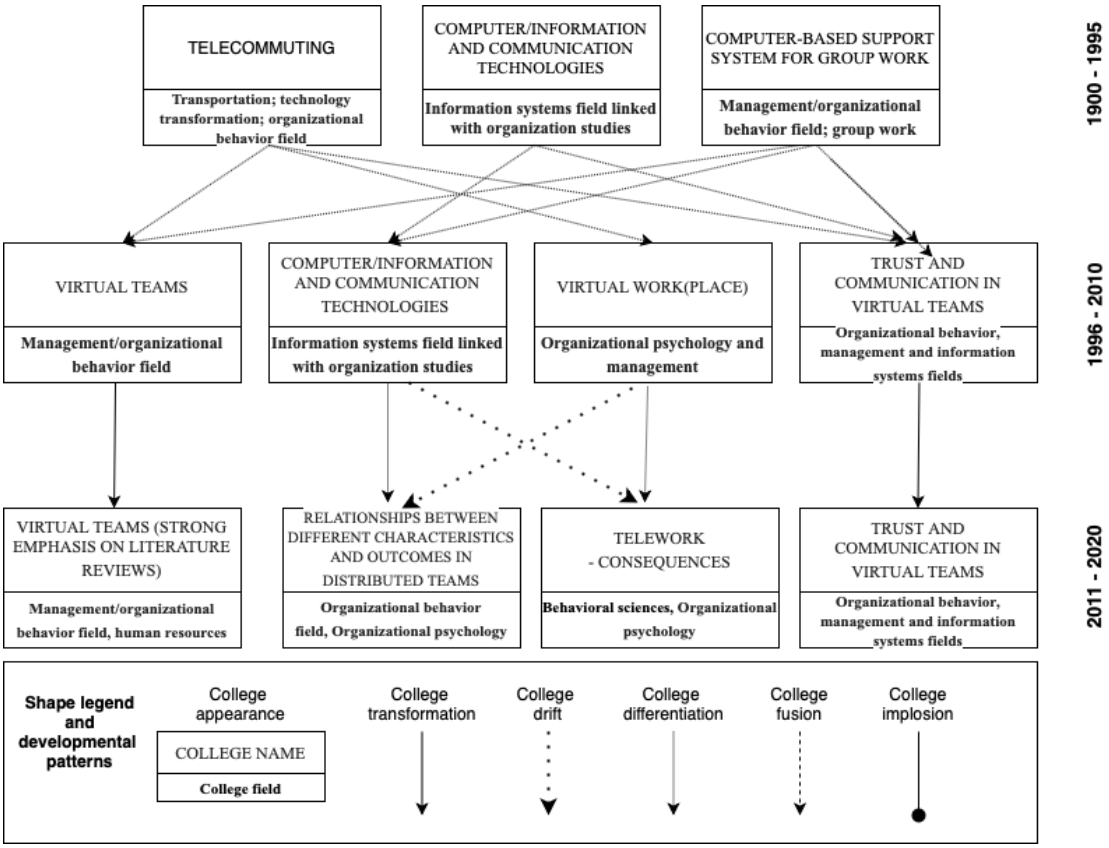
Co-citation				
TIME PERIOD UP TO 1995				
Cluster	**Content**	**Main authors**	**Number of documents**	**Evolution of the college**
Telecommuting	The articles in this cluster talks about the impact of telecommuting, changes of travel behaior, traffic reduction, and explores telecommuting from the employee's perspective.	Nilles (1998), Salomon & Salomon (1984), Mokhtarian (1991), Pendaya, Goulias and Kitamura (1991)	26	Transportation; technology and transformation; organizational behavior field
Computer/information and communication technologies	This cluster explores information processing in organization,productivity loss in brainstorming groups, social psychological aspects of computer-mediated communication, and examines electronic meeting systems for group work support.	Darf and Lengel (1986), Diehl and Stroebe (1987), Kesler, Siegel and McGuire (1984), Nunamaker, Dennis, Valacich, Vogel and George (1991)	23	Information systems field in connection with organization studies.
Computer-based support system for group work	This cluster explores group processes in computer-mediated communication, group decision support systems, and interaction and performance of groups.	Siegel, Dubrovsky, Kiesler and McGuire (1986), Desanctis and Gallupe (1987), McGrath (1984)	14	Management/organizational behavior field; group work
TIME PERIOD FROM 1996 TO 2010				
Cluster	**Content**	**Main authors**	**Number of documents**	**Evolution of the college**
Virtual teams	This cluster discuss trust and communication in virtual teams, virtual team dynamics and effectiveness, mutual knowledge problems in dispersed collaboration, the technology and the workplace of the future.	Jarvenpaa and Leidner (1999), Maznevski and Chudoba (2000), Cramton (2001), Martins, Gilson, Lucy and Maynard (2004), Townsend, DeMarie and Hendrickson (1998), Townsend, DeMarie and Hendrickson (1998)	34	Management/organizational behavior field
Computer/information and communication technologies	This cluster talks about information processing in organizations, computer and communication technologies, web-based conference system, and explores interactions and performance of groups.	Short, Williams and Christie (1976), Warkentin, Sayeed and Hightower (1997), McGrath (1984)	32	Information systems field in connection with organization studies.
Virtual work(place)	This cluster talks about trust in virtual organizations and virtual dimensions, explores managing a virtual workplace and advantages and disadvantages of virtual workplace, it also includes discussion about differences between moderator and mediator properties, and from the development of theory.	Handy (1995), Cascio (2000), Baron and Kenny (1986), Eisenhardt (1989)	22	Organizational psychology and management.
Trust and communication in virtual teams	This cluster discusses coordination, and shared communication systems in virtual teams, group development, and swift trust and temporary groups.	Jarvenpaa, Knoll and Leidner (1998), Mayer, Davis and Schoorman (1995), Gersick (1988), Mayerson, Weick and Kramer (1996)	9	Organizational behavior field, management and information system field.
TIME PERIOD FROM 2011 TO 2020				
Cluster	**Content**	**Main authors**	**Number of documents**	**Evolution of the college**
Virtual teams (strong emphasis on literature reviews)	This cluster includes literature review of virtual teams researches, a review of empirical research on the management of virtual teams, discusses the challenges of virtual teams for leadership and the typology of virtual teams, explores the dimensions and antecedents of team virtuality, and talks about key factors that lead groups to higher levels of team virtuality.	Martins, Gilson and Maynard (2004), Hertel, Geister and Konradt (2005), Bell and Kozlowski (2002), Kirkman and Mathieu (2005), Powell (2004)	28	Management/organizational behavior field, human resources
Relationships between different characteristics and outcomes in distributed teams	this cluster discusses virtual team dynamics and effectiveness, mutual knowledge problems in dispersed collaboration, explores the effects of four virtual work characteristics on team Innovation, and discusses conflicts in distributed teams and meaning of shared identity, shared context and spontaneous communication.	Maznevski and Chudoba (2000), Cramton (2001), Gibson and Gibbs (2006), Hinds and Mortennsen (2005)	28	Organizational behavior field, Organizational psychology
Telework-methods	This cluster describes method biases in behavioral sciences, talks about the positive and negative consequences of telecommuting, reviewes telework research, and also talks about differences between moderator and mediator properties.	Podsakoff, MacKenzie, Lee and Podsakoff (2003), Gajendran and Harrison (2007), Bailey and Kurland (2002), Baron and Kenny (1986)	23	Behavioral sciences, Organizational psychology
Trust and communication in virtual teams	This cluster discusses trust, communication, coordination and shared communication systems in virtual teams, the impact of knowledge coordination on virtual team performance, about the role of trust in virtual teams and organizational trust in general.	Jarvenpaa and Leidner (1999), Jarvenpaa, Knoll and Leidner (1998), Kanawattanachai and Yoo (2007), Jarvenpaa, Shaw and Staples (2004), Mayer, Davis and Schoorman (1995)	11	Organizational behavior, Management and Information system field

Source: Own work.

We interpret temporal changes across the investigated time frames based on the ideas stemming from the conceptual framework of 'invisible colleges' (de Solla Price, 1965; R. Vogel, 2012), which may be exploited to study scientific communication between scholars to illuminate dynamic change over the three periods of the field's development. Vogel (2012) suggested that 'invisible colleges' can evolve in seven ways, namely: college appearance, transformation, drift, differentiation, fusion, implosion, and revival. College appearance is the coming into existence of a new college with no predecessor in the same field, even though its foundations have existed for a long time. College transformation is either gradual or sudden change of an existing college that may lead to the establishment of a new college. To some extent, this evolutionary pattern is universal, as all colleges change over time. This is true even for colleges that have a high degree of temporal consistency and continuity. College drift represents the process by which parts of one college are integrated into another. Although there is some degree of constant mobility within the academic social structure, especially in fragmented streams, sometimes entire groups of significant documents change their home college. College differentiation describes the process by which an initial college (that is frequently broadly defined) splits into several new colleges with a higher degree of specialization. Thus, it represents a pattern of divergent evolution. College fusion occurs when two or more previously independent colleges combine and integrate to form a single college.

Results (Figure 6) reveal that the research of distributed work initially began in three streams of telecommuting, computer/information and communication technologies, and computer-based support systems for group work, mostly from the transportation field, the information systems field, and the organizational behavior field. Each of these colleges later differentiated into four somewhat narrower colleges, with the field beginning to incorporate influxes from organizational psychology (OP) and management. In the last studied decade, research on distributed work has increased significantly. Two of the colleges have transformed, while two of them differentiated and drifted.

Figure 6: Development patterns of distributed work research interpreted through the invisible colleges framework



Source: Own work.

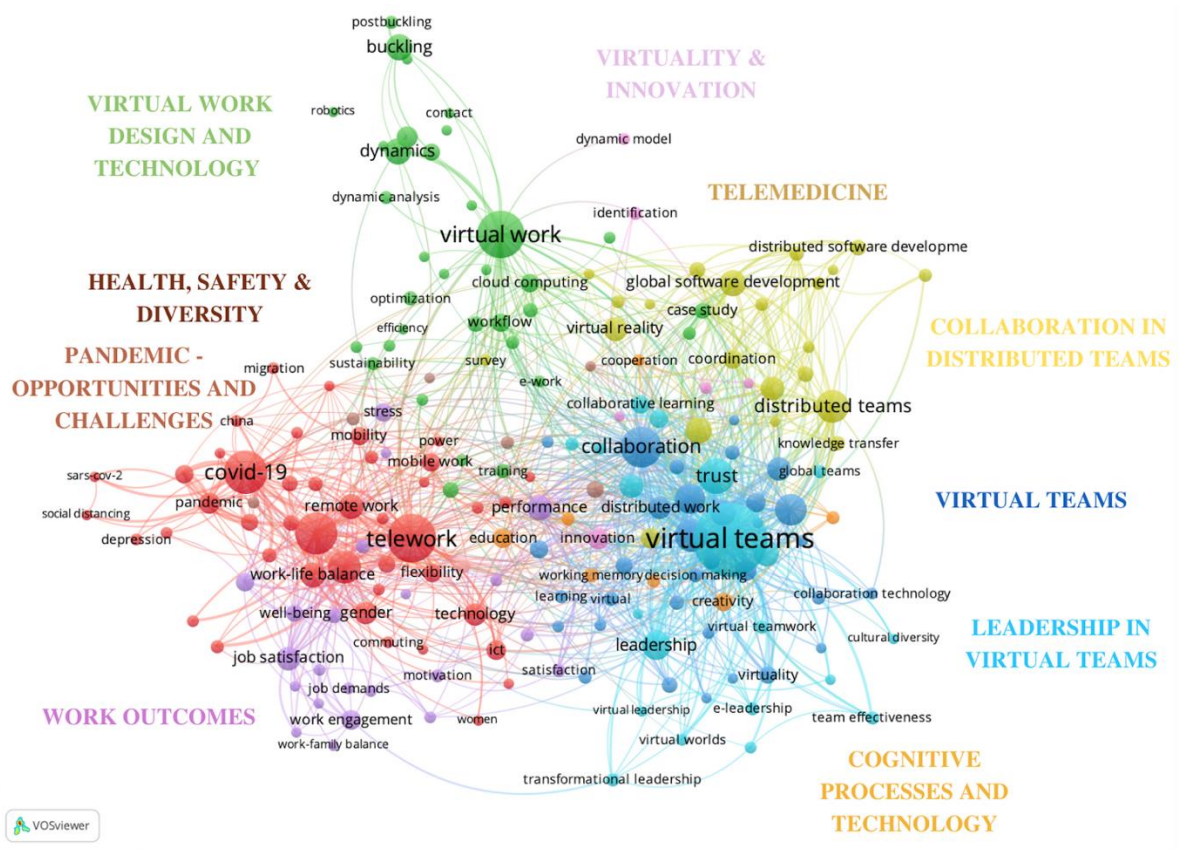
1.2.2.3 Co-occurrence (co-word) analysis

Next, in order to understand the conceptual structure of the distributed work field, we conducted an analysis on the co-occurrence of the keywords (co-word analysis; Cobo et al., 2011) of primary documents (those that constitute the field). To construct a similarity measure, most bibliometric methods link documents indirectly via citations or co-authorships, while co-word analysis uses the actual content of documents (Zupic & Čater, 2015). The result of the latter is a "network" of various research areas and their relationships, showing the conceptual space of a field. This enabled us to extract the main conceptual themes within the field of distributed work.

For that we followed next steps: 1) create a map based on bibliographic data, 2) read data from bibliographic database files, 3) type of analysis: co-occurrence, unit of analysis: author keywords, counting method: full counting, and 4) a minimum number of occurrences of a keyword set on 16.

In the co-occurrence (co-word) analysis, 12.304 primary articles were analyzed. With the treshold of minimum number of occurrences of authors' keywords set on 15, we got 234 items of the 24.614 keywords. This resulted in 206 articles that formed 6 clusters (see Figure 7). At the next step we eliminated keywords related to mechanical, engineering and mathematical fields[3] because they do not encompass a meaningful theoretical relationship with our observed phenomena. Following this step we obtained 194 items forming 10 clusters. Total link strength was 4.835 and there were 2.452 links between those authors' keywords. The summary of these clusters can be seen in the Table 2, capturing each cluster's label, a list of highest-frequency keywords and the number of all keywords included.

Figure 7: Co-occurrence (co-word) map



Source: Own work.

[3] Namely: *kinematics, screw theory, finite element method, parallel manipulator, parallel mechanism, elasticity, principle of virtual work, bending, shear deformation, free vibration, functionally graded material, parallel robot, vibration, sandwich, simulation, finite element, functionally graded materials, analytical modeling, laminated composite, plates, geometric nonlinearity, nonlocal elasticity, inverse dynamics, beams, composite beams, sandwich plate, modeling, nonlinear analysis, analytical solution, static analysis, finite element method, large deformation, numerical simulation, finite elements, modelling, virtual fields method, isogeometric analysis, stress function, phylogeny.*

Table 2: Summary of the co-word analysis results for the distributed work field

Co-occurrence		
Cluster	**Keywords**	**Number of authors' keywords**
Pandemic-opportunities and challenges	telework, covid-19, telecommuting, teleworking, remote work, pandemic, technology, coronavirus, gender, flexibility, ict, mobile work, mental health, flexibility, remote working, working from home, work, workplace, control, mobility, homeworking, time, employment, flexible work arrangements, and human resource management	43
Virtual work design and technology	virtual work, management, dynamics, case study, cloud computing, design, workflow, training, measurement, evaluation, sustainability, and crowdsourcing	34
Virtual teams	virtual teams, collaboration, communication, computer-mediated communication, teamwork, teams, distributed work, project management, virtuality, culture, and virtual groups	33
Collaboration in distributed teams	distributed teams, knowledge sharing, knowledge management, global software development, coordination, social media, groupware, cscw, awareness, and social network analysis	22
Work outcomes	performance, work-life balance, job satisfaction, productivity, well-being, work engagement, work-family conflict, and satisfaction	22
Leadership in virtual teams	trust, leadership, virtual team, global virtual teams, team performance, e-leadership, collaborative learning, e-learning, team effectiveness, and virtual teamwork	20
Cognitive processes and technology	creativity, education, cooperation, media-richness, decision-making, cognition, and working memory	7
Health, safety and diversity	diversity, health, grounded theory, safety, qualitative research, and taxonomy	6
Virtuality and innovation	innovation, virtual organizations, team working, globalization, identification, and dynamic model	6
Telemedicine	telemedicine	1

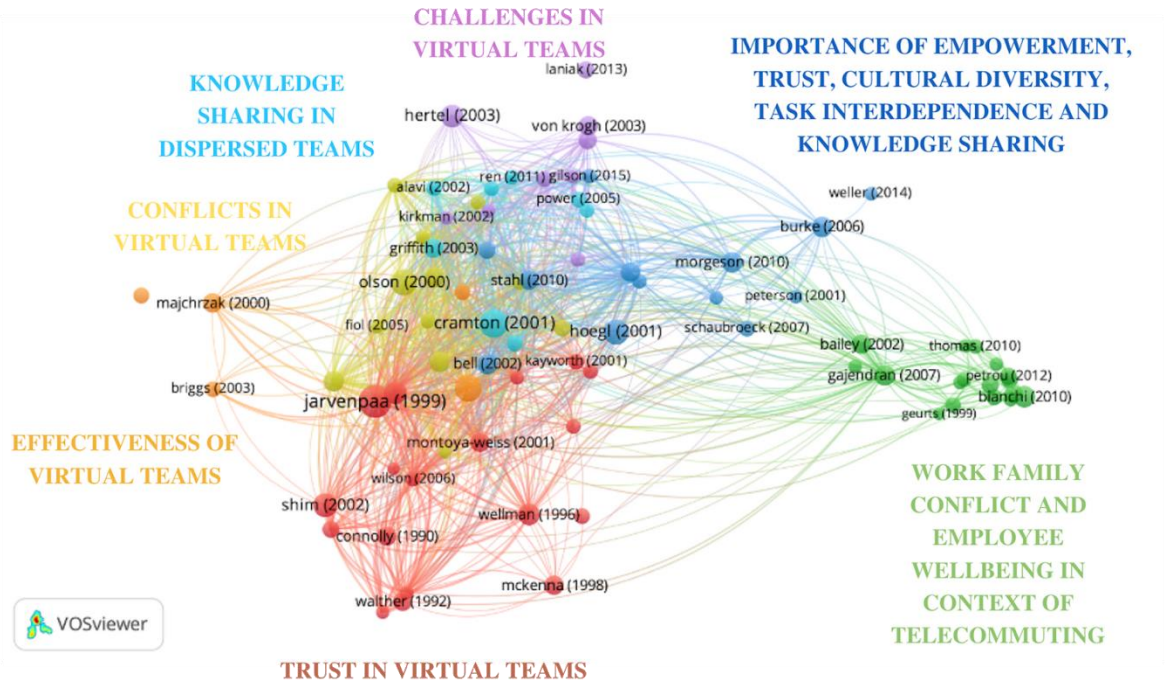
Source: Own work.

1.2.2.4 Bibliographic coupling

Finally, in order to get a temporally unbiased idea of interrelationships among the articles, currently most impactful topics and ongoing trends in the field, we performed bibliographic coupling (M. M. Kessler, 1963), which couples primary documents on the basis of overlap of their bibliographies. In this way, we can provide insights into the relationships between the contributions currently in vogue, while also highlighting boundary spanners within each field and bridges between them. This will allow us to detect and show the most relevant protagonists of the subfields and the interpenetration of their influence, graphically illustrate the relationships between the fields, and suggest possible ways of integrating the field and bridging some currently unconnected but conceptually related subfields.

For that we followed next steps: 1) create a map based on bibliographic data, 2) read data from bibliographic database files, 3) type of analysis: bibliographic coupling, unit of analysis: documents, counting method: full counting, and 4) a minimum number of occurrences of a keyword set on 180.In this group, all 12.304 primary articles were analyzed, with a minimum number of citation of documents set at 180, resulting in 82 articles that formed 7 clusters (see Figure 8). The total link strength was 3.926 and there were 1.243 links between these documents. The summary of these clusters can be seen in the Table 3, depicting each cluster's label, content recap, main authors and the number of documents included in the final portrayal.

Figure 8: Bibliographic coupling map



Source: Own work.

Table 3: Summary of the bibliographic coupling results for the distributed work field

Bibliographic coupling			
Cluster	**Content**	**Main authors**	**Number of documents**
Trust in virtual teams	This cluster talks about virtual teams, compares trust in computer-mediated versus face-face teams, discusses communication and trust in global virtual teams, and describes the dynamic nature of trust in virtual teams.	Martins, Gilson, Lucy and Maynard (2004), Wilson, Straus and McEvily (2006), Leidner (1999), Kanawattanachaia and Yoo (2002)	18
Work family conflict and employee wellbeing in context of telecommuting	This cluster discusses talks the positive and negative consequences of telecommuting, reviews telework research, explores work family conflict and employee wellbeing, tals about work and family stress and wellbeing, and discusses thriving (joint experience of vitality and learning) at work.	Gajendran and Harrison (2007), Bailey and Kurland (2002), Lapierre and Allen (2006), Edwards (1999), Porath, Spreitzer, Gibson and Garnett (2012)	17
Importance of empowerment, trust, cultural diversity, task interdependence and knowledge sharing	This cluster explores the role of team empowerment in virtual teams, the role of cultural diversity in teams, the role of trust in virtual teams, the challenges of virtual teams for leadership and the typology of virtual teams, and discusses trust, task interdependence and virtualness in knowledge sharing in teams.	Kirkman, Rosen, Tesluk and Gibson (2004), Stahl, Maznevski, Voigt and Jonsen (2010), Jarvenpaa, Shaw and Staples (2004), Bell and Kozlowski (2002), Staples and Webster (2008)	13
Conflicts in virtual teams	This cluster discusses different dimensions and degrees of team dispersion in virtual teams, talks about conflicts in distributed teams and meaning of shared identity, shared context and spontaneous communication in geographically distributed teams.	O'Leary and Cummings (2007), Hinds and Bailey (2003), Mortennsen (2005), Mortensen and Hinds (2001)	12
Challenges in virtual teams	This cluster explores challenges (trust, process gains, isolation, balancing technical and interpersonal skills, assessment and recognition of performance) of virtual teams, discusses the role of behavior control on trust decline in virtual teams, and explores the impact of trust and communication on the effectiveness of open source software teams.	Kirkman, Rosen, Gibson, Tesluk and McPherson (2002), Piccoli and Ives (2003), Stewart and Gosain (2006)	9
Knowledge sharing in dispersed teams	This cluster discusses knowledge coordination and virtual team performance, talks about the mutual knowledge problem, situated knowledge and learning in dispersed teams.	Kanawattanachai and Yoo (2007), Cramton (2001), Sole and Edmondson (2002)	8
Effectiveness of virtual teams	This cluster talks about virtual team dynamics and effectiveness, explores the differences between global, virtual and co-located new product development, and technology adaptation in virtual teams.	Maznevski and Chudoba (2000), McDonough, Kahn and Barczak (2001), Majchrzak, Rice, Malhotra, King and Ba (2000)	5

Source: Own work.

1.2.3 Discussion and conclusion

1.2.3.1 Intellectual structure and development of the field and meaning of distributed work over time

The first bibliometric technique which we've applied, co-citation analysis that explored the intellectual structure of the research area (i.e., what the field cited) across the three time periods, showed that the field of the distributed work started with research in information systems, transportation, and organizational behavior, which clearly show the importance of the first computer/information and communication technologies and the first known benefits of distributed work (e.g., less transportation). Later research was also conducted in the field of organizational psychology and management. During this time, technology became more advanced and more people were able to benefit from it, so virtual teams became more common.

Managers noticed the importance of training employees to use new computer/information and communication technologies and the importance of communication and trust between team members. In the last studied decade, distributed work has become even more prevalent and most of the research is in the areas of organizational behavior, human resources, organizational psychology, and information systems (IS). New research areas have emerged that address the work characteristics, outcomes, and consequences of new forms of work, while trust and communication remain an important point of discussion. The findings also show that there is an increasing number of literature reviews on this topic, demonstrating its importance.

To compare these findings with the study by Raghuram et al. (2019), they provide an overview of the theoretical underpinnings, but in a more summary view, indicating that the schools of thought might have remain similar over the years, which – as evidenced by our description of the field development, is not a valid assumption. Overall, this overview provides a more detailed historic portrayal and provides evidence of theoretical foundations of the field of distributed work. On this basis, we assert:

Proposition 1: *The theoretical foundations of distributed work lie in the field of information systems, with later influxes from fields of organizational psychology, and management and information technology, eventually leading to more applied areas of organizational behavior and human resource management.*

Turning our attention to the labels the field predominantly applied to denote distributed work and related concepts, research in the period from 1900 to 1995 (Mokhtarian, 1991b; Nilles, 1988; Salomon & Salomon, 1984) already discussed three different types of remote work options, namely work at home, satellite work centres and neighborhood work centres, but most research at that time included the term telecommuting. Researchers distinguished between two types of telecommuting, namely home-based telecommuting, where individuals work from home rather than in a traditional office, and regional center-based telecommuting, where telecommuting was classified as satellite centers, local centers, and neighborhood centers. Telecommuting in general refers to the partial or total substiution of the twice-daily commute by telecommunications, with or without computer assistance. On the other hand, the term telework encompasses all work-related substitutions for travel by ICT, but may or may not reduce traveling. Telecommuting was considered as a possible form of work that reduces dependence on transport by increasing dependence on ICT, although the latter is not essential. Initially, telecommuters were assumed to be information workers who worked almost exclusively on computers. Later, telecommuting was assumed to be full-time work and work from home. Even later, the terms teleconferencing and flexiplace emerged in connection with telecommuting.

In the research period from 1996 to 2010, most terms were connected to virtual wokplace, virtual teams, global virtual teams and geographically dispersed teams. A virtual work is one in which employees work at a distance from each other and from their supervisors; virtual

teams and telework are just two examples of such arrangement (Cascio, 2000). A virtual team is a team whose members interact with each other across geographic, organizational, and other boundaries using technology (Martins et al., 2004). Global virtual team is a temporary group of people who are culturally diverse and geographically dispersed, and are electronically communicating with one another to make or implement decisions with international components and implications, which are usually strategically important and highly complex tasks. Most of their interaction and decision making is done through ICT and they almost never meet in person. Virtual teams are characterized as global when their members are culturally diverse and can operate globally to accommodate the diversity of the global environment (Jarvenpaa & Leidner, 1999; Maznevski & Chudoba, 2000). Geographically dispersed teams are made up of people who share the purpose but complete their tasks independently in different locations and at different times, using ICT much more than meetings in person. They occur to take advantage of interorganizational and international opportunities and maximise the use of scarce resources (Cramton, 2001).

In the last observed research period, from 2011 to 2020, the term distributed work began to be used more frequtently, mostly in the context of virtual teams and telecommunications. Distributed work was defined in 1998 as any arrangement that allows employees and their tasks to be shared across settings away from a central place of business or physical organizational location, and it is considered an umbrella term that encompasses all of the work concepts previously described (Be'langer & Collins, 1998; Templer et al., 1999). The attribute virtual denotes distributed work that is mostly based on electronic means of information and communication tools (Gajendran & Harrison, 2007; Hertel et al., 2005). The increasing popularity of horizontal organizational structures and team-based units, along with technological advances, has led to the emergence of distributed virtual teams as an organizational arrangement, denoting it as a type of a work unit (Bell & Kozlowski, 2002). Therefore:

Proposition 2: *Emerging concepts related to distributed work first focused mainly on the location of the individual's work and cost savings in gas/time consumption, while later in the field development, the concepts focused more on the use of ICT and the relationships between coworkers, and supervisors and employees.*

1.2.3.2 Research areas associated with distributed work: nomological net, connected constructs and proliferation of concepts

Co-word analysis revealed the conceptual structure of the distributed work field. While most of the mainstream documents in main clusters are based upon similar theoretical backgrounds as those identified by the co-citation analysis**,** this thematic analysis revealed interesting additions related to currently popular trends in the field, specifically those related to safety and diversity, cognitive processing and innovation, and health/medicine. Particularly interesting is

already a large cluster related to distributed work during the pandemic, indicating that the field responded very quickly with research targeting these important research areas.

The literature on distributed work spans several disciplines and has used different terminologies and conceptualizations over time, which has led to a high degree of inconsistency and arbitrariness in the use of the terms telework and telecommuting in academic studies, as some authors have already pointed out in the previous research (Allen et al., 2015; Bui et al., 1996; do Rosario Alves de Almeida, 2008; Fritz et al., 1996; Shin, Liu Sheng, et al., 2000; Sullivan, 2003). The following are just a few examples of equating terms that were not originally defined as equal, but whose actual meaning has been lost in the course of research. »*Telework is soemtimes reffered to as telecommuting and we will be using both terms interchangeably*.« (Templer et al., 1999, p. 77). »*The most wellknown form of distributed work, telecommuting, which is also known as telework or remote work, has become a widespread practice*.« (Gajendran & Harrison, 2007, p. 1524). *»In all, telecommuting requires telecommunications and/or computer facilities to keep the home worker in contact with the office*.« (Be'langer & Collins, 1998, p. 138). »*Generally, we can differentiate various forms of virtual work depending on the number of persons involved and the degree of interaction between them. The first is telework (telecommuting) which is done partially or completely outside of the main company workplace with the aid of information and Telecommunication services*.« (Hertel et al., 2005, p. 71). »*Flexplace, also known as teleworking or telecommuting, includes working away from a traditional office or at home, as well as virtual work using information and communication technologies*.« (Azar et al., 2018). This is a non-exhastive list of examples that indicate the fact that the meaning of terms has been lost or is not precise enough and that many authors equate terms such as telework, telecommuting, distributed work, and remote work, even though the literature is clear on the matter that these terms are related, but are not synonymous – they do not mean the exact same thing or describe the same exact phenomenon based on several key characteristics or variables denoting their potential differences. We therefore propose:

Proposition 3: *Distributed work and related concepts overlap and are often misused; these terms are related but not synonymous, and should be used according to their precise definitions.*

In order to get to the bottom of the matter and clarify the meaning, we collected original definitions of terms, studied their content, similarities and differences, and arranged them in a way that they are logically ordered and clearly separated. As we already mentioned, the term *Distributed work* encompasses many different alternatives to working at the traditional office. This refers to arrangements where employees can work at various locations outside a central office or physical location of the organization (Be'langer & Collins, 1998). We can distinguish between many types of distributed work on the basis of variations in ICT use, location of work and geographical distribution. *Telework* is plainly defined as the use of ICT to conduct work. It can be done from anywhere, including the office, meaning it may or may not replace travel

and the geographical distribution is not essential (Huws et al., 1990; Mokhtarian, 1991b; Nilles, 1988). On the other hand, the term *Virtual work* differs from Telework only by the geographical distribution, which is that it is not optional but necessary. Virtual teams are considered to be groups of geographically dispersed employees working together to achieve common goals using a combination of ICTs (Jarvenpaa et al., 1997; O'Hara-Devereaux & Johansen, 1994; Townsend et al., 1998).

The most complex is the term *Remote work*, which is also an umbrella term for all work that can be done with or without ICT and where employees can usually change work location and may or may not be working in a different place. It refers to the work performed by a person at a different location from the person(s) who directly supervises and/or pays them to do it. This category can be divided into three additional groups based on the location of work (Mokhtarian, 1991b; Olson & Primps, 1984). The first one is where people can work from home or not. This includes *Long distance telecommuting*, which was intitially defined as »*employees living and working in one Standard Metropolitan Statistical Area (SMSA), for an employer or client in a different ("distant") SMSA or even country*« (Mokhtarian, 1991a), *Flexiplace*, where people have more freedom to choose where they work, including the option to work partly or entirely at home (Schiff, 1983), *Dispersed collaboration*, where employees complete tasks independenty across location and time, using ICT more than meetings in person (Cramton, 2001; Maznevski & Chudoba, 2000), and *Distance work*, where employees are working together at a distance, especially through the use of ICT (Olson & Primps, 1984).

Next category of Remote work is where people are non-home based. It includes *Field work*, where employees are conducting their work in different places (e.g., collecting data at one or more locations other than the main office), *Regional center-based telecommuting*, where employees work from a center closer to home than the main office. This encompasses working from the Satellite work centers (usually established by large organizations to provide facilities for only their own telecommuting employees), working from Local centres (large facilities for telecommuters from different organzations) or Neighborhood centres (smaller facilities for a few telecommuters from, that can serve as mini-satellites or mini-local centres) (Mokhtarian, 1991a; Nilles, 1988)**.** In the category of non-home remote work belong also *Working while traveling workers*, *Branch managers* who work remotely from their boss, *Hoteling*, an arrangement in which the company provides a number of work spaces, and when an employee needs to be in the office, he or she checks in at a workstation, retrieves the furnishings from a locker or other central storage facility, and checks out at the end of the day, and *Flexible work arrangements***,** where staff have office furniture and equipment that can be moved around within a building as required to facilitate different work tasks (Mokhtarian, 1991a; Nilles, 1988; Templer et al., 1999).

Last but not least is category of Remote work where employees are home-based. This category consists of different types of work, namely *Running a home-based business as one's only job, Moonglihting from home*, workers who run a second home-based business alongside another job, *Working at home after hours* (supplemental work), workers who take their work home to

work overtime after a full day's work in the office (Venkatesh & Vitalari, 1992), and *Home-based telecommuting*, where salaried employees work at home in lieu of in-office work (Mokhtarian, 1991a). The latter can be done occasionaly – *Occasional work at home*, or can be practiced most of the time – *Regular work at home* (Mokhtarian, 1991a; Olson & Primps, 1984; Sullivan, 2003)**.** In Figure 7 we can see that some brackets have dashed lines. This means that they do not fully meet the definition of remote work, as they do not have a direct supervisor/payer, but are still most of the time considered to be representative of remote work.

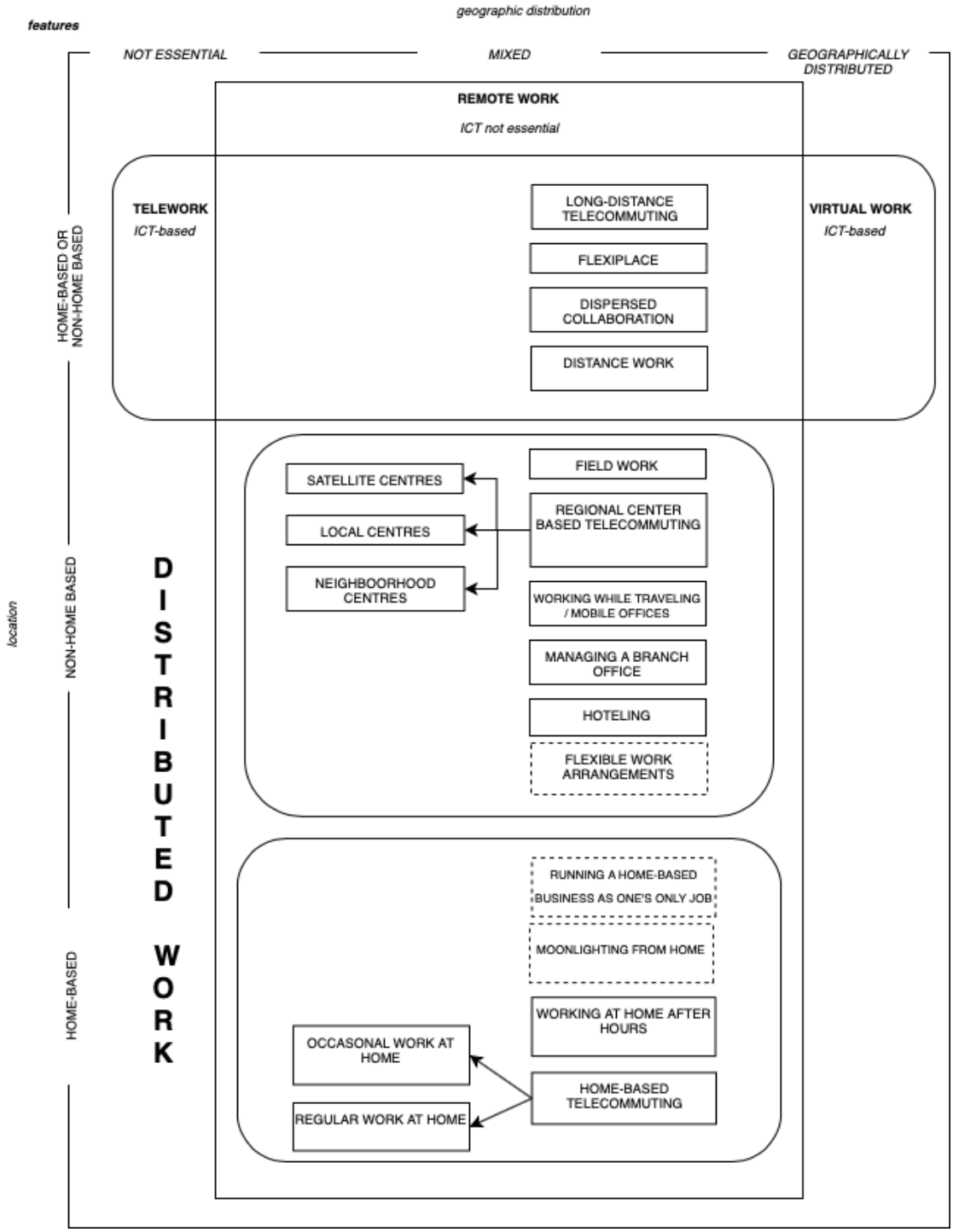
A detailed analysis of the literature revealed even more related terms. One of them, for example, is »Dominetics«. This term was created by Kiron in 1969 and described the connection between domicile, connections and electronics. The term was never retained, but was one of the first terms to refer to work at home (Bui et al., 1996). There are also terms as »e-work« and »digital work« which are frequently used incorrectly. Both represent activites and practices of work, rather than a type of work (Fuchs & Sevignani, 2013; Nof, 2003).

To sum up, most irregularities occur when the terms telework, telecommuting, and remote work are used as synonyms. They are clearly related and their definitions even overlap, but they do not describe the exact same phenomenon. As mentioned above, telework implies the use of ICT, while location does not matter and can be done in the office, remote work is simply work which can be done using ICT, locating anywhere but the headquarters office. Telecommuting is considered as any work done in any location that reduces commuting and the use of ICT is not obligatory, despite the fact that it is nowadays mostly used all of the time. Thus:

Proposition 4: *Concepts denoting distributed work differ in terms of the use of ICT, the location of the work and the geographical distribution.*

In line with the dimensions postulated in Proposition 4, we divided the concepts and created the diagram (Figure 9) that reveals the main differences and shows their relations. The diagram includes the umbrella term (i.e., distributed work), the main related concepts, and the 1st, 2nd, and 3rd order types of terms related to main concepts. More specific definitions, from which we formulated the figure, are listed in Appendix 2, Table 1A.

Figure 9: Distributed work - proliferation of concepts



Source: Own work.

1.2.3.3 The intellectual structure of recent/emerging literature: current trends and hot topics

Similar to the co-word analysis results, cognitive processing and diversity popped up as current hot trends in the bibliographic coupling analysis. This technique also enabled us to identify some bridging documents and authors that span across different subfields, but also revealed specific opportunities to further connect topics that are conceptually related, yet remain rather disconnected, in distinct clusters. We reflect on these in the future research section of our paper.

1.2.3.4 Theoretical contributions

On the basis of these analyses, our study attempted to advance the current overview of the field by providing a current, exhaustive and all-inclusive review of the development and current state of the distributed work field. Combining three bibliometric techniques enabled us to tackle different but complementary research questions, i.e., snapshots of the past, present, and future to discover the dominant themes, determine the field's basic structure and its development, and identify emerging themes. These findings served as a basis for propositions that sum up the main discoveries and serve as a basis for further conceptual and empirical work in the field.

First, as announced in the introduction, on the basis of a first correct use and interpretation of the co-citation analysis of distributed work, corroborating the work of Raghuram et al. (2019), we used this technique to identify the main theories utilized to apprise the field, and provided a basis for portraying its evolution. We have further mapped the trajectory and development of the field by applying the 'invisible colleges' framework. Co-citation as a metric is not constant over time, and changes as older documents begin to run up more citations (Batistič et al., 2017). This indicates that the frequency of co-citation can form a particular intellectual field and is helpful in identifying shifts in particular schools of thought (Pasadeos et al., 1998).

Second, and on a related note, we advance prior reviews in our bibliometric analysis with other related and relevant terms, namely: *work from home, home working, working remotely, and e-work*. Conceptually and theoretically, this accounts for thoroughness; a more comprehensive take on distributed work by also including a specific nomological area that targets remote work/working from home. In addition, it opens up a new topic of the emerging practice of the digital nomad, which is particularly important for post pandemic times and new generations. While the long-term impacts of this massive switch to remote working are yet to be known, immediate impacts on workers' stress, burnout, loneliness, and issues related to work-life balance are evident. The potential impact of our research can be seen in providing an evidence-based, comprehensive and objective classification of research compartmentalized into specific clusters and sub-sections, making it easy for researchers on emerging topics to know where they can derive their theoretical ideas and insights from. Scholars can interpret our classification as a guiding framework that highlighted important opportunities regarding additional theoretical and empirical clarifications of the used distributed work concepts stemming from different backgrounds. Such an approach can take the field forward from the

current situation that is ripe with proliferation of concepts – as revealed and described in detail in our discussion section.

Third, we portrayed evolutionary patterns of dynamic change in the field, showing the developmental path of specific schools of thought and how they have transformed over three time periods. Indeed, corroborating and adding to prior reviews, the distributed work research area did witness quite a few transformations of predominant theoretical influxes over time. While the field's initial intellectual structure was based mostly on transportation/information systems/telecommunication backgrounds, influxes from psychology, sociology, behavioral sciences and management/human resource management are enriching it in the last decade or so. This indicates a certain level of maturity of the field, yet unfortunately – as in many fields that span across disciplines and research areas - also provided a basis for (mis)interpreting specific labels or construct names in a way customary with an approach or theoretical perspectives where it has originated, or where its authors emanate from.

Last but not least, we complement this investigation and existing reviews in the field by adding two additional techniques – co-word analysis and bibliographic coupling – that allowed us to complement our investigation of the past/theoretical foundations by exploring the semantic (conceptual) space and current hot topics in the literature. This enabled us to make content-based and more objective recommendations about aspiring future research avenues with regards to specific research topics, areas of trending research that they are placed in, and potential theoretical angles that such explorations could adopt, which we provide in the following section.

1.2.3.5 Limitations and future research directions

Despite all the strengths of our study, the following limitations should be addressed. In particular, this study focuses on a limited number of keywords. We could delve deeper into the field and include some other more hidden and less used related keywords (e.g., mobile work, flexible work). Furthermore, although bibliometric analysis is considered unbiased and objective, this is not always the case. Publication records (citations) is known to be the best measure of influence, but sometimes some authors may cite others not only to agree with them, but also to disagree or criticize them. In this case, this chosen indicator would not show us true results. Moreover, the interpretation and labeling of the clusters is still subjective and could be done in many different ways. Also, one of the limitations is that the co-occurrence analysis only considers the authors' keywords, which means that this selection is also somehow subjective, since the authors themselves identify their keywords.

On the basis of our findings and highlighted research lacunas, we suggest several potential future research topics, research areas they are placed within, and theoretical approaches that further research could adopt in studying them. These are all summarized in Table 4 and explained in what follows.

a) Current trends of underexplored popular research areas

First, we suggest that future studies focus on the hot research areas identified by bibliographic coupling that have not yet been explored sufficiently such as (cultural) diversity, work-family conflict, trust and conflict in distributed teams, or knowledge sharing and communication in virtual teams. Authors should also take a look at the documents that are labeled as 'hot' papers in field in WoS but are due to the currency not (yet) cited as much as the oldest ones and thus were not highlighted by our study as documents that would already be highly impactful. Currently, to no surprise, those include studies that relate distributed work to adapting and responding to the COVID-19 pandemic in various settings across industries and spanning across multiple levels of analysis (Abdel-Basset et al., 2021; Amankwah-Amoah et al., 2021; Kniffin et al., 2021; Wosik et al., 2020). Based on the extensive literature review, we identified and listed (see Table 4) some potential research topics for each of the research areas described previously and suggested theoretical perspectives that could serve as a basis for such research. The theoretical perspectives we proposed are based upon the most influential theories applied in the field that were revealed by the co-citation analysis, while the research areas and topics stem from the bibliographic coupling analysis. One example is research on the use of ICT to create a culture of trust in virtual teams, which could be studied from the perspectives of socio-cognitive theory (of trust), commitment trust theory, and social learning theory. Another example is the application of behavioral complexity theory and cognitive adjustment theory to identify the main challenges in virtual teams and propose potential solutions, including the role of ICT in influencing these challenges. Related to the latter, it would be interesting to explore the adaptation of distributed work to the COVID -19 pandemic, the importance of IT literacy in new forms of work, and the future of work. Such inquiry could adopt perspectives stemming from the self-determination theory (to focus on autonomy, competence and relatedness of digital workers), theory of mediated communication (to explore different media channels through which work gets organized and distributed), self-efficacy theory (to explore the foundations of digital literacy and digital competence of distributed workers), and social learning theory (to investigate how digital competencies get shaped in distributed work).

b) Conceptually similar yet currently underconnected subdomains

Second, new research could focus on further exploring clusters that are conceptually similar (e.g., work family conflict in the context of telecommuting, challenges in virtual teams, effectiveness of virtual teams) and could be interrelated to provide a multi-disciplinary account on phenomena they examine. Specifically, new studies could explore the relationship between technology development and work design, or – related to the point above, but in a more explicit manner - even how the current pandemic has accelerated different types of distributed work, in relation to popular research areas highlighted by our analysis (importance of empowerment, diversity, work-family conflict, trust and conflict, knowledge sharing and communication). For example, it would be interesting to use specific theories (e.g. the theory of planned behavior, the theory of reasoned action, the theory of conflict, and the theory of cognitive adjustment) to examine differences in empowerment, trust, cultural diversity, trust, task interdependence,

conflicts and knowledge sharing between traditional and distributed work settings. Furthermore, future research could explore the role of ICT in bufferring conflicts in virtual teams, the role of ICT in promoting knowledge sharing in dispersed teams, etc. This has the potential to further bridge disciplines of information systems and management/organization, and contribute to providing additional influxes from other related disciplines.

c) Opportunities for further theoretical development that could further contribute to our understanding of the future of (distributed) work

Third, last but not least, as the field of distributed work is on the rise and managers are facing problems with designing new forms of work, it would also be interesting to conduct bibliometric analyses that span across different subdomains, essentionally studying overlaps between them. An example of such an approach could be a bibliometric analysis on the relationship (overlap) between the field of distributed work and the field of work design, or the research area of distributed work and collaboration, leadership or management communication. In Table 4, we have suggested some additional specific research topics and possible theoretical perspectives. Given the increasing prevalence of ICT-enabled and pandemic-enhanced distributed work practices, new research exploring the intersection between distributed work and work design is urgently needed, as the design of such work arrangements represents an important challenge for management and organization research and practice. This type of research, for instance, through the conceptual lens of job demands-resources model, could lead to an updated work design appropriate for new ICT-infused working environments. Methodological opportunities are also present that could further enhance the rigor and relevance of bibliometric review studies, such as making the content/semantic analysis obdained from the co-occurence (co-word) analysis even more detailed and informative by connecting it with topic modeling (D. Blei et al., 2010; Mohr & Bogdanov, 2013; Mustak et al., 2021; Schmiedel et al., 2019).

Table 4: Future research directions with suggested potential research topics, research areas to be developed, and theoretical approaches

Important Areas of Research to Develop	**Potential Research Topics**	**Theoretical perspectives that could inform such investigation**
Trust in virtual teams	•Boundary conditions related to ICT fostering or stifling trust •The use of ICT for creating a culture of trust in virtual teams?	Socio-cognitive theory (of trust) Commitment-trust theory Social learning theory
Work family conflict and employee wellbeing in context of telecommuting	•The effects of telecommuting on work family-conflict and employee wellbeing? •The role of employee characteristics and management interventions in increasing well-being in the context of telecommuting	Work-life research Job demands-control theory
Importance of empowerment, trust, cultural diversity, task interdependence and knowledge sharing	•Differences in empowerment, trust and cultural diversity manifestations across traditional versus distributed work settings •Differences in task interdependence and knowledge sharing across traditional versus distributed work settings	Equity theory Job design model Interdependence theory
Conflicts in virtual teams	•The role of ICT in buffering conflicts in virtual teams •The origins of conflicts in virtual teams	Conflict theory Social cognitive theory
Challenges in virtual teams	•Exploratory analysis of main challenges and potential solutions in virtual teams •The role of ICT in affecting these challenges. •The role of pandemic in affecting these challenges?	Behavioral complexity theory Cognitive adjustment theory
Knowledge sharing in dispersed teams	•The importance of knowledge sharing in dispersed teams •The role of ICT for stimulating knowledge sharing in dispersed teams	Theory of planned behavior Theory of reasoned action
Effectiveness of virtual teams	•The role of managers in fostering virtual team effectiveness •Comparison of effectiveness between traditional versus distributed teams	The model of team effectiveness Interdependence theory Media synchronicity theory
Distributed work and COVID-19 pandemic	•The adaptation of distributed work to the COVID-19 pandemic •The importance of IT literacy in new forms of work •The future of work	Self-determination theory Theory of mediated communication Self-efficacy theory Social learning theory
Technology development and work design	•The interplay between technology development and work design •Differences of work design characteristics between traditional and distributed work	Job design model Job demands-resources theory Socio-technical systems theory
Distributed work and work design	•The intellectual structure of the overlap between distributed work and work design	Job design model Job demands-resources theory
Distributed work and collaboration	•Distributed work and individuality •Effective collaboration in distributed teams	Social exchange theory Actor-network theory
Distributed work and leadership	•The intellectual structure of the overlap of the fields of distributed work and leadership	Social identity theory Social exchange theory
Distributed work and management communication	•Management communication in traditional settings versus distributed work settings •ICT as a key component of management communication in distributed work settings	Media synchronicity theory Socio-technical systems theory

Source: Own work.

1.2.3.6 Conclusion

Taken together, our multi-technique review has provded an integrative and holistic framework of the past, present and future of the study of distributed work, informing practitioners about its conceptual space and nomological net, but most importantly, guide future research on this and connected research areas. Our study thus provides a basis for future research and it further behooves us to add to our understanding of this important field.

1.3 Towards an integrative framework of distributed work design: A multi-technique bibliometric review

1.3.1 Introduction and theoretical background

Work design–a core human resource management and organizational psychology issue of a long-lasting importance (Vough and Parker 2008; e.g., Parker et al. 2017)–is shifting from traditional (physical) work environments to emerging alternative (virtual) work ones, making distributed work a mainstream managerial challenge worldwide.

As a result, line and human resource (HR) managers are more than ever expected to re-think "traditional" work environment with no remote working and introduce distributed/hybrid or location-independent work arrangements (CIPD, 2021; Dulebohn & Hoch, 2017; PwC, 2021) for the (post)pandemic world (Leonardi, 2021; Malhotra, 2021). The majority of governments (institutionally) and companies worldwide (practically) highlight remote and/or flexible working as a current workforce priority (Shellenback & Polovina, 2020). Relatedly, the distributed work literature has exponentially increased in the last two years (Web of Science Core Collection [WoSCC] search evidenced a 250-percentage increase since 2019) making various ambiguous concepts and perspectives (e.g., remote work, virtual work, telework, work from home, e-work, mobile work, multi-site working, telecommuting) a panacea for contemporary work (Lamovšek & Černe, 2023).

HR plays a central role in formulating appropriate work design across the company spectrum (Connelly, Fieseler, Černe, Giessner, & Wong, 2021). To be able to make appropriate work design decisions (S. K. Parker & Jorritsma, 2020), that is, to determine the optimized task content and structure of work pertaining to an employee's job (Hackman & Oldham, 1976; S. K. Parker, 2014b), organizations need to understand design parameters of the changing work (e.g., a distinctive set of job/work characteristics; for an overview see Morgeson and Humphrey [2006]) and the socio-psychological nature of the evolving distributed workforce (e.g., Grant et al. 2013). Previous contributions have been somewhat informative in providing guiding conceptualizing perspectives that connect the fields of information and communications technology and work design (e.g., Handke et al., 2020; S. K. Parker et al., 2017; S. K. Parker & Grote, 2020; B. Wang et al., 2020). However, what is lacking is a comprehensive, systematic, cross-disciplinary and objective overview of the field that covers these two important topics simultaneously; an issue already pointed out by Parker & Grote (2020). To fully understand distributed work design, we need to learn about theoretical underpinnings of the intersection of both fields, get familiar with current issues, and visualize upcoming technological and future of work trends, including designing distributed work that corresponds to the COVID-19 emergency. Such a review is timely and relevant because it can provide an insight into how ICT developments and corresponding distributed (and digitally enhanced) work arrangements have affected the nature of job characteristics and shaped corresponding individual work design alternatives in organizations (B. Wang et al., 2020).

Thus, this paper attempts to provide an all-inclusive systematic overview of the evolution and current state of the two overlapping fields (i.e., distributed work and work design) in order to help readers in understanding the current state-of-the-art knowledge in these areas, as well as setting the ground for future research and practice on distributed work design. To do so, we posit the following research questions: (1) What is the intellectual structure of the field of distributed work and work design, and how have its theoretical foundations developed and transformed over time? (2) What are main (mostly studied) topics associated with distributed work and work design? and; (3) Which topics are recently emerging at the intersection of distributed work and work design research domains? We search for answers by applying four bibliometric systematic review techniques (i.e., co-citation analysis, co-word/co-occurrence analysis, topic modeling and bibliographic coupling) that are complemented with interpretative logic stemming from the 'invisible colleges' framework (R. Vogel, 2012). This unique combined application of bibliometric and text analysis methods allows us to address each research question with a specific technique, and overall, examine the cited authors, influential works, and the actual content of the documents to capture structural and temporal components of the reviewed fields simultaneously. We believe this approach is crucial since combination of these systematic review techniques allow us to observe phenomenon from both qualitative and quantitative perspective. Bibliometric analysis may in fact handle large quantities (i.e., hundreds or thousands) of objective data (such as citations) and enable both objective and subjective evaluations. They are helpful for laying the groundwork and developing the area in fresh and significant ways (Donthu et al., 2021).

Our research effort has the potential to contribute to the existing literature in following ways. First, we will complement the current review of Wang et al. (2020) that focused specifically on how the use of ICT affects individuals and what (and how) aspects of work design change by the adoption of ICT, by taking a broader and more holistic view, i.e., expanding their search beyond technology into distributed work arrangements. While they provided systematic cross-disciplinary review of the literature, we accompany it by providing a broader overview of the past, current state and future research of the intersection between distributed work and work design research domains. Furthermore, we apply additional co-occurrence analysis, topic modeling and bibliographic coupling analysis, comparing the differences before Covid-19 pandemic and after.

Second, we attempt to advance the centennial review of the work design (S. K. Parker et al., 2017) by highlighting the specific context of distributed work and referring to given future research suggestions about studying ICT-driven work design practices. While they focused on work design in general, we want to explore how this field has been developing together with the field of distributed work, portraying trajectories of scholarly discussion over time and their conceptual space. As proposed by their reviews (S. K. Parker et al., 2017; S. K. Parker & Grote, 2020), we will jointly consider the sociotechnical systems perspective with social and technological aspects of work, which will contribute to painting a more comprehensive picture of work and the organizational realities determining it.

Third, we endeavor to go beyond Morgeson and Humphrey's (2006) and other existing work design models by further developing them conceptually, as well as intend to identify specific characteristics of technology that could be integrated into an overarching framework. We will point out discussion towards most examined work design attributes, recognize underlying theories shaping the conversation, and identify additional ICT characteristics that are gaining prominence in the context of distributed (and digitally enhanced) work. Taken together, this will produce a holistic integrative framework, intended to guide the harmonized managerial understanding of current conceptual space, offering advice regarding the use of distributed work arrangements in contemporary organizations and highlighting the distributed work design issues still waiting to be addressed by research in the near future.

1.3.2 Methodology and findings

To tackle challenges recognized in the current overview, we conducted four different systematic review techniques. Co-citation analysis describes how this overlap has behaved and developed over time (Small, 1973), (authors' keyword) co-occurrence and topic modeling analysis show the conceptual structure of the overlap (Cobo et al., 2011; Culpepper & Aguinis, 2011), and bibliographic coupling addresses a temporally unbiased idea of interrelationships among the articles, revealing current "hot" topics and potential future research opportunities (M. M. Kessler, 1963).

1.3.2.1 Database and search protocol

We searched and exported the data from Web of Science Core Collection, the database most commonly used in bibliometric studies (Zupic & Čater, 2015). Our search strategy aimed to identify documents/articles on the intersection of distributed work and work design. On the part of search related to distributed work, we used the same search terms as Raghuram et al. (2019) and–following a recent approach on the systematic review of the field of distributed work taken by Lamovšek and Černe (2023) –upgraded this search with additional related and relevant terms, namely: *work from home, home working, working remotely,* and *e-work*. This upgrade accounts for a more comprehensive approach to considering distributed (digitally-enhanced) work. The distributed work search part was complemented with relevant terms related to work design (stemming from the aforementioned theoretical models) to provide the necessary inputs for writing an informative (descriptive) and critical (prescriptive) review of the overlap of two fields.

Final database searching included a Boolean search operator AND to combine general (*"work design" OR "job design" OR "digital work" OR "job characteristics"*) with more specific search terms (*"virtual team*" OR "virtual group*" OR "virtual work*" OR "distributed team*" OR "distributed group*" OR "distributed work*" OR "mobile work*" OR "remote work*" OR "dispersed group*" OR "dispersed team*" OR "dispersed work*" OR "technology-mediated work*" OR "technology mediat*team*" OR "technology-mediated*

group" OR "computer-mediated group*" OR "computer mediat* team*" OR "computer mediat* work" OR "telework*" OR "telecommut*" OR "distance work*" OR "distance team*" OR "work* from home" OR "home working" OR "working remotely" OR "e-work*"*).

We used these terms to search fields including titles, abstracts, and keywords of articles from journals that were published up to 2020[4], resulting in 93 articles. The most represented WoSCC categories were Management (36), Psychology applied (20) and Business (14).

VOSviewer, a bibliometric software developed by van Eck and Waltman (2010), was used to analyze the data obtained from WoSCC. The software visualizes records based on influence and closeness to analyze and depict bibliometric networks (Eck & Waltman, 2010) with clusters. We looked at five articles with the highest total link strength[5] within each cluster, reviewed them and labelled clusters based on those. Four systematic review analyses were performed; we describe their characteristics in what follows.

1.3.2.2 Co-citation analysis

First, in order to obtain a dynamic representation of the historic perspective of the overlap between distributed work and work design research domains, we performed a co-citation analysis on secondary papers (i.e., those that the fields cite). This technique accounts for theoretical underpinnings, i.e., the knowledge foundation of a particular scholarly field by discovering its main works (Small, 1973). Using the network analysis–a graph-theoretic approach for portraying most important units of analysis and their interrelationships; (Nerur et al. 2008)–we: (1) delineated the subfields that constitute the intellectual structure of distributed work research and identified its most important knowledge domains, (2) determined the relationships between the subfields, (3) identified papers (and authors) which play a key role in bridging two or more conceptual domains of research, and (4) graphically mapped the conceptual foundations in order to visualize relations between intellectual areas (clusters of conceptual underpinnings).

We divided the articles into three temporal parts, similar to the approach taken by Lamovšek and Černe (2023). The first one included articles up until 1995 (a turning point when influential articles of Handy (1995) and Mayer et al. (1995) on distributed work were published), the second one from 1996 to 2010 (when Barack Obama signed the Telework Enhancement Act as the President of the United States of America, which transformed Federal telework (Snyder,

[4] We complemented this main search with another one, employing the three of the four bibliometric techniques (all but co-citation analysis, which is temporally directed to the past, theoretical foundations, and thereby perhaps is not as relevant for recent time periods), targeting the post-pandemic years (2020->); these findings are reported in section 3.6.

[5] Higher numerical value of link strength indicates a stronger link between items. Links and articles together form a bibliographic network (Eck & Waltman, 2010). There is no commonly accepted »threshold« that would indicate whether the strength is low, medium or high. These comparisons are only meaningful if networks have the same (or similar) parameters, so the strengths are more intended to be descriptive, not used in comparisons.

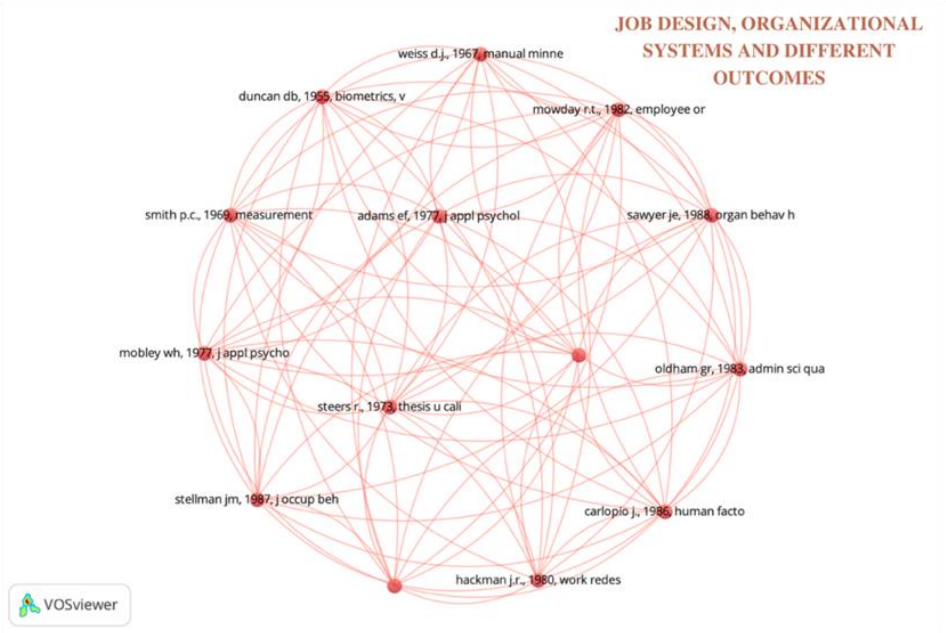
2012) and the third one from 2011 to 2020. As expected, the first time period includes the least number of articles (14); the second one somewhat more (25) and the last one the most (67). The number of articles has increased according to the development and popularity of the distributed work concept, which has further taken up after the COVID-19 emergency.

The following steps were taken to perform our analyses: (1) create a map based on bibliographic data, (2) read data from bibliographic database files, (3) select the type of analysis [co-citation], unit of analysis [cited references], and counting method [full counting]. The last, fourth step was different for each group of articles. As expected, papers published until 1995 had a minimum number of citations of a cited reference set on four, group 1996 to 2010 had a minimum number of citations of a cited reference set on 28, and a group from 2011 to 2020 had a minimum number of citations of a cited reference set on 54. Cutoffs for all the analyses are set in a way to obtain an optimal ratio between complexity and what is still interpretable (Zupic & Čater, 2015).

The first time period results (up to 1995)

In this group, 14 articles were analyzed constituting a single cluster labelled *Job design, organizational systems and different outcomes,* consisting of 14 items (objects of interest) and 91 links (see Figure 10).

Figure 10: Co-Citation map, documents between 1900 and 1995

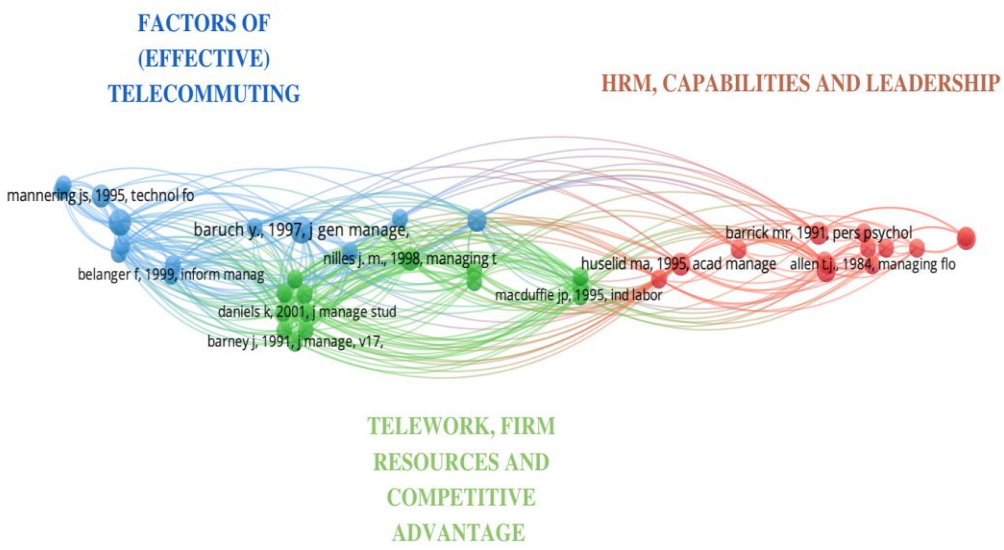


Source: Own work.

The second time period results (from 1996 to 2010)

In this group, 25 journal articles were analyzed. From that we got 41 items forming three clusters: (1) *HRM, capabilities and leadership,* (2) *Telework, firm resources and competitive advantage,* and (3) *Factors of (effective) telecommuting*. Total link strength was 432 and there were 360 links between those articles (see Figure 11).

Figure 11: Co-Citation map, documents between 1996 and 2010

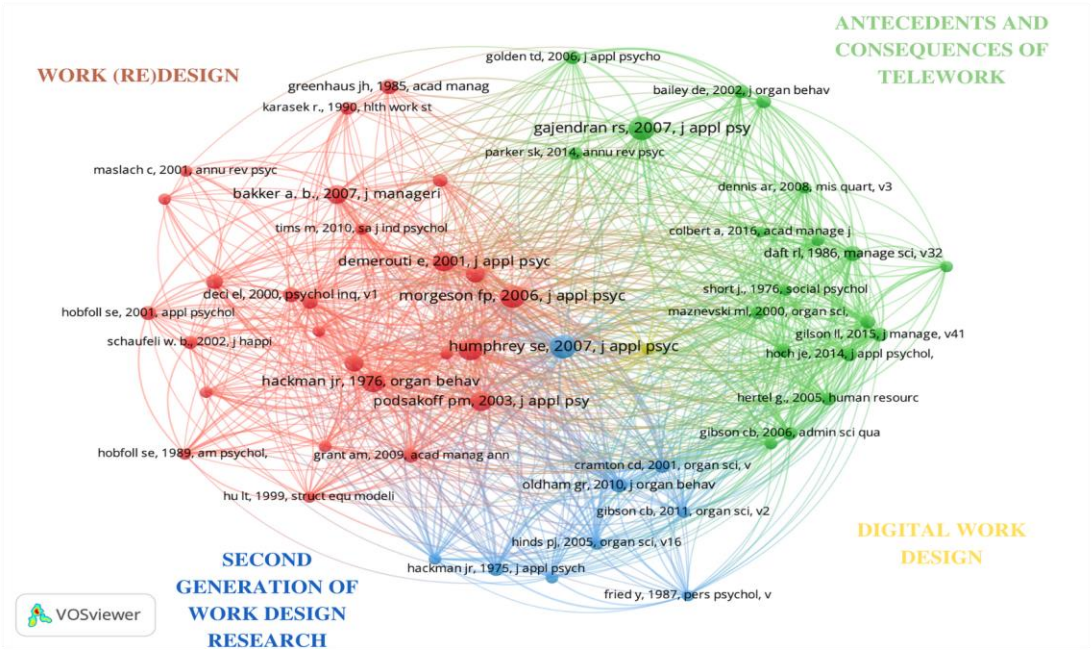


Source: Own work.

The third time period results (from 2011 to 2020)

In this largest of three groups, 67 articles were analyzed. From that we got 55 items forming four clusters, namely: (1) *Work (re)design,* (2) *Antecedents and consequences of telework,* (3) *Work design research 2.0* (i.e., a Second generation of work design research), and (4) *Digital work design*. Total link strength was 1,622 and there were 911 links between those articles (see Figure 12).

Figure 12: Co-Citation map, documents between 2011 and 2020



Source: Own work.

The summary of these clusters is presented in Table 5, which recaps each cluster's label, key content, main authors, main theories, number of documents and specifies its development over time.

Table 5: Summary of the co-citation analysis results of the overlap between distributed work field and work design field

TIME PERIOD UP TO 1995					
Cluster	**Content**	**Main authors**	**Main theories**	**Number of documents**	**Evolution of the college**
Job design, organizational systems, and different outcomes	This cluster talks about the influence of job level and functional specialty on job attitudes and perceptions, about how to redesign jobs and work systems to increase organizational productivity and/or quality of work, about the relationships between objective office characteristics and several outcomes, and about relationship between organizational levels and perceived employee satisfaction.	Adams, Laker & Hulin (1977); Hackman (1980); Oldham & Rotchford (1983); Sawyer (1988)	Classical organization theory Industrial engineering Activation theory Motivation-hygiene theory Job characteristics theory Sociotechnical systems theory	14	organizational behaviour, psychology

To be continued

Table 5: Summary of the co-citation analysis results of the overlap between distributed work field and work design field (cont.)

TIME PERIOD FROM 1996 TO 2010					
Cluster	**Content**	**Main authors**	**Main theories**	**Number of documents**	**Evolution of the college**
HRM, capabilities and leadership	This cluster talks about the impact of human resource management practices on different outcomes (i.e., intermediate employee outcomes as well short- and long-term measures of corporate financial performance), about organizational capabilities and importance of knowledge integration, about the relationship between employees' personality dimension and job performance, and about different types of virtual teams and provides framework for effective management of virtual teams. Most articles within this cluster focused on the need of adaptability and performance as an outcome.	Huselid (1995); Grant (1996); Barrick and Mount (1991); Bell and Kozlowski (2002)	Dynamic theory Theory of groups Characteristics of virtual teams Knowledge-based theory of organizational capability Copetitive dynamics Resource-based view of the firm Organizational capabilitiess Organizational learrning Performance theory A socioanalytic theory of personality The big five personality dimensions	14	organization studies, management, psychology, HRM
Telework, firm resources and competitive advantage	This cluster talks about firms resources and sustained competitive advantage, about teleworking and provides explanatory model of organizational adoption of teleworking, about the context of teleworking implementation, and about the usefulness of analysing firms from the resource side rather from the product side, and the new focus on technology in strategy.	Barney (1991); Daniels, Lamond and Staden (2001); Illegems, Verbeke and Jegers (2001); Wernerfelt (1984)	Information-processing theory Conceptual framework for modeling the implementation process of teleworking Neo-institutional theory Principal-agent theory Resource-based view of the firm	14	organization studies, management, information systems and technology strategic management
Factors of (effective) telecommuting	This cluster talks about the requirements for effective working from home, and about factors that influence individuals' decision to telecommute. The authors examined how the work characteristics of telecommuters differ from those of office workers and what factors lead workers to choose telecommuting.	Baruch and Nicholson (1997); Mokhtarian and Salomon (1997)	Conceptual model of telecommuting behavior Conceptual model of the individual decision to telecommute	13	management, transportation

To be continued

Table 5: Summary of the co-citation analysis results of the overlap between distributed work field and work design field (cont.)

TIME PERIOD FROM 2011 TO 2020					
Cluster	**Content**	**Main authors**		**Number of documents**	**Evolution of the college**
Work (re)design	This cluster talks about task-, social-, cognitive- and contextual characteristics of work; how to (re)design work to motivate employees to perform effectively on their jobs, how to redesign jobs and work systems to increase organizational productivity and/or quality of work; and about method biases in behavioral research.	Morgenson and Humphrey (2006); Hackman and Oldham (1976); Podsakoff, MacKenzie, Lee and Podsakoff (2003); Hackman (1980)	Theory of work redesign Herzberg two-factor theory of satisfaction and motivation Activation theory Motivation-hygiene theory Job characteristics theory Sociotechnical systems theory Jobs and individual differences: An interactive approach Implicit theory (and illusory correlations) Work design theory Theory of job design	26	psychology, orgaizational behaviour
Antecedents and consequences of telework	This cluster talks about the positive and negative consequences of telecommuting, discusses organizational information requirements, media richness and structural design, describes characteristics of virtuality and virtual design strategies, and summarizes empirical research on the management of virtual teams.	Gajerdan and Harrison (2007); Daft and Lengel (1986); Gibson and Gibbs (2006); Hertel, Geister and Konradt (2005)	Time, interaction, and performance (TIP): A theory of groups Self-efficacy theory Theoretical framework for the consequences of telecommuting Theory of work adjustment Social learning theory Leader-member exchange theory Organization design theory Theory pertaining to virtuality Social network theory Theory on communication climates Theory on psychological safety Media richness Information-processing theory	19	psychology, organization studies, management, HRM, information systems and technology

To be continued

Table 5: Summary of the co-citation analysis results of the overlap between distributed work field and work design field (cont.)

TIME PERIOD FROM 2011 TO 2020					
Cluster	**Content**	**Main authors**		**Number of documents**	**Evolution of the college**
Work design research ((i.e., a second generation of job design research)	This cluste extents previous work design with motivational, social and contextual characteristics, talks about the future of work design research (i.e., social aspects of contemporary work, job crafting, changing contexts and increasing prominence of collaboration), and discusses the problem of maintaining mutual knowledge in dispersed collaboration teams, and highlights the importance of work design.	Humphrey, Nahrgang and Morgenson (2007); Oldham and Hackman (2010); Cramton (Cramton, 2001)	Attribution theory Social identity/deindividuation (SIDE) theory Systems dynamics theory Adaptive structuration theory Theory of communication Job characteristics theory Expectancy theory of motivation Work design theory Role theory	9	psychology, orgaizational behaviour
Digital work design	This cluster that summarizes one hundred years of work design research, the major theories and most influential work, and suggests future directions for the field.	Parker, Morgeson, and Johns (2017)	Theory X and Y Work design theory Role theory Motivation-hygiene theory Job characteristics theory Job diagnostics survey Job-demands control model Job-demands resource model Sociotechnical systems theory Autonomous work groups Job simplification	1	psychology, HRM, information systems and technology

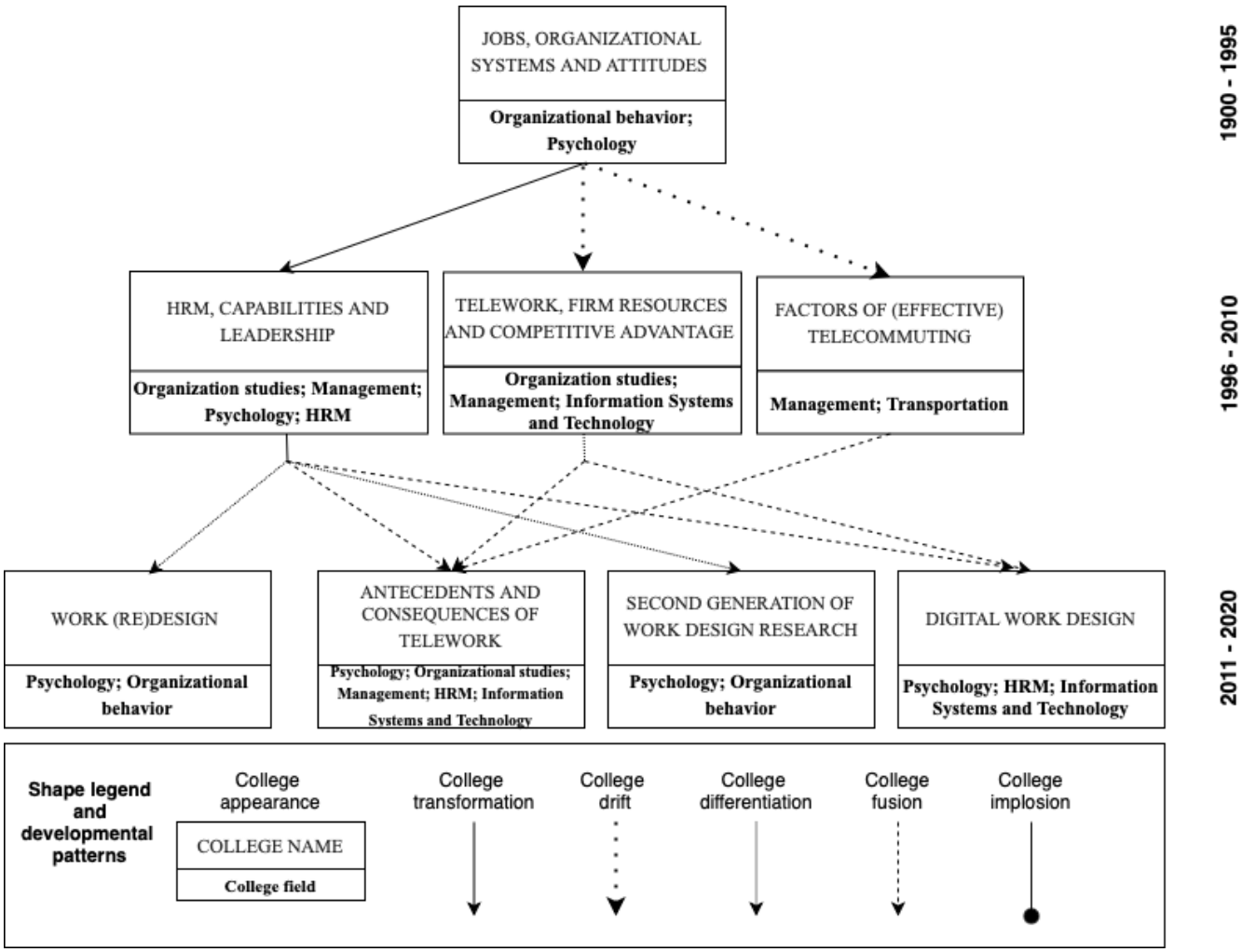
Source: Own work.

In Figure 13, we can see the development patterns of distributed work research related to work design. These development patterns were selected based on the conceptual framework of "invisible colleges" that suggests that colleges[6] can evolve in seven different ways (i.e., college appearance, transformation, drift, differentiation, fusion, implosion, and revival), and are founded in thoughtful observations and interpretations of the findings offered by co-citation analysis.

In the first period, there was only one college labelled as *Jobs, Organizational Systems, and different outcomes,* whose studies were mainly from the fields of organizational behavior (OB) and organizational psychology (OP), and mostly used theories such as Activation theory, Motivation-hygiene theory, Job characteristics theory, and Sociotechnical systems theory. This college was later transformed (i.e., changed over time) into a new college labelled *HRM, capabilities and leadership*, in which topics from the previous one were observed also through the lens of HRM and management in general, but also drifted (i.e., parts of one college integrates into another) into two new colleges *Telework, firm resources and competitive advantage*, and *Factors of (effective) telecommuting,* in which research emerged in the fields of information systems and technology, as well transportation. In this time period authors began talking about differences among work design characteristic for different forms of work, and began developing conceptual frameworks related to telecommuting. In the last observed period, colleges *Antecedents and consequences of telework* and *Digital work design* were formed as a fusion (i.e., more previously independent colleges combine and integrate into a single college) of previous colleges, while *Work re(design)*, Second *generation of work design research* were formed as differentiation (i.e., broadly defined college splits up into several new colleges with a higher degree of specialization) of the previous college *HRM, capabilities and leadership*. In this time period, authors began to examine the future of work design adapted to new technologies, motivational, social and contextual characteristics, and new forms of work, and theories such as Social network, Media richness, Information processing theories became more widely used.

[6] In this part, according with the terminology of invisible colleges, we use the term "college" in an equivalent manner to the term "cluster" used in other parts of the paper. It denotes informal groups that transcend divisions between formal organizations in academia (R. Vogel, 2012).

Figure 13: Development patterns of distributed work research in connection with work design



Source: Own work.

1.3.2.3 Co-occurrence (co-word) analysis

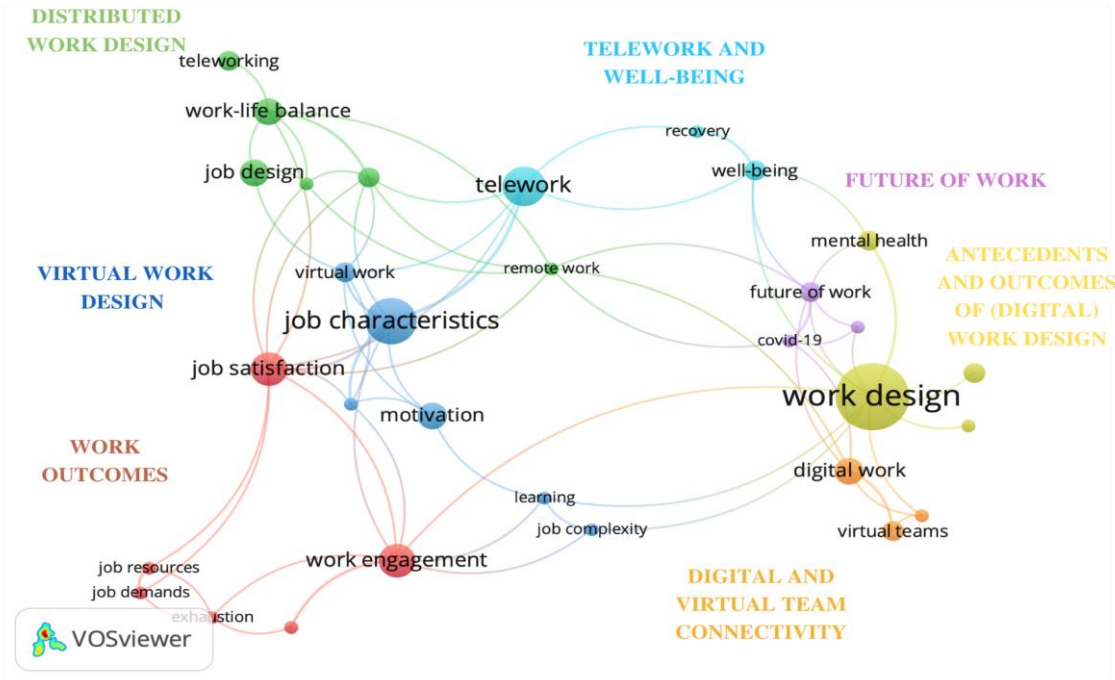
Next, to understand the conceptual structure of the overlap of distributed work and work design field, we conducted an analysis on the co-occurrence of the keywords (Cobo et al., 2011) of primary documents (those that constitute each particular field). Co-word analysis is the only bibliometric technique that uses the actual content of the documents to construct a similarity measure (Zupic & Čater, 2015). The output of co-word analysis is a "network" of different themes and their relationships that shows the conceptual space of a field. This enabled us to extract key conceptual themes within the distributed work research domain.

To achieve this aim, we created a map based on bibliographic data, read data from bibliographic database files and conducted the analyses (i.e., co-occurrence, unit of analysis: author keywords, counting method: full counting). A minimum number of occurrences of a keyword has been set on 16 to cover only the most relevant papers.

Co-word analysis results

We analyzed 93 primary articles. With the minimum number of occurrences of author's keywords set on two, we got 31 items that formed seven clusters (Figure 14), specifically: (1) *Work outcomes,* (2) *Distributed work design,* (3) *Virtual work design,* (4) *Antecedents and outcomes of (digital) work design,* (5) *The future of work,* (6) *Telework and wellbeing,* and (7) *Digital and virtual team connectivity*. The recap of these is visible in Table 6, which conveys each cluster's label, a list of highest-frequency keywords and the amount of all keywords included.

Figure 14: Co-occurrence (co-word) map



Source: Own work.

Table 6: Summary of the co-occurrence analysis results of the overlap between distributed work field and work design field

Cluster	Keywords	Number of authors' keywords
Work outcomes	*job satisfaction, work engagement, exhaustion, job demands, job resources, job crafting*	6
Distributed work design	*telecommuting, remote work, work-life balance, job design, teleworking*	6
Virtual work design	*job characteristics, virtual work, human resource management, learning, motivation, job complexity*	6
Antecedents and outcomes of (digital) work design	*work design, mental health, knowledge sharing, teamwork*	4
The future of work	*future of work, covid-19, digital transformation*	3
Telework and well-being	*telework, well-being, recovery*	3
Digital and virtual team connectivity	*digital work, connectivity, virtual teams*	3

Source: Own work.

1.3.2.4 Topic modeling

Topic modeling is a set of machine learning techniques that are able to automatically extract thematic information from the corpus of text documents. Latent Dirichlet Allocation (LDA) is the most used topic modeling technique (D. M. Blei, 2012) originally developed by Blei et al. (2003). It is a Bayesian generative model of text documents that reliably discovers meaningful topics from unstructured collections of text documents. As such, it is helpful to think about LDA as principal component analysis (PCA) for text, where raw text is reduced to topics (i.e., a distribution over fixed vocabulary).

LDA assumes that documents are created according to this model and aims to estimate the hidden parameters of the model. Topic is defined as a distribution over fixed vocabulary. The algorithm assumes that topics are specified before any documents have been generated. Then the words are generated using a two-stage process (D. M. Blei, 2012): (1) randomly choose a distribution over topics and (2) for each word in the document choose one of the chosen topics in previous step and then randomly choose a word from this topic's distribution over vocabulary. The hidden structure of the LDA model, besides topics, consists of topic distribution per document and assignment of words to topics. Recent research used LDA to examine disruption research (Hopp et al., 2018) and innovation systems (Rakas & Hain, 2019).

We used topic modeling to discover a 'hidden' thematic structure of the intersection of distributed work and work design literature. The bibliographic data was first imported into R environment (Culpepper & Aguinis, 2011). We used *topicmodels* package for implementing LDA analysis and *tm* package capabilities for preprocessing. Preprocessing involved several steps. First, we excluded those entries that didn't have abstract. All words were transformed to lowercase. Numbers and punctuations were removed. As texts commonly contain several stopwords that carry very little information (e.g., "in", "and", "this" …), these were removed (both those ones appearing on the list of R *tm* package, and additional research-text specific stopwords such as "study", "paper", "research" etc.).

Document-Term matrix has documents as rows and terms as columns (in our case terms were both one- and two-word). Entries in the matrix represent the frequency each term appears in each document. The vocabulary of all possible terms is very large, this makes Document-Term matrix sparse. To reduce processing times we removed the terms that appear in less than 1% of documents. After this step, we got the final Document-Term matrix which is standard input for LDA algorithm in R *topicmodels* package. As a final step, we have performed LDA algorithm to determine topics that represent the thematical structure of the intersection of distributed work and work design.

LDA analysis results

Topic modeling analysis complemented previously done co-occurrence analysis. It resulted in the following eight clusters (Table 7), namely: (1) *High-quality relationships at and outside of work,* (2) *Employee factors and experiences,* (3) *Distributed work and flexible work arrangements,* (4) *Job characteristics of digital/virtual work,* (5) *Telecommuting/ transportation,* (6) *Organizational and systems perspectives on telecommuting,* (7) *The context and outcomes of platform work versus traditional workplace,* and (8) *Careers and work conditions of teleworkers*. The summary of these clusters can be seen in the Table 7, capturing each cluster's label, a list of highest-frequency keywords and the background literature/fields.

Table 7: Summary of the topic modeling analysis results of the overlap between distributed work field and work design field

Topic label	Keywords	Background lit/fields
High-quality relationships at and outside of work	*relationships, employment, important, positively, individuals, flexibility, changes, methods, capital, compared, discussed, impact, increase, late, life, low, studied, transformation, women, contrast*	Positive org behavior/scholarship, WLB, careers/vocation
Employee factors and experiences	*global, organizational, interdependence, conducted, sleep, future, members, need, environment, studies, women, identify, satisfaction, focus, location, specifically, aims, employee, energy, enhance*	Organizational behavior/psychology, HRM
Distributed work and flexible work arrangements	*distributed, working, purpose, responsibilities, telework, different, flexibility, significant, childfree, consider, groups, regression, become, either, firms, independent, interventions, negative, offshoring, ptt*	Information systems, ICT, management
Job characteristics of digital/virtual work	*work, job, characteristics, design, employees, workers, social, digital, working, engagement, virtual, model, use, knowledge, satisfaction, telecommuting, health, technology, support, survey*	Job design, HRM, virtual work, org psychology
Telecommuting/transportation	*positive, worker, professionals, telecommuters, broader, framework, improve, investigates, market, opportunities, underlying, ability, day, individual, leaders, service, way, autonomy, belongingness, choices*	Labor market economics
Organizational and systems perspectives on telecommuting	*benefits, experiences, organisation, using, provides, connectivity, impact, employers, examined, multiple, organization, patterns, positive, respondents, system, coworker, little, make, nontelecommuters, systems*	Organization studies
The context and outcomes of platform work versus traditional workplace	*implementation, working, platforms, burnout, various, workplace, contexts, creativity, duration, fit, focused, increasing, key, support, types, years, business, criteria, exclusively, injury*	Sociology, social economics, management
Careers and work conditions teleworkers	*analysis, conditions, examine, addition, experienced, four, overall, psychological, retirement, countries, analyses, interactions, teleworkers, supportive, although, association, hours, individual, leadership, least*	Careers/vocation, leadership

Source: Own work.

1.3.2.5 Bibliographic coupling

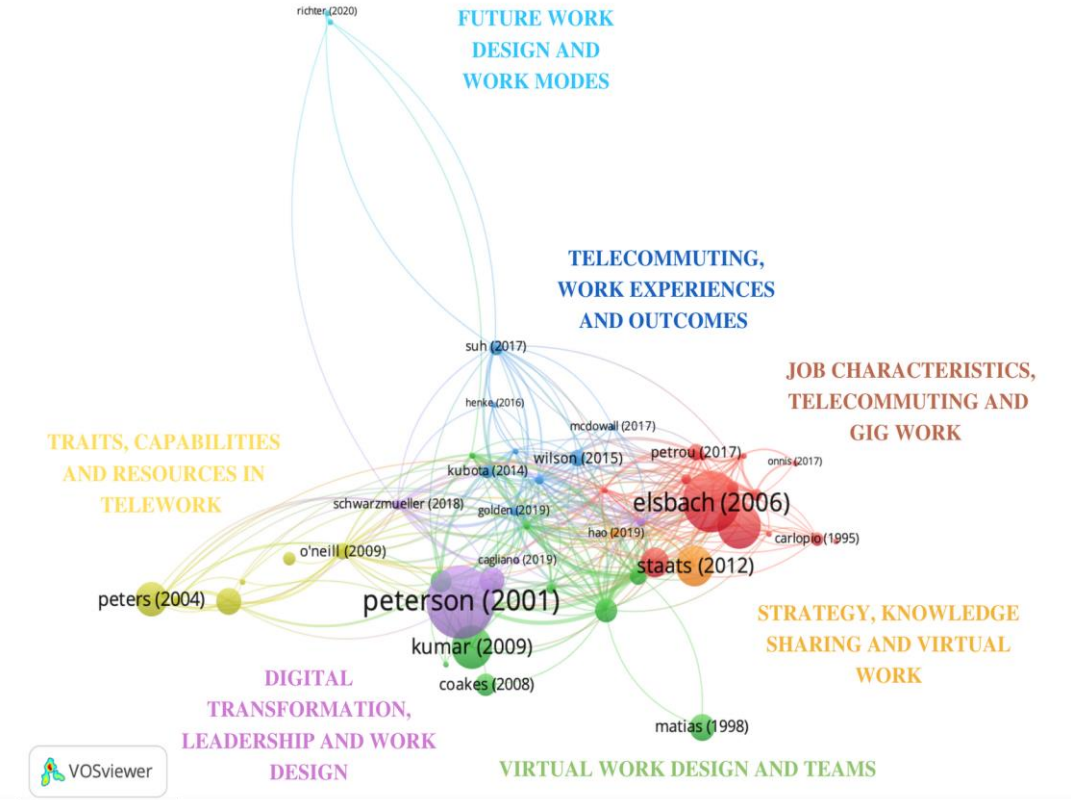
Finally, to obtain a temporally unbiased idea of interconnections among journal articles, current most influential themes and most popular developments in the field, we performed bibliographic coupling (M. M. Kessler, 1963), which couples primary documents based on the overlap of their bibliographies. This method can offer insights into relationships among currently "hot" contributions as well as to identify boundary spanners within each domain, and specific bridges among them. The approach taken enables us to identify and reveal the most relevant protagonists of the subfields and the rifeness of their influence, graphically represent relationships among the domains, as well as identify potential avenues of integrating the field and bridge some currently disconnected, but conceptually related subdomains.

The following analytical steps were implemented: (1) create a map based on bibliographic data, (2) read data from bibliographic database files, (3) select the type of analysis [bibliographic coupling], unit of analysis [documents], and counting method [full counting], and (4) a minimum number of occurrences of a keyword was set on 180.

Bibliographic coupling results

All 93 articles were analyzed. From that we got 49 items forming seven clusters (see Figure 15), namely: (1) *Job characteristics, telecommuting and gig work,* (2) *Virtual work design and teams,* (3) *Telecommuting, work experiences and outcomes*, (4) *Traits, capabilities and resources in telework,* (5) *Digital transformation, leadership and work design,* (6) *Future work design and work forms,* and (7) *Strategy, knowledge sharing, and virtual work*. Total link strength was 693 and there were 325 links between those articles.

Figure 15: Bibliographic coupling map



Source: Own work.

The gist behind these clusters is portrayed by Table 8, which demonstrates each cluster's label, content summary, main authors and the amount of documents included in the final visualization.

Table 8: Summary of the bibliographic coupling analysis results of the overlap between distributed work field and work design field

Bibliographic coupling				
Cluster	**Content**	**Main authors**	**Main theories**	**Number of documents**
Job characteristics, telecommuting and gig work	This cluster talks about how can job characteristics predict well-being outcomes of telecommuting type of work, about how organizations can support self-motivation of gig workers, about how to design workday to increase the stimulants of creativity, and about the beneficial role of self-enhancing and affiliative humour in job design.	Vander Elst et al. (2017); Jabagi, Croteau, Audebrand and Marsan (2019); Elsbach and Hargadon (2006); Van den Broeck, Vander Elst, Dikkers, De Lange and De Witte (2012)	Work stress theory Job demands-resources model Self-determination theory Enterprise social media research Work design theory Theory Z Theory of job enrichment Theory of positive emotions Cognitive load theory Conservation of Resources (COR) theory	14
Virtual work design and teams	This cluster talks about how work design shapes the impact of team virtuality on team functioning, about struggles and benefits of global virtual workers, and extends the job characteristics model to address virtual work design.	Handke, Klonek, Parker and Kauffeld (2020); Nurmi and Hinds (2016); Gibson, Gibbs, Stanko, Tesluk and Cohen (2011)	Work design theory Job characteristics model Appraisal theories Learning theories Integrative framework for understanding virtual teams Sociotechnical systems theory Models of team effectiveness Team empowerment models Task-technology-fit theories Job demands-resourcess theory Theory of media synchronicity Theory of groups Psychological empowerment theory Social penetration theory Media richness theory Social presence theory	10

To be continued

Table 8: Summary of the bibliographic coupling analysis results of the overlap between distributed work field and work design field (cont.)

Bibliographic coupling				
Cluster	**Content**	**Main authors**	**Main theories**	**Number of documents**
Telecommuting, work experiences and outcomes	This cluster talks about job characteristics of telecommuting and their relationship with job performance, provides a comprehensive review of research studies regarding the nomological network of individual adaptive performance, and talks about influence of teleworkers' technostress on job satisfaction. This cluster focuses mainly on the possible negative consequences of telecommuting (i.e., technostress and exhaustion).	Golden and Gajendran (2019); Windeler, Chudoba and Sundrup (2017); Suh and Lee (2017)	Exchange theory Work design theory Distraction-conflict theory Channel expansion theory Theory of job design Technostress model Job characteristics theory Theory of virtuality Conversation of resources (COR) theory	8
Traits, capabilities and resources in telework	This cluster explores personality and motivational traits related to teleworker performance and satisfaction, the relationship between teleworking adoption, workplace flexibility, and firm performance, and talks about the differences of firm resources between teleworking firms and non-teleworking firms.	O'Neill, Hambley, Greidanus, MacDonnell and Kline (2009); Martínez Sánchez, Pérez Pérez, De Luis Carnicer and Vela Jiménez (2007); Pérez Pérez, Martínez Sánchez, De Luis Carnicer and Vela Jiménez (2005)	Resource-based theory	8
Digital transformation, leadership and work design	This cluster talks about the importance of work design in digital work, and about the effect of digital transformation on changes in work design and leadership.	Parker and Grote (2020); Schwarzmüller, Brosi, Duman and Welpe (2018)	Media richness theory Social learning theory Work design theory Job characteristics model Human control theory Soiotechnical systems theory	5
Future work design and work forms	This cluster conceptualizes workplace design of the future (digital work), and talks about digital nomads. Articles within this cluster discuss the importance of how and what work is done, and not where and when it is done.	Dittes, Richter, Richter and Smolnik (2019) ; Richter and Richter (2020)	/	2

To be continued

Table 8: Summary of the bibliographic coupling analysis results of the overlap between distributed work field and work design field (cont.)

Bibliographic coupling				
Content	**Main authors**	**Main theories**	**Number of documents**	
Strategy, knowledge sharing, and virtual work cluster	This cluster discusses the complex relationship between key factors and knowledge sharing behaviour (KSB) in a virtual environment, and integrates theories of Characteristics Model, Job Demands-Resources Model, and Social cognitive theory; and denotes sustaining operational productivity with two different work-design-related strategies, and thereby advances Behavioral theory.	Hao, Yang and Shi (2019); Staats and Gino (Staats & Gino, 2012)	Personality traits theory Job characteristics model Job demands-resource model Social cognitive theory Behavioral theory in operations Schema theory Activation theory	2

Source: Own work.

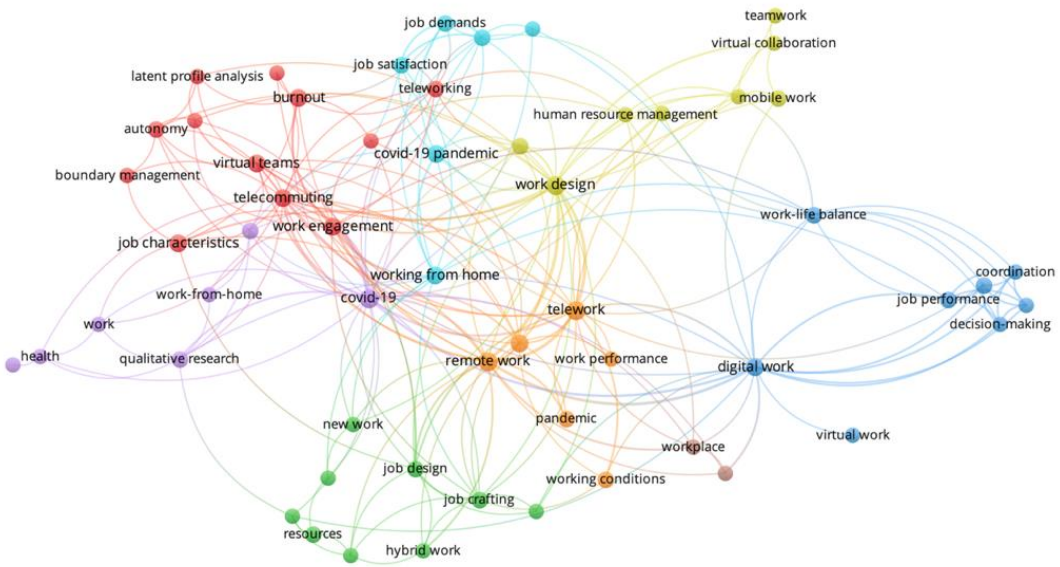
1.3.2.6 The period after Covid-19 pandemic: Co-occurrence, topic modeling and bibliographic coupling

We were also interested in whether the hot topics and key conceptual themes within the distributed work research area differed between the pre- and post-Covid-19 periods. To this end, we conducted another WoS search, using the same keywords and filters as before, with only the publication years set to “from 2021 to mid-2023”." We obtained 115 articles and then performed additional co-occurrence analysis, topic modeling, and bibliographic linkage analysis (all following the same steps as before).

Co-Word analysis: post Covid-19

The analysis was performed in the same way as originally. We analyzed 115 primary articles that contained 413 authors’ keywords. We set the minimum number of occurrences of author keywords to two, yielding 58 items that formed eight clusters (Figure 16), specifically: (1) *Distributed Work Dynamics*, (2) *Work Design Evolution*, (3) *Digital Team Collaboratio*n, (4) *Future of Work Strategies*, (5) *Shifting Organizational Paradigms*, (6) *Pandemic Work Insights*, (7) *Work Adaptation*, and (8) *Connected Work Environments*. The summary of these clusters can be seen in Table 9, which includes the name of each cluster, a list of highest-frequency keywords, and the number of all keywords included. There were 235 links, while the total link strength was 312 links, while the total link strength was 312.

Figure 16: Co-occurrence (co-word) map: post Covid-19 pandemic



Source: Own work.

Table 9: Summary of the co-occurrence analysis results of the overlap between distributed work field and work design field: post COVID-19

Cluster	Keywords	Number of authors' keywords
Distributed Work Dynamics	*telecommuting, work engagement, virtual teams, burnout, job characteristics, autonomy, latent profile analysis, boundary management, wellbeing, teleworking, interdependence, technostress*	12
Work Design Evolution	*job design, job crafting, hybrid work, new ways of working, digitalization, new work, occupational health, resources, digital technologies*	9
Digital Team Collaboration	*digital work, job performance, work-life balance, communication, coordination, decision-making, virtual work, knowledge sharing*	8
Future of Work Staregies	*work design, work from home, flexible work arrangements, mobile work, virtual collaboration, teamwork, future of work, human resource management*	8
Shifting Organizational Paradigms	*covid-19, qualitative research, health, work, work-from-home, event system theory, home office*	7
Pandemic Work Insights	*working from home, job demands, covid-19 pandemic, job satisfaction, employee well-being, job resources*	6
Work Adaptation	*remote work, telework, working conditions, pandemic, work performance, well-being*	6
Connected Work Environments	*digital work, connectivity, virtual teams*	2

Source: Own work.

Topic Modeling: post Covid-19

The analysis was carried out in the same manner as for the general time period. It produced nine clusters (Table 10), namely: (1) Work tech evolution, (2) Social ecosystem of distributed work, (3) Socioeconomic factor in distributed work, (4) Work conditions, (5) Distributed work design, (6) Distributed team dynamics, (7) Distributed work strategies, (8) Pandemic work wellness, and (9) Work-non work boundaries. The summary of these clusters can be seen in the Table 10, capturing each cluster's label, a list of highest-frequency keywords and the background literature/fields.

Table 10: Summary of the topic modeling analysis results of the overlap between distributed work field and work design field: post COVID-19

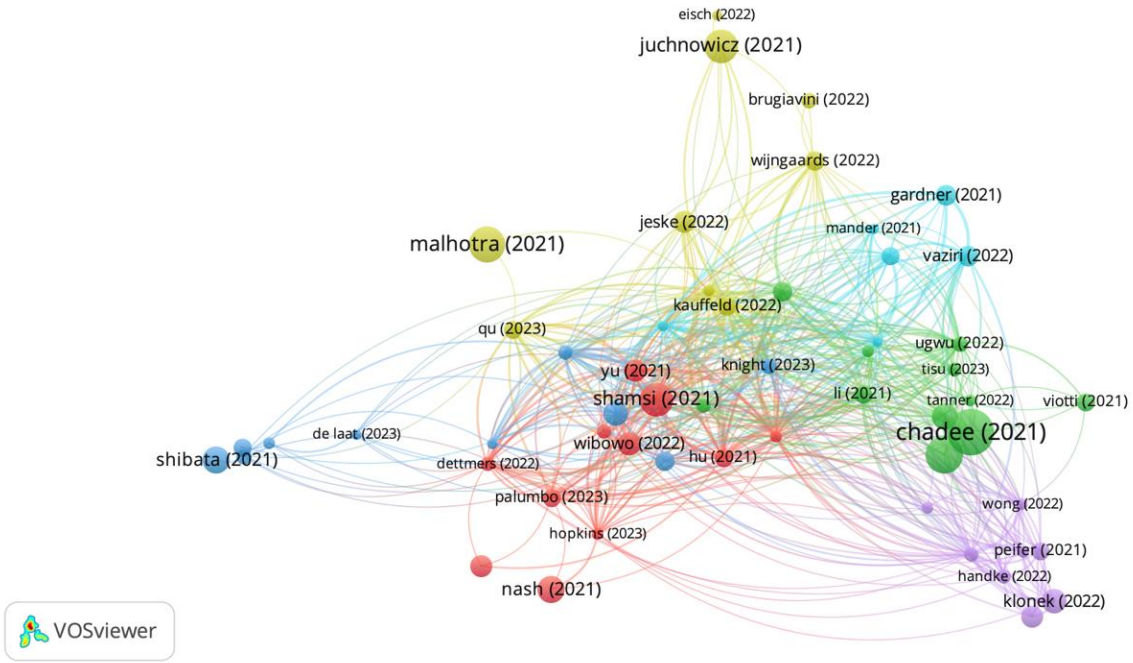
Topic label	Keywords	Background lit/fields
Work tech evolution	*digital, technology, communication, performance, impact, organizations, information, technologies, work, provide, flexibility, model, understanding, companies, perspective, practical, behavior, key, review, transformation*	Information Systems, HRM
Social ecosystem of distributed work	*social, telework, support, work, knowledge, purpose, context, environment, personal, teleworking, group, influence, collected, conducted, resources, high, groups, individuals, sharing, technostress*	Organizational Psychology, Strategic management, Human behavior
Socioeconomic factor in distributed work	*characteristics, telecommuting, employment, working, quality, women, survey, hours, sleep, jobs, age, current, extent, physical, worker, crisis, risk, earnings, independent, market*	Health, Transportation, Labor market economics
Work conditions	*employees, work, remote, workplace, working, factors, employee, support, conditions, perceived, experience, office, increase, control, work-life, resilience, intensity, productivity, reported, higher*	Psychology, Health, Law and Politics, Sustainability
Distributed work design	*job, characteristics, engagement, satisfaction, demands, relationship, related, resources, autonomy, working, exhaustion, burnout, increased, crafting, positively, significant, balance, organizational, model, work-related*	Job design, Management, Organizational behavior, Organizational Psychology
Distributed team dynamics	*team, virtual, teams, leadership, interaction, identified, levels, dimensions, distributed, task, feedback, theory, interdependence, leaders, present, high, process, studies, shared, specifically*	Organizational management, Team performance management
Distributed work strategies	*role, important, future, management, approach, strategies, differences, potential, skills, emotional, organisations, experiences, interventions, fit, career, countries, due, explore, identify, nww*	New ways of working, International management, Management Science, Information systems
Pandemic work wellness	*workers, pandemic, home, covid-, health, working, analysis, change, mental, wellbeing, psychological, studies, time, occupational, consequences, online, association, cognitive, distress, people*	HRM, Organizational Psychology, Health, Sustainability
Work-non work boundaries	*work, design, role, individual, positive, global, conflict, relationships, examine, management, professionals, framework, understand, motivation, model, family, negative, roles, boundaries, boundary*	Organizational behavior, WLB, Organizational Psychology

Source: Own work.

Bibliographic coupling: post Covid-19

For the new set of articles, the same analysis steps were performed as before, with a minimum number of citations set at 2. All 115 most recent articles were analyzed. This resulted in 55 items that formed six clusters (see Figure 17), namely: (1) *Work design in technology-enhanced new forms of work,* (2) *Job characteristics in distributed work,* (3) *Socioeconomic factors in distributed Work,* (4) *Well-being in distributed work,* (5) *Distributed team dynamics*, and (6) *Boundary management in distributed work.* The total link strength was 1204 and there were 517 links between those articles. Summaries of clusters, authors, main theories, and number of documents analyzed can be seen in Table 11.

Figure 17: Bibliographic coupling map: post Covid-19 pandemic



Source: Own work.

Table 11: Summary of the bibliographic coupling analysis results of the overlap between distributed work field and work design field: post COVID-19

Bibliographic coupling: Post Covid-19				
Cluster	**Content**	**Main authors**	**Main theories**	**Number of documents**
Work design in technology-enhanced new forms of work	This cluster addresses various aspects of work related to technology and work design in new forms of work. Topics explored include the impact of technology use on employee well-being and performance, effective work design for distributed work, the characteristics of digital work, hybrid work models, the impact of smart work on meaningfulness of work, and considerations for ergonomic and healthful work design in both traditional office and distributed environments.	Hu et al. (2021), Popaitoon (2023), Yu and Wu (2021), Shamsi et al. (2021), Dettmers and Pluckhahn (2022), Wibowo, Deng and Duan (2022), Hopkins and Bardoel (2023), Palumbo (2020), Parker and Grote (2022), Nash, Jarrahi and Sutherland (2021), Mojtahedzadeh et al. (2021)	technology behavior perspective technology experience perspective job demands–resources theory (JD-R) event system theory role balance theory self-determination theory social exchange theory organizational justice theory job characteristic theory boundary theory organizational support theory technology acceptance model (TAM) theory of planned behaviour (TPB) unified theory of acceptance and use of technology (UTAUT) conservation of resources (COR) theory socio-technical perspectives A self-efficacy theory	11

To be continued

Table 11: Summary of the bibliographic coupling analysis results of the overlap between distributed work field and work design field: post COVID-19 (cont.)

Job characteristics in distributed work	This cluster examines job chracteristics in distributed work. It addresses topics such as the impact of job characteristics on employee well-being and job crafting in distributed work, the relationship between work engagement and work-life balance, motives for distributed work and their implications, the role of health-promoting leadership, and the impact of digital work networking. It also explores the drivers and implications of enabling distributed work and examines the challenges and solutions associated with distributed work, including cognitive overload and digital detoxification.	Stempel and Siestrup (2022), Ugwu et al. (2022), Vanderstukken et al. (2021), Li et al. (2021), Bregenzer and Jimenez (2021), Tisu, Virga and Mermeze (2021), Chadee, Ren and Tang (2021), Motamarri et al. (2022), Schmitt, Breuer and Wulf (2021), Tanner, Epler and Tanner (2022), Viotti et al. (2021)	job demands–resources theory (JD-R) conservation of resources (COR) theory affective events theory self-determination theory appraisal theory transactional theory of stress health-promoting leadership dynamic capability and empowerment theories cognitive load theory theory of social exchange	11
Socioeconomic factors in distributed Work	This cluster explores the impact of job characteristics on worker well-being and strain, the gender dynamics of distributed work adoption, the socioeconomic factors affecting distributed work, and the distributional impact of the pandemic on various worker and job characteristics. In addition, the effects of distributed work on work engagement, job quality, and vulnerability to unemployment are examined.	Rymaniak et al. (2021), Knight, Keller and Parker (2022), Rodriguez-modrono (2022), Crawford (2022), Tomczak, Mpofu and Hutson (2022), Lopes and Carreira (2022), de Laat (2023), Minkus, Groepler and Drobnič (2022), Janys et al. (2021), Shibata (2021)	the resource-based view (RBV) capabilities theory proactive work design job demands–resources theory (JD-R) theory of human capital Acker's classic theory of gendered organizations ecomic theory	10
Well-being in distributed work	This cluster addresses the impact of the COVID - 19 pandemic on different aspects of work, including issues related to remote work performance, the impact of employee monitoring, the changing nature of work in the digital age, the importance of health care work, and the future of mobile and virtual work. It also examines the relationship between work characteristics and employee well-being.	Mishima-Santos, Sticca and Perez-Nebra (2021), Kauffeld et al. (2022), Qu et al. (2023), Wijngaards et al. (2022), Jeske (2022), Juchnowicz et al. (2021), Brugiavini, Buia and Simonetti (2022), Malhotra (2021), Eisch et al. (2022)	work desgin theory job demand–control–support (JDCS) model job demand control (JDC) model	9

To be continued

Table 11: Summary of the bibliographic coupling analysis results of the overlap between distributed work field and work design field: post COVID-19 (cont.)

Distributed team dynamics	This cluster of research explores various aspects of virtual work, including the impact of flexible work schedules on retirement preferences, challenges faced by virtual teams, the role of team flow, the impact of the COVID -19 pandemic on virtual team processes, distributed agile teams, leadership in virtual teams, and the importance of feedback to virtual team effectiveness. It also discusses the concept of team virtuality and its importance in understanding how virtual teams work.	Costa, Handke and O'Neill (2021), Handke et al. (2022), Mayer et al. (2023), Wong and van Gils (2022), Klonek et al (2022), Peifer et al (2021), Klonek and Parker (2021), Hudomiet et al. (2021)	self-regulation theory leadership behavior theory shared leadership theory event system theory theory of relational models	8
Boundary management in distributed work	This cluster focuses on competencies and strategies related to flexibility in modern work environments. It explores the relevance of self-leadership strategies within remote teams and highlights the challenges individuals face when managing their boundaries between different roles, including work and family commitments. It considers the bidirectional nature of work-family conflict and looks at the preconditions for work-family balance, such as personal characteristics, work demands, and work resources. In addition, the study addresses the impact of the COVID -19 pandemic on work-life balance, and specifically examines how boundary implementation can mitigate work-life conflict.	Kaltiainen and Hakanen (2023), Martineau and Trottier (2022), Vaziri et al. (2022), Zhang and Bowen (2021), Gardner et al. (2021), Mander, Hellert and Antoni (2021)	conservation of resources theory the boundary theory role enrichment theory	6

Source: Own work.

1.3.3 Discussion and conclusion

1.3.3.1 Overview of the findings

The combination of four (bibliometric and text analysis) systematic review techniques enabled us to answer all three proposed research questions. It revealed, perhaps surprisingly, that a few primary papers actually addressed the overlap of distributed work and work design, leaving ample room for future research regarding the matter. Nonetheless, we were able to generate three sets of valuable insights.

The intellectual structure on the intersection between the field of distributed work and work design, and its evolutionary perspective

Overviewing the past, we found that research connecting distributed work and work design began in the OB/OP field and was connected to different individual-level outcomes. Most of the articles until 1995 were published in journals such as the Journal of Applied Psychology, the Administrative Science Quarterly, and the International Journal of Human-Computer Interaction. The theories discussed were mainly from the OB/OP field (e.g., Motivation-hygiene theory, Job characteristics theory) or management communication and information systems, including the sociotechnical systems theory. During this period, authors began to discuss technology in the context of work (i.e., the social and technical aspects being integrated into the work and supporting each other), while distributed work per se had not yet come to the forefront. Scholars discussed organizations' structural characteristics (including job characteristics) and employee characteristics, where the outcomes were compared across different levels of analysis.

In the next observed time period (from 1996 to 2010), the majority of articles were published either in the Journal of Management Studies and Organization Science or in two non-management publication outlets (i.e., Transportation Research Record, and Technological Forecasting and Social Change). Research efforts were primarily focused on sociology of work, the role of telecommuting in transportation and other public policies, application of telecommunication technology, and benefits and costs of the structural change in work-life. Mostly discussed theories were Dynamic theory, Information processing theory, Neo-institutional theory, Principal-agent theory and Resource-based view of the firm. During this time frame, scholars explored, conceptualized, and theorized the concepts associated with distributed work such as virtual work, telework, and telecommuting. Studies talked about firms' resources and sustained competitive advantage and provided models of organizational adoption of teleworking, explored requirements for effective working from home and also began talking about different factors that lead workers to choose telecommuting. The research on the topic has expanded considerably and became crucial to the fields of organization studies, information systems and technology, HRM, and (strategic) management. This shows that distributed work became increasingly important for both theory and practice.

Most of the articles from the last observed time period (from 2011 to 2020) were published in journals such as *Journal of Applied Psychology, Organization Science, Management Science*, and *Organizational Behavior and Human Decision Processes*. Research was focused on management of virtual work, and comparison between traditional work and emerging new ways of working. Most often applied theories are still core theories as Motivation-hygiene theory, Job characteristics theory, Sociotechnical systems theory, Information processing theory, as well as Time-interaction and performance theory, Self-efficacy theory, Media richness theory, Systems dynamics theory, Theory of communication, and Theory of work redesign. During this time period, authors pointed out the need to (re)design jobs, stressed the importance of understanding the differences between distributed work and office work settings, and began developing work design frameworks that actually took into account distributed work characteristics.

To portray trajectories of scholarly discussion over time, the developed the 'invisible colleges' framework shows that research related to the intersection of distributed work and work design increased greatly during the last decade. While this research niche was initially stemming from the OB/OP field, it has later been built by embraced theoretical insights from the fields of management, HRM, and information systems and technologies. In the first observed period, using activation, job design characteristics, and motivation-hygiene theories, authors pointed out the need to redesign jobs away from routine work, and to motivate workers by making their work meaningful and identifiable. The literature began to incorporate sociotechnical systems theory, which is about people working with technology in ways that would benefit the society and further the goals of the organization. We see that the literature on job design began to include technology as an important factor in work, and that technology was recognized as a potential future work component, but it was not yet specifically discussing distributed forms of work.

While research during the first examined period focused more or less on the micro (individual in their work context) level, we can derive from the identified theories that the next (second examined) period also focused on the macro level, putting forth the strategic, industrial economics and firm competitiveness perspective. The Resource-based view came to the forefront and examined various resources, including technology and work design, as one of the main factors of firms' performance and competitive advantage. During this period, many terms related to distributed work were conceptualized, and specific conceptual models and frameworks emerged, such as the Conceptual framework for modeling the implementation process of teleworking, indicating that new forms of work were emerging and needed to be explored in more depth. The authors attempted to provide information on the implementation of such forms of work, their benefits, challenges, etc., and the research was very important for HRM practice. Many papers also focused on team dynamics within new work forms, comparing them with traditional work forms and new strategies. Using information processing theory, authors explained the need for regular communication through computer-based technology to develop interpersonal impressions online.

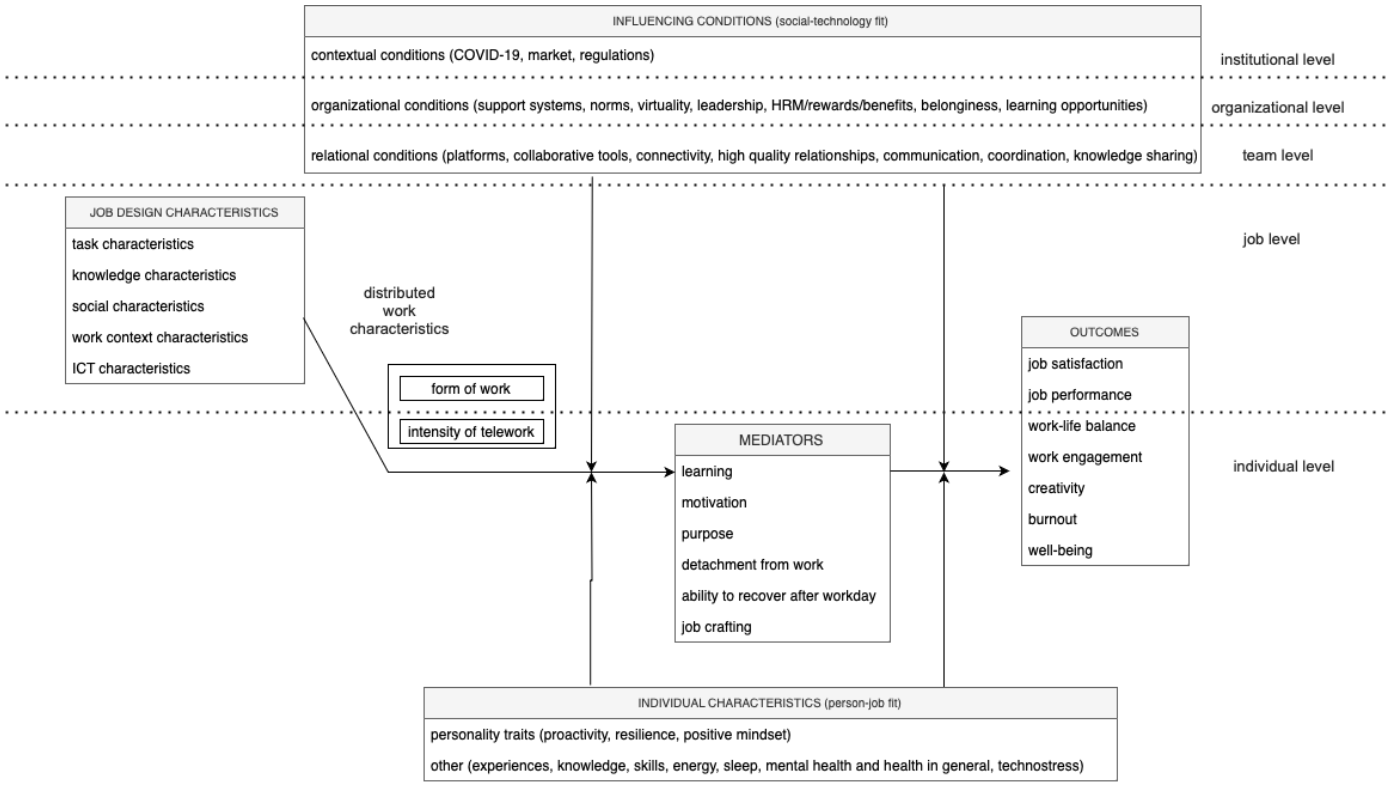
In the last observed period, research included both micro (e.g., self-efficacy theory) and macro (e.g., organization design theory) theories. Whereas in the first period, the issues of work design and technology were more or less separate, in this period they are beginning to intertwine, and the intersection between work design and distributed work got much larger in scope. The fields of organizational psychology and management began integrating with the fields of information systems and computer science, which can be seen in overflowing theories, such as Social identity/deindividuation and Media richness theories.

Main (mostly studied) studies topics associated with distributed work and work design: A systematic approach to distributed work design

The present research showed that distributed work is not adequately explained by existing work design models (i.e., JCM, WDQ, and JDR). Therefore, by juxtaposing two mostly unrelated research domains of distributed work and work design, we developed an integrative framework of distributed work design (Figure 18). Our framework represents a build up to the WDQ as we incorporated the work ICT use (B. Wang et al., 2020) to the work design characteristics repository on job level, together with two distributed work characteristics that we revealed to be highly relevant by co-word analysis and topic modeling: *form of work* (i.e., work at the office, hybrid work, distributed work) and *intensity of telework* (i.e., the extent of scheduled time employees spend doing tasks away from the central work location; Gajendran & Harrison, 2007) at the individual level. ICT characteristics include the following characteristics: *IT complexity, IT presenteeism, pace of IT change* (also labelled as techno uncertainty) that were already recognized by Suh and Lee (2017), as well as *technology overload* and *information exchange* via ICT that involves information exchange frequency and quality (Fonner & Roloff, 2010).

Influencing (contextual or boundary) conditions targeting the social–technology fit represent another extension of the existing work design theory. Specifically, with the help of co-occurrence analysis, we recognized and added *contextual* (i.e., COVID-19, market, regulations) conditions at the institutional level, while topic modeling helped us to identify additional *organizational conditions* (i.e., HRM/rewards/ benefits, belonginess, virtuality, leadership, support systems, norms), and *relational* (i.e., digital platforms, collaborative tools, connectivity, high quality relationships, communication, coordination and knowledge sharing) conditions at the team level. Next, as underlying mechanisms or mediators, we included two factors at the individual level (beyond *motivation* and *purpose*) that were recently highlighted in the literature as being among the most important for the successful digital work: *learning* and *detachment from work/importance of reset after work* (Nurmi & Hinds, 2016), and also *job crafting* that was illuminated as hot topic in the most current observed period (from 2021 to mid-2023). Finally, both individual characteristics (as person–job fit moderators) and individual-level outcomes (as a desired work–life alignment) that complement contextual, organizational and relational conditions, ICT and work flexibility considerations make our framework more coherent. See Figure 18.

Figure 18: Integrative framework of distributed work design



Source: Own work.

Current debates and emerging topics of interest at the intersection of distributed work and work design

Bibliographic coupling method revealed which themes presently occupy the attention of OB/OP researchers. For instance, a strong emphasis has been put on the future of work topics in the light of digital technology, therefore, digital and virtual team connectivity, digital transformation, functionality of virtual teams, antecedents and outcomes of (digital) work are associated with the intersection of the fields of distributed work and work design. Furthermore, the initial research front reveals the importance of relationship-oriented leadership and individualized consideration (Schwarzmüller et al., 2018), that is, more based on individual characteristics and preferences. We propose the same for work design and believe the research on the matter could do more to develop how it could be personalized more. Specifically, we noticed and found bibliometric evidence that topics about personality (e.g., proactivity, resilience, positive mindset), motivation (e.g., self-motivation of gig workers), work experiences (e.g., high-quality relationships, self-enhancing and affiliative humor, work engagement, job satisfaction) and personal outcomes (e.g., well-being, mental health, sleep and recovery, work-life balance) of teleworkers are coming to the forefront, indicating that work design in the future will need to take into account personal characteristics/preferences and that work and non-work life will become even more intertwined.

The additional (post-covid) research front reveals that newer research also considers some socioeconomic factors, such as age and gender. Furthermore, it highlights the importance of boundary management and illuminates even more the importance of well-being. It also explores the drivers and implications of enabling distributed work and examines the challenges and solutions associated with distributed work, including cognitive overload and digital detoxification. We can also observe some new theories being discussed (e.g., Acker's classic theory of gendered organizations, event system theory, boundary theory). A key observation is also that there are generally more papers on the matter, indicating that the intersection of information systems and work design is on the increase, and that there is a bit more focus on integrating elements stemming from organizational psychology, such as well-being and mental health.

Taken together, the bibliographic coupling results constitute a semantic map/nomological net of the overlap of distributed work and work design, and related concepts. They indicate specific research areas, topics and potentially useful theoretical backgrounds that could inform future research endeavors.

1.3.3.2 Theoretical contributions

Our multi-technique bibliometric review has important theoretical contributions to the fields at the intersection of HRM/work design and information systems. First, we advance the integrative framework of work ICT use of Wang et al. (2020) by expanding their search of existing literature with distributed work arrangements (e.g., telework, remote work, hybrid work), while they focused only on ICT, as well as implementing a more comprehensive search procedure (the whole WoS database as opposed to their focus on top journals). Furthermore, we also answer one of their future directions and include into our framework the moderating role of temporal factors by providing a broader overview–past, current, and future–of the research intersection between distributed work and work design. In addition, we conducted another search for the post-pandemic period and found that the number of articles dealing with the design of distributed work increased exponentially, while new (more specific) topics came to the fore. Articles in the last observed period (from 2021 to mid-2023) are also more connected, have more links, and higher overall link strength. This contributes to information systems research by enhancing our understanding of organizational and work phenomena that interplay with ICT in shaping future work and ICT infrastructures in organizations.

Second, we advance the authoritative review on work design research by Parker et al. (2017) by responding to their suggestion that work design needs to be further elaborated in relation to technological change. We have done this by combining the perspective of work design with the context of distributed (digitally-enhanced) work. In this way, we jointly consider the sociotechnical systems perspective with social and technological aspects of work, which contributes to painting a more comprehensive picture of work and the organizational realities determining it. Scholars in the field of the future of work, and work design, generally, can take

our bibliometric review implications and future research suggestions in determining research streams that can bridge the topics of technology and work even further.

Third, and on a related note, we advance Morgeson and Humphrey's WDQ (which is based on Hackman and Oldham's original JCM) and other existing work design models (such as JD-R and job demands-control model). We do so by further developing them conceptually with specific characteristics of technology (i.e., tools, intervention/invasion, complexity) that we integrated into the overarching model of distributed work design. This provides a more nuanced take on job characteristics not merely interplaying with technology, but actually embedding ICT into the core understanding of work design facets. Research on work organization should thus not treat technology and work design as independent, interplaying factors, but rather engage in more refined research conceptualizations and designs that account for technology and job characteristics as a seamlessly interrelated bundle of key phenomena shaping work contexts, behaviors and outcomes in contemporary organizations.

1.3.3.3 Limitations and future research directions

This study provided sound theoretical contributions; however, it is not without limitations. Being based on bibliometric techniques enabled us inclusiveness, comprehensiveness and objectivity in conducting a systematic review. However, all these are based on citations as a measure of impact, which has its drawbacks that have been well documented (Zupic & Čater, 2015), such as the fact that they do not capture the context and intention of citations that can also be a result of self-legitimization strategies, micro-politics and criticisms. Bibliometric studies thus need to be complemented with other review methods, such as meta-analyses and qualitative reviews of systematic nature (e.g., meta-syntheses). Meta-analytic procedures could be particularly promising in evaluating the relationships proposed by our integrative framework, as they could bring together empirical findings of specific parts of the model. However, a sufficient number of studies should be generated beforehand.

This research set out to deepen our understanding about the current state-of-the art of the intersection of distributed work and work design, specifically, as the study of those would directly correspond to changes currently occurring in practice. However, the systematic review of primary articles based on co-word analysis, topic modeling and even bibliographic coupling revealed that very few (if any) studies directly target this matter in an explicit manner. Therefore, we suggest future studies take action in providing additional conceptual clarity and empirical evidence that would enrich the current work design models with job characteristics directly embedding the characteristics of distributed work into dimensions and facets of work itself. Such research could adopt a Delphi-type expert analysis approach, focus on semantic and theoretically-grounded conceptual analysis of different work design configurations and their possible additions, or inquire on the topic with in-depth qualitative or configurational quantitative research.

We also encourage future research to focus on the current topics of discussion revealed by the bibliographic coupling, i.e., the research frontiers. To this end, we have prepared a future research guide (see Table 12) that identifies the main research areas to be developed, potential research topics, and theoretical perspectives that could serve as the basis for such research. To name a few, one the important aspect that should be developed further is whether and how work design should be re-defined among different forms of work (e.g., predominantly distributed, hybrid or physically located). Organizations that introduced distributed work arrangements generally impose more flexible HR practices from traditional ones (e.g., flexitime, seasonal schedule, reduced work hours), indicating the distinctive nature of their context-sensitive work design practices (Pérez Pérez et al., 2005). According to Wang et al. (2020), ICT usage affects the design of work through shaping job demands, work autonomy, and relational work design. For example, it has been evidenced that non-traditional organizations rely on ICT more extensively, invest additional resources in research and development, have a larger percentage of knowledge workers and salespeople in the workforce, and have a larger geographical market (B. Wang et al., 2020). Furthermore, their employees are better trained in the use of ICT, more involved in crafting their work, and have greater access to the internet. That being said, it would also be interesting to investigate optimal configurations of job characteristics for different (more or less distributed) forms of work. The importance of examining different configurations of work characteristics and their synergies has already been highlighted in a study by Parker, Morgeson, and Johns (2017). Based on our results, this could be explored using socio-technical systems theory, flexible work theory, and/or JD-R theory.

Next, organizational and work scholars could examine how work experiences, individual traits, capabilities, and resources affect different outcomes, to show which of these are important for particular stakeholders. Workers employed in the distributed work settings need to have different skills, experience, and capabilities than workers in traditional work settings. Home working rates were especially found to be higher among the highly-educated workforce (i.e., working individuals with master's degrees and PhDs were fifteen times higher than the least qualified cohort of employees), and within large firms characterized by higher digitization capacities (OECD, 2021). New research could focus on IT and remote work experiences and training, as well as sophistication in the use of collaborative tools. A recent study by Deloitte (2021), for example, reported interesting results suggesting that remote workers' outcomes vary by workers experience of their shared digital work. As we do, they emphasize that companies should create a digital environment (i.e., digital work design) that facilitates rather than hinders work. Overlapping with our finding they identified three crucial factors (i.e., psychological safety, digital competence and management support for experimentation and flexibility). Related to that, future research could focus on individual person-job fit considerations in forms of work and work design, self-leadership, self-efficacy and motivation.

The availability and use of collaborative tools, digital media richness and its effect on communication effectiveness are also interesting research topics related to distributed work

that require additional attention. For instance, the most appropriate work design based on specific forms of work could be examined. Bakker et al. (2021) have already shown the importance of proactive approaches to meeting workers' basic psychological needs in times of crisis (i.e., contextual conditions), and on the other hand, Malhotra (2021) has shown the importance of meaningful work design and mindfulness at work for the future of work.

There is also a need to further explore leadership styles (e.g., servant, spiritual), strategies and knowledge sharing in the context of distributed work. Relatedly, the request and feedback as mechanisms of guidance and control need more in-depth research in context of distributed work, as well as follower trust and high-quality leader-member relationships. Another potential for bridging the cluster is by investigating digital transformation and multi-level approach in considering organizational and job characteristics as factors of high-performing distributed work. Furthermore, non-traditional work context (e.g., gig economy) could be examined in depth- what strategy of gig work platforms can managers use and how should gig work design of platform workers look like. Jabagi and colleagues (2019) have already shown that in gig work context managers can motivate employees with enterprise social media (i.e., "*an organizational web-based platform that facilitates internally facing communication, social interaction and collaborating among users within an enterprise*"; ESM), by which managers can support and drive employees' motivation. Two possible ESM tools are social networking (i.e., "*internet-based communities that facilitate the building of a network of contacts to exchange various types of content online*") and social badging (i.e., "*a strategy that focuses on the selective incorporation of design elements characteristics of games in non-game context*") (Deterding et al., 2011; Leonardi et al., 2013).

Another important aspect is the design of distributed work teams, where researchers could further explore the complementarity of team members based on individual characteristics and predominant employee (team) roles. In addition, trust, interdependence and connectedness, isolation, and loneliness are also relevant and could be studied based on team role theory, social identification, and/or organizational design theory. Last but not least, researchers could apply the proposed integrative model of distributed (digital) work design and test it in practice using structural equation modeling techniques or longitudinal research designs (also proposed by B. Wang et al., 2020) that could apply growth modeling to capture the proposed effects and interactions over time. Including a diverse sample of different job incumbents with regards to the amount of knowledge work, complexity, interaction, and technology use is particularly important in this endeavor. Conceptual clarification and empirical underpinning of the characteristics of distributed work should be provided, as well as cross-country, cross-language validation of distributed work characteristics questionnaire. Taken together, our review behooves us to apply complex and rigorous research designs to further enhance our understanding of distributed work design.

Table 12: Future research directions

Important Areas of Research to Develop	**Potential Research Topics**	**Theoretical perspectives that could inform such investigation**
Work characteristics in distributed work design	Conceptual clarification and empirical support (validation) of distributed work characteristics Cross-country and cross-language validation of distributed work characteristics questionnaire Validating and testing the integrative distributed work model using SEM and/or longitudinal growth modeling	Job Characteristics Model Job Demands Resources Model Job Enrichment Theory
Gig work	Gig work platform strategy Gig work design Algorithmic monitoring and rewarding; performance management Experience Sampling Method tools for tracking and motivating platform participants Crowdwork and collective competencies	Labor process theory Management control theory
Design of distributed work teams	Complementarity of team members based on individual characteristics and predominant roles Trust, interdependence and connectedness; counterbalancing isolation and loneliness Interdependence among team members Communication across virtually connected teammembers Organization design (formalization, hierarchy, reporting levels)	Role theory Team role theory Social identification theory Organization design theory
Work experiences related to distributed work	IT and remote work experiences and training Sophistication in the use of collaborative tools	Human capital model Digital literacy theory

To be continued

Table 12: Future research directions (cont.)

Important Areas of Research to Develop	Potential Research Topics	Theoretical perspectives that could inform such investigation
Traits and capabilities for distributed work	The role of knowledge work, complexity, interaction, and technology use The role of positive and growth mindset for effective distributed work Spiritual capital and finding meaning in distributed work Resilience and proactivity for open-ended problem solving in distributed work Individual person-job fit considerations in forms of work and work design Self-leadership, self-efficacy and motivation	Person-environment fit theory Social learning theory Role theory Self-efficacy theory Self-determination theory
Resources in distributed work	The availability and use of collaborative tools and digital media Digital media richness and its effects on communication effectiveness Domestic (family) requirements and resources	Adaptive Structuration Theory Media Richness Theory Work-nonwork interface theory
Digital transformation of work and workplaces	Digital environment that facilitates rather than hinders specific work outcomes (e.g., work performance and work-life balance) Psychological safety, digital competence and management support for experimentation and flexibility	Perceived support theory Social identification theory Socio-technical systems theory
Leadership in distributed work	Leadership styles (e.g., servant, spiritual) and distributed work outcomes Request and feedback as mechanisms of guidance and control Follower trust and high-quality leader-member relationship building Power relationships, human and social capital, network management	Social exchange theory Leader-member exchange

To be continued

Table 12: Future research directions (cont.)

Future work design and work forms	Most appropriate job design based on specific forms of work (i.e., predominantly distributed, hybrid or physically located) Optimal configurations of job design characteristics for different forms of work Proactive approaches to meeting workers' basic psychological needs in times of crisis (i.e., contextual conditions) Meaningful work design and mindfulness at work	Socio-technical systems theory Flexible work Job Characteristics model Proactivity model Meaningfulness theory
Strategy and distributed work	Multi-level organizational and work design for high-performing distributed work Strategic decisions related to optimal form of work distribution across units Culture of connectedness/response expectations (work related values, norms and rewards); boundary control Detachment from work during non-work hours Encouragement for bottom-up job modification initiatives, e.g., job crafting Managing technological stress and overload	Work-nonwork boundary management fit Boundary theory Job crafting theory Effort recovery model Theory of work adjustment
Knowledge sharing in distributed work	Knowledge sharing and hiding among distributed team members Sharing of different knowledge types across different media Formalized onboarding programs for new members' socialization and orientation	Social exchange theory Socialization theory

Source: Own work.

1.3.3.4 Conclusion

Distributed work has not appeared with, and will certainly not disappear along with the COVID-19 pandemic. It is about to stay in different forms of the digitally-enhanced work, and it will be highly represented (to certain extent even desired) across different occupations and organizations. Therefore, it is an essential both for scholars and practitioners to learn and extend rather limited knowledge about distributed work characteristics. This study is a first attempt to "mark the target" for the future research, integrating research areas of information systems, work design, and future of work. Based on the informative inquiry and following evidence-based (multi-technique bibliometric) insights, we conceptualized the integrated framework of distributed work design and thus hopefully created a useful trail for scholars of work design and beyond. We did so by expanding and integrating existing frameworks into a new model of distributed work design that incorporates technology as a core element. We also highlight the trends and gaps in the pre- and post-pandemic periods, and suggest specific directions for future research stemming from our conceptualized model. On these foundations, it further behooves us to deepen our understanding of the role of technology in HRM, generally, and the interplay of digitalization and work design, specifically.

2 CHAPTER 2: AN EXPLORATORY-CONFIRMATORY ANALYSIS OF WORK DESIGN CONFIGURATIONS

The main aim of this chapter is to analyze and obtain work design configurations for predicting individual task performance and work-life balance. The first part of the chapter introduces the work design configurations, such as Enriched, Orderly, Knotty, Complicated, Fragmented, Autonomous, and Collaborative Work Designs. Central to this section is the examination of how experts perceive various levels of individual work design characteristics within different configurations. Each of these configurations is discussed in detail, noting the areas where experts reached consensus and where opinions diverged.

The second part of this chapter explores how to design different forms of work (i.e., on-site, hybrid work and remote work) to achieve highest individual task performance and work-life balance. Many studies have shown that employees who work remotely have higher individual task performance and are more productive than employees who work at a shared office location (e.g., Baltes et al., 1999; Gajendran et al., 2014), and many vice versa (Perry et al., 2018), and the same goes for work-life balance; some research are indicating that remote workers achieve better work-life balance (Sullivan, 2012), while some of them have found the opposite (e.g., Bellmann & Hübler, 2020b). Given these contradictory findings, outcomes depend not only on the specific forms of work, but also on whether the work design characteristics are appropriate for the particular form of work. This section therefore contributes to the theory by identifying how these work design characteristics differ across forms of work.

Fuzzy set qualitative comparative analysis (fsQCA) software was used and qualitative comparative analysis (QCA) applied, the methodology that allows the analysis of multiple cases in complex situations. It helps explain why some changes occur in some cases but not in others (Korjani & Mendel, 2012).

2.1 Exploring work design configuration: unveiling the complexity of humanizing the digital work.

2.1.1 Theoretical background

New technologies influence today's work and alter social attitudes regarding work organisation and design. In light of this, the topic of how human-centered work design must be in the digital age arises (Terhoeven et al., 2022). In the literature, both positive and negative effects of digital technologies on human work are predicted (S. K. Parker & Grote, 2020; Waschull et al., 2022). The work design theory is primarily concerned with how work should ideally be designed by having different work characteristics with the aim of improving individual outcomes (e.g., motivation, well-being, satisfaction; Hackman & Oldham, 1976; Morgeson & Humphrey, 2006; Waschull et al., 2022). Poor work design, fostered by inadequate opportunities to maintain or acquire skills, could negatively affect work motivation through poor need satisfaction, particularly of the competence need (Gagné et al., 2022).

Most studies (e.g., Khoshnaw & Alavi, 2020; Muecke & Iseke, 2019; Dysvik & Kuvaas, 2010) examine relationships between individual job characteristics with specific outcomes. Meyer et al. (1993) recommended that work motivation models such as the JCM should be tested configurally because their attributes might be interrelated in a reciprocal and nonlinear manner, unlike traditional models that focus on linear relationships and unidirectional causality. A configurational approach (i.e., a configuration is a possible combinations of different levels of work design characteristics) has already been recognized as a potential fruitful way in studies of work design (De Treville & Antonakis, 2006; G. Johns, 2010) since their attributes may be related in a reciprocal and nonlinear fashion, contrary to traditional models that examine linear relationships and unidirectional causation (A. D. Meyer et al., 1993).

The most well-known holistic outlook is *enriched work design*, which can be achieved through higher levels of all work design characteristics simultaneously, and can therefore be seen as a high-high configuration of all examined work design characteristics (Hackman & Oldham, 1976; Waschull et al., 2022; Wood, van Veldhoven, et al., 2012). Hackman and Oldham (1976) suggested that core work dimensions influence personal and work outcomes through critical psychological states. Skill variety, task identity, and task significance promote the experience of meaningfulness of work, autonomy makes the worker feel responsibility for work outcomes, and feedback conveys knowledge about the actual outcomes of work activities, and all these together increase the worker's internal work motivation, high quality of work performance, high job satisfaction, and lower absenteeism and turnover. The authors later added two important factors that must be met for this model to apply to all people, namely growth need strength and job-relevant knowledge and skills, i.e., employees should value opportunities for personal growth and development at work and have relevant knowledge and skills (Oldham & Richard Hackman, 2010).

Advancing the stream of research that focused on particular work dimensions, studies such as Burton et al. (2015) and Cangialosi et al. (2021) already took a broader view and examine the relationship between configurations of work design characteristics that lead to different outcomes. For example, Burton et al. (2015) examined task design characteristics and identified four potential task configurations on organizational level. Inspired by their research, we initially drew upon their concepts of task configurations—orderly, knotty, complicated, and fragmented—at the organizational level. Reflecting on their insights, we saw a unique opportunity to apply these configurations to the job level as work design configurations. Although their study was not focused on the job level, the distinct task configurations they identified provided a robust framework for understanding work design in a new light. By adopting their labels and applying them to job-level characteristics, we aimed to explore different work design configurations. The purpose of exploring various work design configurations is to deepen our understanding of how different job characteristics, when combined in specific ways interact together. This approach recognizes the complexity of modern work environments and seeks uncover the subtle interactions between job characteristics and their collective impact, guiding future work design practices in diverse settings.

First one is *orderly work design configuration* in which employees have low work demands but also have access to low job resources. This type of work design could be used in an organization that employs a low exploration strategy and low process integration (Burton et al., 2015). This configuration can be analysed through the lens of the job demands-resources (Bakker & Demerouti, 2007) framework, a cornerstone of industrial and organisational psychology. Among the benefits of this configuration, the reduced stress resulting from the reduction of high job demands stands out. This reduction can inherently mitigate work-related stress and burnout, both focal points in the JD-R model. In addition, this design provides stability and predictability, which is often appreciated by employees who value a structured environment. From an organisational perspective, the simplicity of the roles can pave the way for more streamlined induction processes. There are also tangible cost efficiencies: companies can reduce spending on complicated training or the provision of high-quality resources. However, there are also tangible challenges. One major concern is the potential detriment to skills development. Since the JD-R model emphasises the role of resources in employee performance and well-being, limited access can limit opportunities for growth. This deficit can translate into lower engagement and job satisfaction. At a strategic level, companies risk stagnating innovation, especially at a time when digital development is of paramount importance. Finally, in a digital work context, there is a risk of isolation. Without the necessary digital tools and platforms, employees may miss out on the benefits of collaboration, which could lead to a sense of detachment - a challenge that is exacerbated in teleworking scenarios (Bakker & Demerouti, 2007).

Next one is labelled as *knotty configuration* and includes high work demands and high work resources, and is theoretically similar to enriched configcuration (Burton et al., 2015). This type of work design is used when an organization pursues a high exploration strategy and there is the increasing need for process integration and cross-functional teamwork. It is believed that it affects the required level of cognitive-job demands, therefore employees should have access to more job resources (De Clercq et al., 2011; Stevens & Campion, 1994). The hallmark of resource abundance in the knotty configuration is the profusion of work resources to meet high work demands and potentially create a conducive environment for ask enjoyment and organizational commitment (Bakker et al., 2010). Furthermore, by fostering a high-exploration strategy, this configuration can trigger exploration and innovation, catalyse novel solutions, and reinforce the organisation's competitive advantage (Schieman, 2013). With high cognitive job demands, employees are likely to be engaged in challenging but rewarding tasks, which promotes cognitive stimulation, intellectual growth and job satisfaction (Martín-Martín et al., 2022), but can also lead to feeling fatigue (S. C. Meyer & Hünefeld, 2018). The increased work demands associated with a knotty configuration could lead to work stress among employees and potentially affect well-being and work performance if not managed prudently (Schieman, 2013). The challenge of using abundant resources efficiently is great, with the risk that resource wastage or misallocation will compromise organisational effectiveness, posing a significant challenge to resource allocation.The growing need for process integration and cross-functional teamwork can increase complexity and coordination, requiring skilful coordination and management to ensure unhindered operations Increased cognitive work demands require a higher level of skills and competencies, indicating stringent skill and competency requirements that may necessitate rigorous training and development programmes, incurring additional costs and time (Burton et al., 2015; De Clercq et al., 2011; Stevens & Campion, 1994).

Complicated configuration means that employees have high work demands and low work resources (Burton et al., 2015). This could happen if the organization gives high priority to process integration but does not pursue an exploration strategy, therefore this misfit alternative leads to the emergence of high-strain jobs or complicated task designs characterized by high job demands and low job resources (P. Oeij et al., 2006). This approach could improve operational efficiency in the organisation, although at the expense of exploration and possibly innovation. The increased work demands associated with a complicated configuration can lead to a stressful work environment, especially when coupled with limited work resources, which can lead to employee burnout and reduced job satisfaction (Demerouti & Bakker, 2023; Schieman, 2013). Scarce work resources could increase stress levels by limiting the support and tools employees need to effectively manage their work demands. The mismatch between high work demands and low work resources could lead to complicated task designs, making the learning curve steeper for employees and requiring them to spend more time and effort to gain skills (Russo, 2017). The lack of an exploration strategy could inhibit innovation and adaptability within the company and make it difficult to respond to external environmental changes or explore new growth opportunities

(Brusoni et al., 2020). The creation of high-stress work is a major concern as it could negatively impact employee wellbeing, engagement and retention over time. Work friction resulting from misaligned work design and overstretched teams could lead to unrealised workforce responsiveness, where employees make significant efforts to work around rigid work structures, leading to additional risk and time loss, and impacting employee retention (Bakker et al., 2010; Schieman, 2013).

Fragmented work design configuration on the other side has low work demands and high work resources. In this case an organization is pursuing a high exploration strategy yet low process integration, which therefore introduces low-strain jobs – characterized by low job demands and high job resources (Burton et al., 2015). Such a combination could have a positive effect on task performance, as employees find a pleasant work environment (i.e., a surplus of job characteristics; Dust & Tims, 2020). The low work demands that a fragmented work design configuration could reduce employees' stress levels and thus increase job satisfaction and general well-being. In addition, the abundance of work resources is likely to provide employees with the necessary tools, support and autonomy to complete their tasks efficiently and effectively, potentially increasing job satisfaction and task performance. Aligning with a high exploration strategy can foster a culture of innovation and adaptability, providing fertile ground for creative thinking and problem solving. This configuration could also create an enjoyable work environment, as postulated by Dust & Tims (2020), in which the surplus of job characteristics could enrich employees' work experience, potentially increasing job engagement and satisfaction. Low-strain work, while beneficial for employee wellbeing, could lead to a lack of challenge and growth opportunities for employees, which could lead to stagnation and lack of motivation over time (Tadić et al., 2015). We propose two additional possible work design characteristics based on the level of needed collaboration in order to finish the job.

First one is *autonomous work design configuration* which is designed in the way that employees carry their job independently. Therefore we propose, task characteristics are high (especially autonomy), while social characteristics (such as interdependence, feedback from others) are low. The importance of autonomy in work design has been widely recognised in academic discourse and has implications for a wide range of outcomes, including performance (S. K. Parker, 2014a). A high degree of autonomy gives employees feeling of responsibility for outcomes of the work, which can lead to greater job satisfaction, performance, work motivation, profesional growth and low absenteeism (Hackman & Oldham, 1976; Smither, 2004). It is also associated with greater work engagement in digital context (Boskovic, 2021). This configuration also promotes innovative work behaviour, as high levels of innovative work behaviour can be cultivated even in the face of sparse feedback when task identity, task significance and autonomy are present, underscoring the critical role of work characteristics in promoting innovation (Cangialosi et al., 2021). On the flip side, the low level of social interaction resulting from a reduced emphasis on social characteristics such as interdependence and feedback from others could lead to isolation or

a lack of collaborative engagement among employees (Deschênes, 2023). The removal of boundaries is also a concern, as a strong focus on external work linkages while maintaining high levels of work autonomy could blur organisational boundaries, as the organisation may lack direct control over the work process. Finally, managing autonomous teams could be challenging as it requires a delicate balance between granting autonomy and ensuring alignment with organisational goals (Reiche, 2023).

Collaborative work design configuration on the other hand has a high level of social characteristics, due to needed collaboration and codependency among employees to get the job done, while all task characteristics except autonomy should be high as well. The collaborative work design configuration creates an environment conducive to teamwork and cooperation, where employees can combine their efforts to achieve common goals. The high social characteristics inherent in this configuration underscore the importance of cooperative action, which, when linked to a common goal, improves team performance and shared outcomes (Patel et al., 2012). In addition, task performance is seen as equally crucial as cooperative performance, with task characteristics representing a major category of attributes that influence cooperation. In addition, the ability to manage complex tasks is enhanced, as collaboration on highly complex tasks requires appropriate staffing and selection decisions that take into account both the demands of the task and the skills required for success (Bedwell et al., 2012). On the downside, collaborative work design could lead to overdependence on the team's efforts, potentially stifling individual initiative and accountability. Furthermore, there is a potential for collaborative overload (i.e., combination of information overload, email overload, communication overload and technology overload, while putting the focus even more on social aspects; Laansamann & Klein, 2018). In addition, the high task characteristics that preclude autonomy could be challenging, especially if the work environment does not adequately support individual autonomy, which is recognised as a motivating work characteristic (Hackman & Oldham, 1976).

Pros and potential challenges of each configuration can be seen at Table 13.

Table 13: Pros and potential challenges of each configuration

	PROS	CHALLENGES
ENRICHED	• Enhances job satisfaction, performance, meaningfulness of work, internal work motivation. • Lowers abstenteeism and turnover. • Promotes proactivity, creativity, citizenship, employee learning and development. • It allows ambidexterity: both exploiting current capabilities and exploring new possibilities.	• Requires a supportive organisational culture and empowered employees. • Demand for high skill levels and continuous learning: employees should value opportunities for personal growth and development at work and have relevant knowledge and skills.
ORDERLY	• Stability and predictability and control in work processes. • Ease in management and coordination. • Low work demands. • Reduced employee stress. • Cost efficiacy. • Suitable for organizations with low exploration strategy and low process intergation.	• Lack of employee skill developement. • Limited innovation and adaptability. • Reduced employee engagement. • May not fully leverage digital technologies.
KNOTTY	• Resource abundance. • Increased productivity and job satisfaction. • Fosters innovation and customization. • Potential for high customer satisfaction with a personalized approach. • Employees have high work demands and work resources. • Suitable for organizations with high exploration strategy, increasing need for process integration and cross-functional teamwork. • Cognitive stimulation.	• Workoad stress. • High coordination demands. • May pose challenges in a fast-paced digital environment. • Employees should have access to more job resources. • Skill and competency requirements.
COMPLICATED	• Operational efficiency in structured processes. • Digital tools can aid in coordination and process management.	• May limit collaboration and innovation. • Structured nature may not fully embrace digital potentials. • Stressful work environment. • Negative impact on well-being, work engagement and retention over time.
FRAGMENTED	• Promotes innovation, autonomy and flexibility in task execution. • Less coordination required. • Reduces employees stress levels. • Increases job satisfaction and task performance. • Pleasant work environment.	• Potential for sub-optimal communication and coordination. • Lack of challenges and growth opportunities for employees. • Lack of motivation over time.
AUTONOMOUS	• Supports independent work. • Innovative work behavior. • Control over work process. • Higher job satisfaction, work performance, work motivation and work engagament. • Lower abseteeism and turnover. • Profesional growth.	• Limited social interaction: possible feeling of isolation. • May hinder collaborative efforts. • Dependence on self-motivation and discipline. • Boundary suspension.
COLLABORAT-IVE	• Promotes a culture of shared knowledge and continuous learning. • Enhanced communication and collaboration through digital platforms. • Improves team performance in shared outcomes. • Adaptable to fast-evolving digital landscapes.	• Potential overdependence. • Potential collaborative overload.

Source: Own work on the basis of Burton et al., 2015; De Clercq et al., 2011; Hackman & Oldham, 1976; Bakker & Demerouti, 2007, etc.

2.1.2 Methodology

2.1.2.1 Data collection and sample

In this study, an asynchronous expert panel approach was used to gather information on the research topic. A total of 25 experts in the fields of Human Resource Management and Organizational Behavior were selected as participants. The data collection process began by sending an email invitation to each expert, providing an overview of the study, its objectives, and the expected time commitment. The email contained a detailed configuration description and a carefully crafted Excel file to collect data on the research topic. This file contained rows enumerating different job design characteristics and columns dedicated to the different configurations. The experts were asked to carefully evaluate in each configuration, each job design characteristics separately and indicate whether it should be low or high level or whether it is irrelevant.

A total of 13 experts provided feedback by completing the questionnaire. The response rate for this study was therefore 52%. The sample (Table 14) included authors coming from Croatia, Finland, Italy, Netherlands, USA, Greece, Cyprus, Australia, and Slovenia. According to Google Scholar, their total citations range from 98 to 243604. Their research focuses on various topics such as work design, organization design, process management, innovative work behavior, knowledge hiding, career mobility, person-environment fit, sustainable HRM, workplace learning, entrepreneurship, well-being at work, job performance, job stress, economics, organization and management theory, work and organizational psychology, comparative HRM, work-life balance, and strategic HRM. Their research has been widely accepted and appreciated in the academic community, as evident from the high number of citations.

Table 14: Descriptive statistics

COUNTRY	FIELD(S)/RESEARCH AREAS	GOOGLE SCHOLAR CITATIONS
Croatia	job design, organization design, process management, innovative work behavior, knowledge hiding	2503
Finland	career mobility, person-environment fit, SHRM, sustainable HRM	680
Italy	organizational behavior, innovation, workplace learning, entrpreneurship	98
Netherlands	work, well being at work, job performance, job stress,	12100
USA	Economics, job design, new forms of work	4881
Croatia	organization design, HRM, orgaizational behavior, organization and managemet theory	102
Greece	work and organizational psychology	19648
Cyprus	comparative HRM, work life balance, strategic human resource management	3192
Netherlands	work engagement, burnout, crossover, job demands resources model	243604
Australia	feedback, reflection, organizational learning	9729
Australia	HR process research, perceptions, understanding and attribution of HR	8720
USA	HRM, orgaizational behavior, performance management, diversity and inclusion, turnover, psychological flexibility	3931
Slovenia	social networks (relationships at work), strategic and international HRM, careers, and teamwork/emergence	1467

Notes. Google scholar citations were obtained in May 2023.

Source: Own work.

2.1.2.2 Data analysis

Upon receiving the Excel files back from the experts, where they assessed each job characteristic within configurations as low, high, or could be low or high, some experts also provided explanations for their choices. After collecting all the responses, we analyzed the configurations, marking the consensus and noting areas of disagreement or elaboration. The qualitative analysis of the data collected from experts involved a detailed coding system to categorize their feedback on job design characteristics within the identified configurations.

Specifically, we employed a systematic approach where normal letters in our coding represented our initial theoretical propositions. Bold font was used to highlight additional conditions that experts agreed upon during the panel study, signifying a consensus on certain work design aspects. Conversely, italic letters were used to denote areas where no agreement was reached among the experts. This coding system allowed us to integrate expert insights with the theoretical framework effectively, enriching our understanding and application of proposed work design configurations.

2.1.3 Findings

The results of the panel study are shown in Table 15. Normal letters represent our original proposal based on theory, while bold font represents additional conditions based on the panel study on which the experts agreed, and italic letters indicate that no agreement was reached.

The discussion highlighted the nuanced configurations of work design and emphasised the need for a balanced approach in adapting to the changing demands of the future workspace. The differing opinions, particularly on the characteristics of the work context in different work designs, highlight the complex interplay of factors that make up an effective work environment. This research enriches the discourse on work design configurations and provides a solid foundation for further research and empirical validation of these configurations in real-world settings.

In the Enriched Work Design, consensus was reached on maintaining a high level for all job characteristics, while a low level was recommended for physical demands, contrary to the initial proposal. This adjustment reflects a thoughtful consideration of physical demands in enriched work environments.

In the discourse on Orderly Work Design, unanimous agreement was reached on low levels for all job characteristics, including specialisation, interaction outside organization and feedback from others, which is a departure from the original proposal. However, when discussing work context characteristics such as ergonomics, physical demands, work conditions and equipment use, a divergence of opinions diverged and recommendations ranged from low to high levels, illustrating the complexity of orderly work design.

For the Knotty Work Design, consensus was reached at a high level for all task, knowledge and social characteristics, but with divided opinions on specialisation and interdependence. The experts also suggested that interaction outside organization and feedback from others should be high even though that was not initially proposed. Furthermore, there was no unanimous opinion on whether ergonomic and physical demands should be high or low, indicating the nuanced considerations inherent in knotty work configurations.

The dialogue on Complicated Work Design revealed a lack of consensus on many aspects, including task variety, specialisation, interaction outside the organisation, feedback from

others, ergonomics and physical demands. Low agreement was found on autonomy, task identity, task significance, feedback from job, skill variety and social support, in contrast to high agreement on task complexity, information processing, problem solving and interdependence.

When examining Fragmented Work Design, experts agreed that all task characteristics except task identity were high and knowledge characteristics except specialisation were low. Social support was rated high, outside interaction low, but the panel could not agree on ergonomics and physical demands.

For the newly proposed Autonomous Work Design, there was unanimity on high levels for all task characteristics and low levels for social characteristics, with one exception for interaction outside the organization, where some experts believe that the level should be low, while some believe it should be high. There was no discussion on the knowledge and context characteristics, indicating a clear delineation of autonomous work configuration.

Finally, for the Collaborative Work Design configuration, there was consensus on low levels for all task characteristics and high levels for the social characteristics. There was no significant discussion for the knowledge and context characteristics levels except for problem solving, where opinions diverged between low and high levels.

Most disagreements happen because many characteristics can be treated as job demands or job resources, depending on the context. Experts therefore can not propose unambiguous work design configurations. As you can see in Table 15 there are lots of disagreements regarding levels of work context characteristics in almost all work design configurations.

Table 15: Work design configurations suggested by experts

	ENRICHED	**ORDERLY**	**KNOTTY**	**COMPLICATED**	**FRAGMENTED**	**AUTONOMOUS**	**COLLABORATIVE**
	high levels of (all) work design characteristics	low job demands and low job resources	high job demands and high job resources	high job demands and low job resources	low job demands and high job resources	independently carrying out one's job	needing to collaborate to get the job done
WDQ Task Characteristics							
Autonomy	high	low	high	low	high	high	low
Task Variety	high	low	high	*high/low*	high	high	low
Task Significance	high	low	high	low	high	high	low
Task Identity	high	low	high	low	*high/low*	high	low
Feedback From Job	high	low	high	low	high	high	low
WDQ Knowledge Characteristics							
Job Complexity	high	low	high	high	low		
Information Processing	high	low	high	high	low		
Problem Solving	high	low	high	high	low		high/low
Skill Variety	high	low	high	low	high		
Specialization	high	**low**	*high/low*	*high/low*	*high/low*		

To be continued

Table 15: Work design configurations suggested by experts (cont.)

	ENRICHED	**ORDERLY**	**KNOTTY**	**COMPLICATED**	**FRAGMENTED**	**AUTONOMOUS**	**COLLABORATIVE**
	high levels of (all) work design characteristics	low job demands and low job resources	high job demands and high job resources	high job demands and low job resources	low job demands and high job resources	independently carrying out one's job	needing to collaborate to get the job done
WDQ Social Characteristics							
Social Support	high	low	high	low	high	low	high
Interdependence	high	low	*high/low*	high	low	low	high
Interaction Outside Organization	high	**low**	**high**	*high/low*	*high/low*	high/low	high
Feedback From Others	high	**low**	**high**	*high/low*	*high/low*	low	high
WDQ Work Context							
Ergonomics	high	*high/low*	*high/low*	*high/low*	*high/low*		
Physical Demands	**low**	*high/low*	*high/low*	*high/low*	*high/low*		
Work Conditions	high	*high/low*					
Equipment Use	high	*high/low*					

Source: Own work.

2.1.4 Discussion and conclusion

2.1.4.1 Overview of the findings

The findings of the expert panel highlight the differentiated considerations underlying the various work design configurations. The differences between the configurations highlight the intricate balance required to align work, tasks, knowledge and social characteristics with overarching organisational goals and the evolving nature of work. The divergences and consistencies between the experts reflect the complexities of work design, especially in the face of dynamic organisational environments.

The divergences from initially proposed characteristics of some work design configurations, such as Enriched and Orderly Work Design, could possibly be attributed to the experts' collective experiences and deeper understanding of the practical implications of these configurations in real work settings. Their insights likely come from a variety of business scenarios that demonstrate the complex interplay of work design elements in promoting different outcomes (such as productivity, employee well-being and organisational effectiveness). As illustrated in Table 15, there's notable variance in opinions on the levels of work context characteristics across different configurations. This might suggest that certain characteristics, such as physical demands or work conditions, may not hold the same relevance they once did, particularly for knowledge workers where such aspects are often regulated. In today's digital work environment, it might be more pertinent to focus on the levels of ICT characteristics, reflecting the evolving nature of work and the increasing role of technology. This was already recognized by some authors, such as Suh and Lee (2017), and Fonner and Roloff (2010).

The lack of consensus on certain work context characteristics across several work design configurations highlights the complexity of adapting work design to specific organisational contexts. It becomes clear that it is difficult to develop a one-size-fits-all model and that a more tailored approach is needed that takes into account the unique needs, requirements and resources of different organisational settings.

Environmental unpredictability, interdependence, complexity, volatility and ambiguity may characterise future work. Uncertainty and interdependence reflect key concerns about the future and its implications for human relationships in a changing work context. Uncertainty requires more adaptive behaviour, while interdependence requires more social, team and network-oriented behaviour. In a highly dynamic environment, it may be more useful and adaptive for individuals and leaders to use more exploratory techniques to manage uncertainty, such as experimentation and improvisation (Gagné et al., 2022). Most organisations are not designed for fluid and dynamic interaction. Traditional design characteristics are inadequate for the dynamics demanded by more networked and co-evolving forms of work and relationships. As a result, the focus shifts to creating a conducive atmosphere for collaboration

(Adler & Heckscher, 2018; Barker Scott & Manning, 2022). Despite the emergence of increasingly autonomous and automated technical systems, the need for human labour remains. It's predicted that tasks rather than entire jobs will be automated, leading to marked interaction between humans and self-learning autonomous technology. This highlights the continued relevance of the joint optimisation principle of social and technical components in working systems, similar to early sociotechnical system design practises (Clegg, 2000; Waterson et al., 2015).

2.1.4.2 Theoretical contributions

Our research significantly advances the field of work design by adopting a configurational approach, which is essential for understanding the multifaceted nature of job characteristics and their interdependencies. By systematically exploring each job characteristic within various configurations, we've highlighted the complexity and the dynamic interactions within work design. This perspective is crucial for capturing the true essence of how work is organized and experienced in contemporary settings. Our study contributes to the theoretical understanding of work design by building on the configurational modes, such as SMART work design by Parker and Knight (2023). The main difference between our study and the framework proposed by them lies in our approach to conceptualizing work design configurations. While Parker and Knight's SMART work design model identifies higher-order categories of work characteristics, and proposes work configurations based on differen job characteristics (e.g., their autonomous work characteristics consist only of timing autonomy, method autonomy and decision making autonomy) our study proposes configurations that encompass different levels of all job characteristics from WDQ. Although our study does not empirically test these configurations, it provides a theoretical basis for understanding different combinations of job characteristics. By proposing configurations that encompass all job characteristics, our study provides a comprehensive framework for exploring the complex interplay between different aspects of work design. This approach allows us to consider the unique combinations of job characteristics that may be relevant in different organizational contexts and provides valuable insights for practitioners and researchers alike.

We've proposed specific configurations ripe for empirical testing, setting a solid foundation for a subsequent study. This forthcoming research will delve into how these configurations manifest differently across on-site, hybrid, and remote work forms, aiming to link them to distinct outcomes. Discussing the agreements and disagreements among scholars in depth helps advance theory by identifying areas where current frameworks may be limited or evolving. This process reveals gaps in existing research, suggests modifications to theoretical models, and proposes new hypotheses for testing. It pushes the boundaries of current understanding and encourages a more comprehensive exploration of concepts, ultimately leading to a richer, more refined theoretical landscape in the field of work design. Our work therefore enriches the academic discourse on work design and offers a practical blueprint for future investigations to

build upon, enhancing both theoretical understanding and practical application in diverse work environments.

2.1.4.3 Practical implications

In designing work configurations, specificity seems to be key. Understanding the context in which an organization operates is crucial for managers when choosing the right work design configurations. Different environments—be it dynamic and innovative or stable and predictable—require distinct approaches to work design to maximize employee and organizational outcomes. Managers should carefully evaluate their organizational needs, employee capabilities, and the overarching strategic goals to select configurations that will foster a conducive work environment, promote employee well-being, and drive organizational success. Tailoring work designs to fit these contexts ensures that the chosen configurations align with and support the unique characteristics and objectives of the organization. Each configuration offers unique advantages and faces distinct challenges, making it essential to tailor them to specific organizational and employee needs. For instance, enriched work design enhances satisfaction and creativity but also demands a culture of support and continuous learning, while orderly configuration on the other side offer predictability but may stifle innovation.

2.1.4.4 Limitations and future research directions

While this study offers valuable insights into the work design of knowledge workers, it also has limitations that need to be considered. The limitations of our current study arise from several key areas where the scope and depth of analysis could be extended in future research. First, although our study used the original Work Design Questionnaire (Morgeson & Humphrey, 2006), it did not include information and communication technology characteristics that could be important for new forms of work, as it was already recognized by some authors (e.g., Suh & Lee, 2017; Fonner & Roloff, 2010). This omission means that we may have overlooked how the integration and use of ICT can significantly influence work design and employee outcomes in today's digital work environment. Furthermore, our discussion of work design was conducted at a general level without addressing the intricacies of each specific form of work. This approach limits the applicability of our findings to specific contexts or work types, as optimal work design can vary significantly across different forms of work, each with their own unique requirements and characteristics. Last but not least, our analysis did not focus on a single, specific outcome, but discussed optimal work design in general terms. This general approach means that we did not assess the direct impact of work design configurations on specific aspects of employee job performance or well-being. A more focused examination of specific outcomes would provide a clearer understanding of the advantages and disadvantages of different work design configurations and provide more targeted recommendations for practitioners. Given the methodological limitations of our study, it's important to address the

decision to use a panel study rather than the Delphi technique as a notable limitation. This decision was primarily dictated by the limited time frame available to conduct this research, which required a more time-efficient approach to gathering expert knowledge. While the panel study allowed us to gather valuable information within this limited timeframe, the Delphi method, with its iterative rounds of expert feedback, would likely have provided a more in-depth, consensus-based analysis of the complex issues at hand. Furthermore, we focused on high and low levels of job characteristics to clearly identify their impact on work outcomes, avoiding the complexity that middle levels might introduce. Middle levels could indeed suggest a more balanced job design but might also obscure the clarity of configurations' effects. Furthermore, analyzing high and low levels allows us to explore the extreme ends of job design, providing stark contrasts in outcomes. Recognition of these limitations highlights areas that should be explored in future research.

Future productive work should involve both adaptive and proactive activities, such as innovating and creating new ways of working. The promotion of adaptive (responding to change) and proactive (initiating change) performance can be achieved by meeting the requirements of competence, autonomy and relatedness, as well as self-determined motivation. The second feature of the advancing work is the increasing interdependence between individuals, systems and technology. People will interact in more diverse and rich ways as communication technologies become more reliable, complex and fast (Gagné et al., 2022).

Consideration of work design issues is critical to understanding the potential impact of digital technologies and guiding technological progress towards a preferred work future. Given the extensive body of knowledge on the interrelationship between work design and individual, team and organisational outcomes (e.g., Morgeson & Humphrey, 2006; S. K. Parker et al., 2017), work design is considered core to understanding and designing new technologies. Each (observed) configuration has its own advantages and challenges (see Table 13) in the digital work context. The "enriched," "autonomous," and "collaborative" configurations particularly highlight the flexibility and adaptability enabled by digital technologies that can have a significant impact on work design and organizational outcomes.

Assessing the impact of technology is possible to the extent that it affects work design. For example, if technology de-skills work, it can be expected to affect motivation and learning outcomes. The impact of digital technologies on work design depends on various factors such as the characteristics of the technology, organisational characteristics and management decisions regarding the technology (e.g., Coovert & Thompson, 2014). Thus, an identical technology can have different effects on work design based on human-centred technology development approaches, current skill levels of employees, organisational strategy and design, among others. Companies have the opportunity to actively choose to improve the impact of technologies on work design and thus influence critical outcomes. Over time, human reactions to technology can change its use and thus influence work design, e.g. mistrust of technology can change its use and work outcomes (S. K. Parker & Grote, 2020). By shifting tasks such as assembly line or mining work to technological platforms, the variety of tasks and the

opportunities for workers to solve complex problems are increased. Certain technologies such as social media can increase social interaction and support for certain activities under certain conditions and thus enhance the possibilities for meeting relational needs (Gagné et al., 2022).

Since the likely continuation of distirbuted forms of work (such as hybrid remote work, virtual work, hybrid work, work from home, complementing traditional office on-site work; Lamovšek & Černe, 2023), it's imperative to find out how psychological needs can be met in such work settings. Emphasising autonomy and empowerment in virtual teams is essential for optimal team performance. Research involving the monitoring of team activities and interaction dynamics, including virtual communication protocols, over a period of time could be used to analyse the impact of needs support and hindrance among virtual team members (Gagné et al., 2022). Therefore the integration of information and communication technology characteristics into the discourse on work design configurations makes a lot of sense. The digital context has a significant impact on how work is designed, performed and experienced. The inclusion of ICT characteristics, such as IT complexity, IT presenteeism, pace of IT change (also labelled as techno uncertainty), technology overload and information exchange via ICT (Suh & Lee, 2017; Fonner & Roloff, 2010), could lead to a more holistic understanding of work design, especially in hybrid and distributed work forms. Furthermore, the digital context potentially changes the dynamics of collaboration, autonomy and task performance, making it imperative to consider ICT characteristics in future work design discussions and analyses. The integration of ICT characteristics may pave the way for a more comprehensive understanding of work design that is attuned to the digital age. It could also foster a more informed discourse on optimising work design configurations to realise the full potential of digital technologies while mitigating the associated challenges.

In the future we endeavor to explore the intricacies of work design configurations tailored to on-site, hybrid and remote forms of work. Following Morgeson and Humphrey's (2006) central work on work design characteristics, this study aims to decipher the nuanced ways in which these characteristics manifest themselves in different forms of work. The advent of digital technology has added a new layer of complexity to the modern workspace, necessitating a reassessment of traditional paradigms of work design. In navigating the contours of on-site, hybrid and remote forms of work, the focus is on identifying the optimal alignment of job design characteristics in each environment to promote productivity, engagement and well-being. Through the future research should aim to garner insights from a cadre of esteemed experts in the field, whose diverse perspectives could illuminate the path towards a holistic understanding of work design in the digital era. For future studies wishing to explore these topics in more depth should also consider the Delphi method as a more appropriate methodological choice, as it allows for a comprehensive exploration of expert perspectives.

2.2 Beyond the office walls: work design configurations for task performance across forms of work

2.2.1 Introduction

The changing nature of work is keeping managers, working professionals, employees, and policymakers curious about the future of work. The content, nature, and arrangements of tasks as well as relational and cognitive boundaries are shaping individual jobs and workplaces. In recent years, digitalization has been the main area of information systems (IS) research (Karanasios, 2022). The concept of digital transformation refers to fundamental and strategic organizational changes through the effective use of new information and communication technologies (ICT; Tabrizi et al., 2019; Vial, 2019). ICT has enabled the quick uptake of non-traditional (off-site) forms of work (i.e., distributed; arrangements that allow employees to organize and perform their tasks away from the physical location of the company; Gajendran & Harrison, 2007), such as hybrid and remote, as a counterpoint to the classic on-site work arrangements. The recent COVID-19 pandemic has only boosted the use of these novel and flexible work practices (Galanti et al., 2021; Jeske, 2022). The rejuvenated focus on these has added to the need for organizations to better understand and apply work design (i.e., the task content and structure of work pertaining to an employee's job; Hackman & Oldham, 1975) appropriate for specific forms of work that would enable employees to achieve higher task performance. Indeed, designing non-traditional (alternative) work arrangements is an important management challenge (Gratton, 2021; B. Wang et al., 2021). Certain design parameters (a distinct set of job or work characteristics; Morgeson & Humphrey, 2006) and their arrangements nevertheless remain all but unexplored by the existing research.

This omission is particularly striking as the existing body of knowledge informs us *either* about the role of specific job characteristics conducive to performance generally (e.g., autonomy; Khoshnaw & Alavi, 2020; Muecke & Iseke, 2019), *or* examines these characteristics in specific forms of work, such as distributed work (e.g., Golden & Gajendran, 2019), *or* produces merely theoretical models that include ICT or novel forms of work combined with work design (e.g., Ameri & Kurtzberg, 2022; S. K. Parker & Grote, 2020). What is lacking is a comprehensive, holistic, and all-inclusive work design approach to rigorously examine the interplay of multiple job characteristics for employee performance simultaneously, juxtaposing their effects across different forms of work.

We believe this can be achieved using a configurational approach/perspective that has already been shown to be useful in studies of work design (De Treville & Antonakis, 2006; G. Johns, 2010) because job attributes may be related in a reciprocal and nonlinear fashion, contrary to traditional models that examine linear relationships and unidirectional causation (A. D. Meyer et al., 1993). To combine case-oriented and variable-oriented analysis, fsQCA modeling is used. This methodology allows analysis of multiple cases in complex situations. Such a configurational perspective is based on causal complexity aspects; conjunctural causation,

equifinality, and asymmetry (Fiss, 2011; Charles C. Ragin, 2008). This approach has attracted interest in both IS and organizational studies (Sun, Rong, Sun, & Zhu, 2023) fields. The key purpose of this approach is to obtain configurations of job characteristics to produce particular 'paths' consisting of different levels of specific characteristics leading to higher levels of employee task performance. While job characteristics refer to individually perceived characteristics (e.g., autonomy, task variety) of work, work design configurations refer to possible combinations of different levels of these job characteristics (e.g., a combination of low work autonomy, high task variety, and high task interdependence). The most frequently recognized holistic approach stemming from the original motivational approach to designing jobs is labelled "enriched work design", which describes a configuration with high levels of all job characteristics simultaneously. However, this is quite a simplistic and extreme view of organizational and job realities. This explains why we intend to corroborate this line of research with an exploration of other work design configurations that might be more suitable, particularly for new forms of work.

Our main research question is: *Which work design configurations are associated with higher employees' task performance in different forms of work?* Our study intends to contribute to research on designing traditional and non-traditional work arrangements and the future of work in several ways. First, the propositions arising from our configurations attempt to add to understanding of how to set up a work design that leads to higher employee performance for different forms of work. We seek to complement a recently popular stream of research at the intersection of IS and organization studies that examines the nature and characteristics of different work forms (Golden & Gajendran, 2019; Gratton, 2021; Jeske, 2022). Specifically, we plan to complement the existing piecemeal or general research by identifying and comparing paths of configurations that benefit different forms of work, given that most research studies them separately or does so without delving into theorizing and empirical comparisons across forms of work. The fact new forms of work are strongly intertwined with technology causes us to believe the joint force of the IS field and organizational design is necessary and may represent a major approach to revising the assumptions made by each field in isolation and moving subsequent research on designing future work arrangements forward.

Second, we seek to advance studies on given job characteristics (e.g., the effect of task autonomy on performance; Langfred & Moye, 2004) and non-traditional work arrangements with a holistic approach referring to configurations. Employee performance in the context of a particular form of work is produced by the causal intricacy and multifaceted interactions among job characteristics. The literature on motivational work design identified job enrichment as one of such configurations that has traditionally been shown to boost employees' work motivation (Hackman & Oldham, 1976). This perspective highlights that work motivation, and thereby engagement and performance, can be increased by higher job enrichment, as achieved by high levels of job characteristics (i.e., skill variety, autonomy, feedback) simultaneously (Asl et al., 2015; Orpen, 1979; Umstot et al., 1976). Our aim is to corroborate this line of research by exploring other work design configurations that might be more suitable (and perhaps more

realistic and resource-friendly to achieve) in a particular form of work. The research seeks to contribute to establishing the complex pathways that lead to performance, stressing that this outcome is a result of multiple and interdependent explanatory conditions, not a single condition. Multiple pathways with almost equal importance may produce or lead to the same outcome, and certain antecedents will lead to the presence of a given outcome based on how they are combined with other antecedents or factors. This means that a given work characteristic with a positive impact on performance in one configuration may be irrelevant or inversely irrelevant on other pathways (Berg-Schlosser, de Meur, Rihoux, & Ragin, 2009; Fiss, 2011; Misangyi et al., 2017; C. C. Ragin, 2008; Woodsite, 2013). Understanding these pathways can provide researchers and managers with a much more nuanced understanding of the complex conditions related to work design in predicting performance and, moreover, with respect to specific forms of work. While Hernaus and Mikulć (2014) separately explored configurations of task, knowledge, and social characteristics on performance, our study advances this endeavor by investigating the previously separately studied tasks, knowledge, and social characteristics together.

Third, the pandemic has put a spotlight on the critical role of ICT in association with work, along with many of the accompanying challenges (e.g., working and learning from home). The importance of bridging across fields, such as management and organization studies looking at the IS field, is stressed in a recent literature review by Karanasios (2022). Noting that much remains to be known about new forms of work, we seek to complement the current conversation on job design in new forms of work (e.g., Handke et al., 2020; S. K. Parker & Grote, 2020; B. Wang et al., 2021). The importance of considering both technological and humanistic factors in the design of work has long been recognized by the advocates of socio-technical systems theory (Trist & Emery, 2015). Its proponents contend that the way work is done is just as important as the outcomes. Hence, to create a work design that is both effective and humane it is essential to combine technological changes with humanistic strategies (Mumford, 2006; P. R. A. Oeij et al., 2019). To create inclusive and supportive physical, digital, and virtual work environments for remote and hybrid work, designers and employers must consider the diverse needs and capabilities of employees. Only organizations that successfully address these challenges can take full advantage of remote and office forms of work. Our paper intends to contribute a piece of the puzzle to one of the future research directions suggested by Chafi, Hultberg, and Bozic Yams (2021); namely, that future research should focus on identifying the individual, group, and organizational strategies and the resources needed to promote health and well-being to manage the demands of hybrid form of work. This intended contribution directly corresponds to the call made in this special issue (Zamani et al., 2022) to identify differences between telework and hybrid working. Our study aims to either debunk or confirm whether work design configurations that benefit task performance differ between hybrid work and telework (remote work). We also compare that with an on-site form of work.

On a practical note, managers will gain insights into how to design work for different forms of work to provide employees with the best support for performing their tasks.

2.2.2 Theoretical background

2.2.2.1 Work design configurations and performance

An employee's task performance largely consists of the successes and results they achieve while working. It refers to the pursuit of goals while adhering to a plan. Organizational rules, procedures, and design elements hold a significant impact on the individual's performance in organizational settings (Cardy & Leonard, 2011). Prior research shows that an important path for increasing employee performance is through work design (Zareen et al., 2013). Nonetheless, most studies on work design (e.g., Khoshnaw & Alavi, 2020; Muecke & Iseke, 2019; Dysvik & Kuvaas, 2010) examine relationships between individual job characteristics with specific outcomes. For example, according to Dysvik and Kuvaas (2010) a relationship exists between job autonomy and employee performance, one that is moderated by intrinsic motivation. Kemboi and colleagues (2013) found a significant positive relationship between skill variety and performance, while Evelyne and colleagues (2018) confirmed the relationship between skill variety and employee performance, task identity and employee performance, autonomy, and employee performance, and feedback from the job and employee performance as well. All the mentioned authors explored the relationship between each job characteristic and performance separately. A more holistic, configurational approach has already been recognized as a potential fruitful way in studies of work design (De Treville & Antonakis, 2006; G. Johns, 2010) because their attributes may be related in a reciprocal and nonlinear fashion, unlike traditional models that examine linear relationships and unidirectional causation (A. D. Meyer et al., 1993). Work design configurations therefore entail possible combinations of different levels of job characteristics.

2.2.2.2 Hybrid form of work

While on-site and remote work are two extremes, hybrid work entails a mix of each (partly on-site work and partly remotely; Wontorczyk & Rożnowski, 2022). This new model provides employees with choice, enabling the spatial management of workloads and the ability to interact in proximity as deemed necessary (Halford, 2005). It combines the best of working on-site and working from home (Bloom et al., 2022). The model is designed to reserve certain days for meetings and collaboration in the office and remote days for work with an individual focus (Ro, 2020). It provides better employee experiences, greater access to talent, higher productivity for individuals and small teams, lower costs, and more individual flexibility (A. Alexander et al., 2020). In a recent experiment where Trip.com, a NASDAQ-listed global travel agent based in Shanghai, decided to assess a hybrid work-from-home model, the results showed the hybrid form of work was highly valued by employees, turnover decreased, while job satisfaction rose. More messaging and video calls were made even when all the employees were in the office, indicating a shift to more electronic communication (Bloom et al., 2022). Another recent field experiment found that hybrid work environments lead to an increase in

email volume, higher number of recipients per email, more positively toned emails and a greater novelty of work products. The study suggests that hybrid working could offer an optimal balance that provides flexibility while avoiding isolation (Choudhury et al., 2022).

However, to realize the potential individual and organizational benefits of hybrid work employers must provide support and flexibility and redesign both physical and digital work to meet the wide-ranging needs of employees. This includes ensuring that employees have access to the necessary technology infrastructure and receive training and support to help them navigate the new forms of work. Further, employers need to make sure that the work design and culture support both field- and office-based employees and that there is a sense of cohesion and inclusion across all locations (Chafi et al., 2021).

2.2.3 Methodology

2.2.3.1 Data collection and sample

We applied a rigorous multi-source research design (with supervisors assessing employee task performance) and targeted working professionals in Montenegro in March 2022 to establish a matched sample of 1,215 diverse employees (with supervisors). The employees were born between 1947 and 2003; 63% of them were female, and 45% held at least a university degree. At the time the data were collected, most of them (77.9%) were working on-site, 18.3% in a hybrid way, and 2.8% fully remotely. They were working in a range of industry sectors, from finance and insurance to manufacturing, healthcare, and educational services. Among the companies, 35.9% were public, and 21.6% were non-profit. Further, 62% of companies had 0–100 employees, 21.2% had 101 to 500 employees, 8% had 501–1,000 employees, 6% between 1,001 and 5,000, and others had more than 5,000.

2.2.3.2 Measures

The adapted WDQ questionnaire (Morgeson & Humphrey, 2006) was used in the employee survey (α= .898) to assess task (i.e., autonomy, task variety, task significance, task identity, feedback from the job), knowledge (i.e., job complexity, information processing, problem-solving, skill variety, specialization), and social (i.e., social support, interdependence, interaction outside the organization, feedback from others) characteristics. A sample item "The job involves a great deal of task variety."

A questionnaire by Koopmans et al. (2014) was used in the survey of 1,215 supervisors to evaluate employee task performance (α= .799).[7] A sample item: "He or she managed to plan his or hers work so that it was done on time."

[7] All items may be found in Appendix 3.

2.2.3.3 Data analysis

We used configurational analysis to explore how work characteristics interact in simultaneously present or absent arrangements of specific values of each characteristic to explain task performance. The configurational perspective generally stresses three aspects of causal complexity: conjunctural causation, equifinality, and asymmetry (Fiss, 2011; Ragin, 2008). Conjunctural causation indicates that a particular outcome is the product of several and interdependent explanatory conditions, not a single one (Misangyi et al., 2017). The second tenet of causal complexity that traditional regression-based methods disregard is equifinality. This principle suggests that different pathways with potentially equivalent importance may lead to the same outcome (Fiss, 2011; Katz & Kahn, 1978). Third, causal asymmetry denotes that certain factors relate to the presence/absence of an outcome based on their interaction with other predictors (Berg-Schlosser et al., 2009; A. Woodside, 2013). Asymmetry also emphasizes the possibility that any factor which can be positively related to an outcome in a given combination can be irrelevant or inversely irrelevant in another configuration (for further details of the configurational approach, see Misangyi et al., 2017).

To examine these aspects, we employ fsQCA to identify meaningful combinations of characteristics that lead to high levels of task performance (Ganter & Hecker, 2014; C. Ragin, 2008). Introduced and developed by Ragin (1999), fsQCA explores the link between all potential combinations of characteristics and an outcome based on set theory and Boolean algebra (Fiss, 2007). It goes beyond computing and assessing merely linear, potentially additive net (isolated) effects of each condition, and instead discloses combinatorial effects by depicting combinations of predictors found in configurations in relation to an outcome. It is widely used by scholars in different fields, with the information systems research area being no exception (I. O. Pappas & Woodside, 2021), especially to understand user behavior (J. J. W. Liu et al., 2017). Although Mendel and Korjani (2013) summarize the fsQCA method in 13 steps, we demonstrate the 3 main steps using fsQCA 3.0 (C. Ragin & Davey, 2016).

Step 1. Data calibration: Data transformation

The initial key step in fsQCA is calibration, that is, the transformation of values of characteristics and outcomes into fuzzy sets. Calibration can be direct or indirect, depending on the underlying measurements and theory. With the direct method, as was applied in this study, authors choose three qualitative anchors or breakpoints that denote the degree to which a certain case is part of a set (fully-in, crossover-point, fully-out), while with the indirect method researchers transform and calibrate factors based on qualitative assessments (Ragin, 2008). Given that our variables were measured on a 5-point Likert scale; “5” (strongly agree) to “1” (strongly disagree), we transformed the variables into calibrated sets of 4 (full membership 1), 3 (neither in nor out 0.5), and 2 (full non-membership 0) (Fiss, 2011; Pappas et al., 2017). The descriptives and calibration values for all characteristics are presented in Table 2A (Appendix 3).

Step 2. Necessary condition analysis

Prior to constructing the truth table and the sufficient condition analysis, each of the 14 characteristics and their negation (absence) is tested to explore their necessity for performing the task (C. Q. Schneider & Wagemann, 2010). Each characteristic is assessed based on the parameters of consistency, coverage, and relevance of necessity (RoN). A characteristic or its absence (negation) has relevance of necessity if its consistency is ≥ 0.90 (Dul, 2016; Schneider & Wagemann, 2010) and its coverage and RoN are ≥ 0.50 (Dul, 2016; C. Q. Schneider & Wagemann, 2012). Table 6A (Appendix 3) shows that task identity is needed for task performance (RoN= 0.62, 0.86, 0.78, respectively) in all forms of work. Further, information processing is necessary for task performance while working in the hybrid (RoN= 0.75) or remote settings (RoN= 0.90). While task variety is (almost) necessary for both the on-site (RoN= 0.63) and hybrid (RoN= 0.80) forms of work, feedback from the job is only necessary for the hybrid form of work. Interestingly, although social support has relevance of necessity for remote form of work (RoN= 0.82), it is trivial (less) necessary (its RoN scores are less than 0.50) when working in on-site (RoN=0.35) or hybrid (RoN=0.45) settings. These findings stress the INUS notion that each of these necessary conditions is essential to achieve high task performance, but on its own is insufficient to explain the outcome of interest.

Step 3. Sufficient condition analysis: Building the truth table and logical minimization

Through the fsQCA algorithm, this step involves establishing a truth table (see Appendix 3, Tables 3A, 4A, and 5A) of 2^k rows, where k is the number of characteristics and 2 denotes two states: presence or absence. Each row represents a possible combination of characteristics. To evaluate and refine the truth table, we considered three thresholds: *frequency threshold* (the number of observations for each possible combination), *consistency value* (‘‘the degree to which cases correspond to the set-theoretic relationships expressed in a solution”) (Fiss, 2011, p. 402), and the PRI (proportional reduction in inconsistency) threshold. To rule out less important configurations based on the sample size for each form of work, we specified 3 observations for on-site, 2 observations for hybrid, and 1 for remote (off-site) (Greckhamer et al., 2013; Pappas & Woodside, 2021). In addition, we specified a consistency value of 0.85, which is greater than the 0.80 (Ragin, 2006) as well as the 0.75 PRI threshold (≥ 0.50) (Mattke et al., 2022).

Applying the two criteria and performing a standard analysis generated three solutions: a complex, a parsimonious, and an intermediate solution. This study reports the intermediate solution, which usually includes both complex and parsimonious solutions (P. C. Fiss, 2011; Rihoux & Ragin, 2009). The results report values of consistency and coverage, which enable refining to produce consistent and sufficient configurations. Consistency (analogous to the path coefficient, β) explains the extent to which a predictor leads to a certain outcome. Coverage (equivalent to the coefficient of determination, R^2) measures the degree to which each solution predicts an outcome with values between 0 and 1 (Ragin, 2006; Schneider & Wagemann, 2010; Woodside, 2014). Tables 7A, 8A, and 9A (Appendix 3) show high overall solution consistency

ranging from 0.959 to 0.972, demonstrating how the combinations of 14 job characteristics enhance task performance. While the raw coverage reflects the proportion of cases described by a configuration, the unique coverage reflects the proportion of cases that can be described by only one configuration in the solution set. The results show the raw coverage ranges from 0.058 to 0.398, indicating that the configurations obtained may accurately predict high performance, which denotes the comprehensive empirical significance of those configurations (Ragin, 2008). Moreover, the findings emphasize the equifinality principle, which states that performance can be enhanced through different paths in different forms of work.

Predictive validity and robustness checks

We also examined predictive validity, which explains a model's ability to predict certain outcomes across several datasets. Following Pappas and Woodside's (2021) guidelines, we first randomly divided each dataset into two equal samples (a subsample and a holdout sample). Second, we ran the original analysis on subsample one before transforming the resulting configurations into new variables or models. Third, we tested the models that emerged from subsample 1 using the data from the holdout sample. Tables 7A, 8A, and 9A and the fuzzy XY plots (Appendix 3) display high consistency and coverage between the models and performance in different forms of work. The results are similar to the results for the entire sample, which reflects the predictive validity of the models. We also performed robustness checks by varying the consistency values. For example, we replicated the consistency cut-off with 0.80 instead of 0.85, where the fact the results were unchanged allows us to conclude that our findings are robust.[8]

2.2.4 Findings with propositions

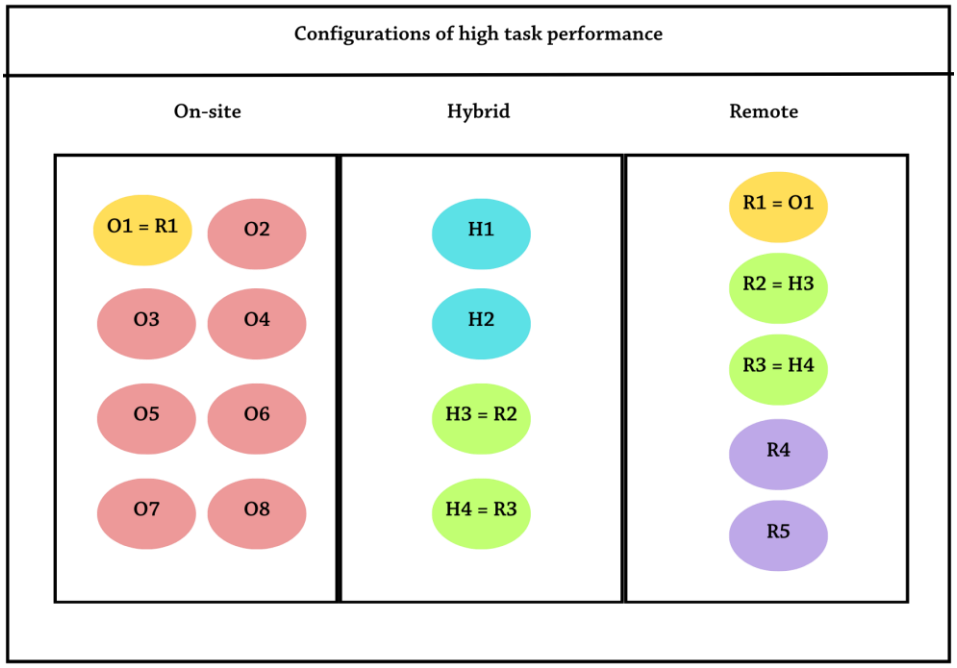
FsQCA typically provides three solutions: complex, parsimonious, and intermediate. As already noted, we included an extensive number of conditions in our configurational analysis. While this comprehensive approach was thorough, it did not permit the creation of a parsimonious solution, which typically identifies the most important conditions or 'core conditions' for all possible solutions. Our analysis thus shows intermediate solutions that contain both core and peripheral conditions, potentially complicating the interpretation of the configurations. This aspect is important for readers while evaluating the conclusions drawn from our research results. In this paper, we therefore focused on the latter because it contains simplifying assumptions that allow interpretation of the results (Fiss, 2011).

These results serve as the basis for propositions that outline necessary conditions, specific job characteristics, and holistic configurations for each form of work. Below, we present our findings, support them (where possible), and compare them with previous research, before suggesting some propositions that could be further explored in the future.

[8] All test results are available from the authors upon request.

In interpreting the findings, we use the following description: When it is stated that a particular job characteristic can be low or high, this means the fsQCA results show (displayed as a blank cell in Table 16) the level of that characteristic does not matter in the given configuration. When it is stated that a particular characteristic should be omitted, this means that the fsQCA results (shown as ⊗ in Table 16) reveal the absence of that characteristic or, in other words, the level of that characteristic should be very low. When it is stated that a certain job characteristic should be present in a given configuration, this means that the fsQCA results (shown as ● in Table 16) indicate the characteristic's presence or, in other words, the level of this characteristic should be very high. When a certain job characteristic is necessary, it is shown as ● in Table 16. The configurations for the on-site form of work are labeled "O" and range from O1 to O8. Similarly, the configurations for the hybrid form of work are labeled "H" and range from H1 to H4. The configurations for remote working are marked with an "R" and range from R1 to R5. Building on the findings from Table 16, our investigation revealed overlaps between different configurations in different forms of work, suggesting the presence of isomorphic patterns. Drawing inspiration from Park and Mithas (2020), we developed Figure 19, which concisely illustrates these overlaps and patterns and provides a clear visual representation of the interconnectedness of work configurations.

Figure 19: Comparison of configurations for high task performance



Notes: In the on-site work setting, one configuration (O1 and R1) remains consistent (orange), whereas in the hybrid and remote work settings, two configurations (green) share identical structures of job characteristics (H3 and R2, and H4 and R3). These observations highlight the presence of isomorphic patterns across various work forms and are illustrated with the same color in Figure 19, demonstrating how similar solutions could be employed to achieve task performance across forms of work.

Source: Own work.

Figure 19 reveals significant overlaps across different configurations of on-site, hybrid and remote work and illustrates isomorphic patterns that indicate a fundamental similarity of work design in different forms of work. In particular, the figure illustrates the overlap between on-site and remote work configurations, as both configurations do not allow for high job complexity, while interdependence and feedback from others can be omitted as well. Furthermore, the overlap between hybrid and remote work configurations, as illustrated, points to two distinct common characteristics: one where high job complexity is not allowed (but interdependence can be also omitted), reflecting the overlap between on-site and remote work configurations, and another that allows for job complexity but requires enriched job design (all job characteristics should be high). This second overlap suggests that certain forms of work can allow for complexity but require a comprehensive enrichment of job characteristics to ensure task performance. Hybrid and remote working, which share two configurations, illustrate the flexibility and adaptability required in modern working environments. These configurations highlight the critical balance between job demands and resources, and the importance of designing workplaces that not only challenge employees, but also provide them with the support they need to feel comfortable in their role, regardless of the work environment.

Table 16: Configurations of high task performance among different forms of work

Configuration element	**Configurations of high task performance in the ON-SITE forms of work**								**Configurations of task work performance in the HYBRID forms of work**				**Configurations of task performance at REMOTE forms of work**				
	O1	O2	O3	O4	O5	O6	O7	O8	H1	H2	H3	H4	R1	R2	R3	R4	R5
Job autonomy	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•
Task variety	●	●	●	●	●	●	●	●	●	●	●	●	•	•	•	•	⊗
Task significance	•	•	•	•	•		•	•	•	•	•	•	•	•	•	⊗	⊗
Task identity	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Feedback from job	•	•	•	•	•	•	•		●	●	●	●	•	•	•	⊗	•
Job complexity	⊗	⊗	⊗	⊗	⊗		⊗	⊗	⊗	⊗	⊗		⊗	⊗		⊗	•
Information processing	•	•	•	•	•	•	•	•	●	●	●	●	●	●	●	●	●
Problem-solving	•	•				•	•	•	•	•	•	•	•	•	•	•	•
Skill variety	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Specialization	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
Social support	•	•	•	•	•	•	•	•	•	•	•	•	●	●	●	●	●
Interdependence			•		•	•	•	•	•	•		•			•	⊗	⊗
Interaction outside the organization	•			•	•	•	•	•	•		•	•	•	•	•	•	•
Feedback (others)		•	•	•	•	•	•	•		•	•	•		•	•	⊗	•
Raw coverage	.329	.342	.334	.328	.317	.345	.287	.281	.338	.356	.346	.382	.252	.270	.398	.058	.065
Unique coverage	.026	.010	.005	.003	.006	.068	.010	.003	.030	.048	.038	.074	.016	.028	.161	.015	.015

Notes: (●) denotes the presence of a characteristic; (●) denotes that the characteristic is necessary; (⊗) indicates the absence of a characteristic. Blank cells indicate not binding characteristics.

Source: Own work.

2.2.4.1 Work design configurations in on-site work

The solution coverage was .504 and the model or solution consistency was .959. Two job characteristics – *task variety and task identity* – were revealed as necessary for employee performance while performing on-site work. The results showed nine possible configurations, with eight of them (see Table 16) including all necessary characteristics.

Necessary job characteristics for on-site workers. Past research found that autonomy, task variety, task significance, task identity, feedback from the job, specialization, and feedback from others are positively related to job performance (Grant, 2008; Humphrey et al., 2007; Morgeson & Humphrey, 2006). The results of our study show that high task variety and task identity are necessary for on-site workers to achieve high task performance. These three job design characteristics are therefore marked with M in Table 17, indicating a match between earlier research and our results.

These job design characteristics help create an environment where workers feel engaged, motivated, and supported, which in turn leads to better performance and productivity (Humphrey et al., 2007). High task variety makes it less likely for employees to become bored or disengaged (Tsai, 2016), while it is also vital for developing new skills, gaining new experiences, acquiring new knowledge, and future career development (Zaniboni et al., 2013). It is related to perceived performance, but also to job overload (Humphrey et al., 2007), which means it should be accompanied by other characteristics that buffer potential negative effects.

Task identity, on the other hand, helps employees understand the role and impact of their work on other activities in the organization, find their meaning, identify with their job, sustain their energy, and stay engaged (Robbins, 1990; Sonnentag, 2017). It provides a foundation for organizational learning and boosts employees' awareness of the entire process, understanding of the importance of their work, and status in the organization (Khayat & Gheitani, 2015), which can bring a positive long-term impact on employee productivity and performance (Tan & Olaore, 2021).

The job design characteristics marked with T in Table 17 indicate that their importance has been demonstrated in previous studies, yet were not found to be necessary for task performance in our study.

Proposition 1a: *High task variety and task identity are necessary for on-site workers to achieve high task performance*.

Complex on-site work requires additional job resources. Our findings are consistent with research by Golden and Gajendran (2019) that showed high job complexity can be detrimental to on-site workers. According to Sweller's (1988) cognitive load theory, learning and performance are hampered because heavy mental workloads deplete attentional

resources. High job complexity can lead to unplanned interruptions, wasted time, and an increased cognitive load, which can negatively impact task performance. The demand-control model (R. A. Karasek, 1979) introduces the idea that the combination of low job autonomy and high demands can lead to psychological distress, while high demands can be tolerated if autonomy is also on a high level. Employees can use their resources in such a demanding profession to handle the demands that arise, minimizing the negative impacts on stress and health.

The results of our study show that when more than two job characteristics are low, a less stimulating work environment is created for on-site workers. Low levels of feedback from the job and feedback from others can also lead to a lack of direction and guidance, which can negatively impact task performance. In these cases, low job complexity can help create a more manageable and less stressful work environment for on-site employees. More complex jobs call for flexibility and chances whereby employees can apply their sophisticated cognitive abilities and processes (Campbell, 1988). Job complexity was found to be related to creative performance when employees are working in a supportive work context (Shalley et al., 2009). Therefore, job complexity can potentially be high even in the on-site setting, but only when other tasks, knowledge, and social job characteristics are on a high level, allowing the job characteristic task significance to be low. In conditions of high task complexity, few cognitive resources are available (Van Gog et al., 2011), and thus need to be counterbalanced by other job characteristics.

Proposition 1b: *Higher performance in on-site work settings generally requires low job complexity. It is beneficial for other job characteristics to be on high levels. Still, certain combinations—such as: (i) interdependence and feedback from others; (ii) interdependence and interaction outside the organization; (iii) problem-solving and interaction outside the organization; and (iv) autonomy and problem-solving—can vary, being either high or low, without adversely affecting performance.*

Proposition 1c: *On-site work performance can tolerate high job complexity when supported by strong levels of other job characteristics, allowing task significance to be high or low*.

2.2.4.2 Work design configurations in hybrid work

The solution coverage was .500, and the model or solution consistency was .969. The results show that for hybrid work five job characteristics must be present at a high level: *task variety, task identity, feedback from the job and information processing.* The findings suggest four possible configurations, with each including all necessary characteristics (see Table 16).

Socially rich and varied hybrid work. Even though hybrid work has become one of the most popular and desirable forms of work (Iqbal et al., 2021), the topic remains under-researched and there is limited knowledge and understanding concerning which job design characteristics are necessary for high performance in this setting. The results of our study

show that in the hybrid setting, where employees are working both on-site and remotely, it is important to have the necessary characteristics of both (on-site and remote forms of work), while they also show the need for a high level of feedback from the job. Therefore, hybrid workers should have high task variety, task identity, job feedback, and information processing to achieve high task performance. All of these characteristics are shown in Table 17 and marked with R to indicate that these are the results of our study. Job feedback seems to be critical in the hybrid form of work since it helps employees understand how their work impacts the organization and how they can improve. If employees do not receive enough job feedback, they might struggle with accomplishing their tasks, feel more under pressure, and experience emotional exhaustion (Lambert et al., 2011). The hybrid form of work, as opposed to exclusively remote work, gives employees the opportunity to interact socially when needed. There is also some evidence that the daily information sharing among employees is greater in quality and the relationships are more intimate when people tap into new identities at home-based locations (Halford, 2005; Ollier-Malaterre et al., 2013; Waight et al., 2022). Managers also reported that in hybrid work arrangements there are new opportunities to talk to each other without being observed by others in the office (Halford, 2005). Thus, we propose the following:

Proposition 2a: *In the hybrid setting, a high level of task variety, task identity, job feedback and information processing is necessary for employee task performance.*

Complex hybrid work requires an enriched work design. To achieve high performance among hybrid workers, job complexity may be present, yet it must be supported by high levels of other job characteristics, such as task variety, task identity, job feedback, and information processing. When supported by high levels of these characteristics, such work can enable and motivate learning and lead to increased skill development and a sense of challenge (R. Karasek & Theorell, 1990), which can have a positive impact on task performance. In addition, we should note that only one of the following job characteristics can be low: Feedback from others or interaction outside the organization. This is because low levels of feedback from others can lead to a lack of direction and guidance (Gregory et al., 2011; Matsui et al., 1987) , which can negatively impact task performance. Similarly, low levels of interaction outside the organization can limit employees' ability to network and build relationships, which can also negatively impact employee engagement and task performance (Ahrne, 1994; Goštautaite & Bučiuniene, 2015; A. M. Grant, 2012). This is a major finding because job complexity is significantly related to goal setting (Campbell, 1988) and cognitive and motivational processes also serve as stimuli for strategy development (Locke et al., 1981) and lead to higher task performance (Campbell & Gingrich, 1986). Based on the Job-demands-resources model (Bakker & Demerouti, 2007), job complexity is seen as a job demand that can be buffered by different job resources (e.g., autonomy; Li & Burch, 2018; e.g., feedback from the job; O'Neill, Hambley, Greidanus, Macdonnell, & Kline, 2009).

Proposition 2b: *To achieve high performance among hybrid workers, job complexity can be present, but only when supported by an enriched work design, i.e., high levels of all other job characteristics.*

Proposition 2c: *In the hybrid setting, an enriched work design configuration promotes employee performance while job complexity is low, also allowing one of the following characteristics to be low: feedback from others, interaction outside the organization, or interdependence.*

2.2.4.3 Work design configurations in remote work

The solution coverage was .520 and the model or solution consistency was .972. The findings suggest that for remote work *task identity, information processing,* and *social support* are necessary job characteristics that must be present. Further, the results showed seven possible configurations, with five of them (see Table 16) including all necessary characteristics.

Enriched work design for remote work. Results from previous research suggest that individuals with more complex tasks, weaker task interdependence, and lower social support had greater positive relationships between the amount of remote work and supervisor-rated job performance (Golden & Gajendran, 2019). Similar research has shown that various job characteristics, such as task interdependence and job autonomy, influence the impact of remote work on well-being (e.g., Golden & Veiga, 2008; Paruchuri et al., 2018). According to Wang et al. (2021), social support is the most crucial aspect of remote work because it directly affects all barriers identified (e.g., procrastination, loneliness), which in turn positively influences performance and well-being.

The findings of our study indicate that remote work should include an enriched work design to enhance employees' performance. The job characteristics task identity, information processing, and social support (Charalampous et al., 2019; Vander Elst et al., 2017; B. Wang et al., 2021) were necessary, while almost all (except for feedback from others and interdependence) were shown to be needed in all configurations. This confirms not only the importance of task characteristics but also the importance of knowledge and social characteristics that are often neglected and underexplored (Kilduff & Brass, 2010), since frequently only task characteristics are explored (e.g., Sonnentag, 2017). Mediation analyses conducted by Peiró et al. (2020) for each path between job characteristics and job performance recently revealed partial mediation for 17 of 18 variables (except for the importance of work conditions), showing that the inclusion of all (not only task) characteristics is essential for performance. Social support was already recognized as a crucial factor for remote workers in previous research. When social support was not present, employees felt emotionally exhausted (Vander Elst et al., 2017). On the other hand, when social support was present, individuals felt less socially isolated, which increased their job satisfaction levels (Bentley et al., 2016). When workers feel supported and valued by their colleagues and supervisors, they are more likely to be engaged and motivated. This can lead

to higher productivity and performance, as well as greater job satisfaction and well-being. Social support also buffers the negative effects of stressful demands and helps build close and high-quality working relationships with colleagues, which can lead to better collaboration and teamwork (AbuAlRub, 2004; Caesens et al., 2014; Jolly et al., 2021). We therefore propose:

Proposition 3a: *For remote work, the following characteristics are necessary for task performance: task identity, information processing, and social support.*

Enriched work design for remote work enables job complexity or can work without feedback from others or autonomy. Research by Gibson, Gibbs, Stanko, Tesluk, and Cohen (2011) shows how essential psychological states like reported meaningfulness, experienced responsibility, and awareness of outcomes can be negatively affected by the high levels of perceived electronic dependence and a lack of copresence that often accompany virtual employment. However, increases in intimacy and identification, as well as improvements in work relevance, autonomy (J. Li & Burch, 2018), and feedback (O'Neill et al., 2009), may mitigate these negative effects. On this basis, we posit the following:

Proposition 3b: *For remote work, a fully enriched work design configuration promotes employee performance while allowing for high or low job complexity. If some job characteristics are not on a high level, job complexity should be omitted to achieve high levels of performance.*

Proposition 3c: *For remote work, when job complexity is low, task interdependence or task interdependence and feedback from others can be low in order to achieve high performance.*

2.2.4.4 The comparative analysis between the theoretical foundations underlying the potentially most beneficial configurations for each form of work and the QCA necessity analysis results of our sample

We portray the comparative analysis between the theoretical foundations underlying the potentially most beneficial configurations for each form of work and the QCA necessity analysis results of our sample in Table 17. T (theory) means that the positive relationship between this specific job characteristic and the employee's performance has already been recognized in other studies, but was not shown to be necessary in our study, whereas M (match) means that it was. R (results), on the other hand, means that this specific job characteristic was found to be necessary for employee performance in our study, whereas previous studies did not confirm this. An empty cell means that the job characteristic (for this specific form of work) was found to be necessary for employee performance in previous studies or in our study.

Table 17: Overview of necessary job characteristics based on theory and our results

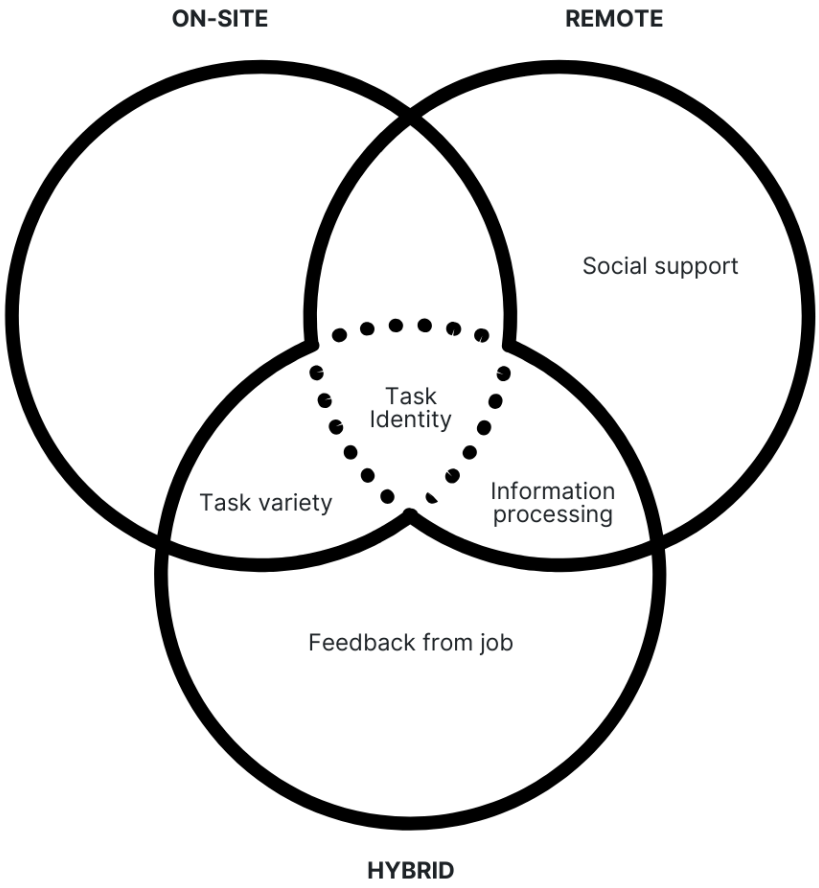
	ON-SITE	HYBRID	REMOTE
Job autonomy	T		T
Task variety	M	R	
Task significance	T		
Task identity	M	R	R
Feedback from job	T	R	
Job complexity			T
Information Processing		R	R
Problem-solving			
Skill variety			
Specialization	T		
Social support	T		M
Interdependence			T
Interaction outside the organization			
Feedback (others)	T		

Notes. T = backed up by theory, R = results of our study, M = clear match theory + results

Source: Own work.

In summary, the results of our research show that *task identity* is the most important (necessary) job characteristic for all forms of work in order for an employee to achieve their best task performance. Giving workers the opportunity to complete a clearly defined segment of work from start to finish with a tangible result inherently increases motivation and satisfaction. The visibility of outcomes allows employees to recognize the value and impact of their contributions and fosters a sense of accomplishment and ownership. This completeness of the process and outcome is critical since it aligns employees' tasks with their intrinsic motivators and encourages them to fully invest themselves in their tasks. When employees can identify with their tasks and follow their development, they are more likely to push themselves to excel, which benefits not only their own performance but also the overall organizational goals. For on-site work, a high level of *task variety* is also crucial as it provides employees with a range of different tasks and challenges that keep their work interesting and engaging. For remote work, high levels of *information processing* and *social support* are vital to enable employees to effectively process information, make decisions and mitigate the isolation that comes with physical separation and thus maintain the individual's task performance through continued engagement and mental well-being. In a hybrid setting, employees need a combination of some identified necessary job characteristics for on-site and remote work, plus additionally high levels of *feedback from the job*. The combination of these job characteristics supports employees' ability to process information, make decisions, and feel connected to their work, all of which are critical for high performance in a hybrid setting. *Job complexity* should be omitted in all forms of work unless the work design is enriched, and job resources successfully buffer challenging job demands. The differences and the intersection of necessary job characteristics among different forms of work are depicted in Figure 20 below.

Figure 20: Summarizing Venn diagram showing the intersection of necessary job characteristics among different forms of work



Source: Own work.

The Venn diagram (Figure 20) summarizes the essence of our findings and highlights task identity as a fundamental job characteristic necessary across all forms of work to maximize employee task performance. It emphasizes the importance of providing the employees with the opportunity to conduct clearly defined work with a visible outcome, which increases motivation, satisfaction and a sense of ownership, thereby increasing task performance. In addition, specific needs for task variety in on-site work, for information processing and social support in remote work, and for feedback in hybrid work environments are identified, suggesting that the optimal combination of job characteristics varies by work form to promote high task performance.

2.2.5 Discussion and conclusion

2.2.5.1 Theoretical contributions

Our findings contribute to the study of designing traditional and non-traditional work arrangements and the future of work. Our first theoretical contribution is related to complementing the research on motivational work design perspective that highlights job enrichment (i.e., all high levels of variables simultaneously) as a key configuration leading not only to motivation and engagement (e.g., Lunenburg, 2011; Umstot et al., 1976; Wood, van Veldhoven, et al., 2012), but also individual employee performance. This supports prior research on motivational work design (e.g., Orpen, 1979; Parker, 2014a). While the basic premise of this stream of research definitely held across our three studies as well, we corroborated it by providing specific, yet decisive nuances concerning the work design configurations most suitable for a given form of work. The key differentiating principles and specifics across on-site, hybrid, and remote work provide researchers and managers with a much more profound understanding of complex conditions related to work design when predicting performance in particular forms of work. Taking all these minor yet potentially crucial differences among configurations conducive to performance for different forms of work into account, our study may be seen as a stepping stone towards a theoretical model of work design that could be separate (different) in quality or quantity in terms of on-site job characteristics, hybrid job characteristics, and remote job characteristics. Since new forms of work are strongly intertwined with technology, we believe the combined forces of IS and organizational design fields are necessary.

Therefore, second, and on a related note, causal, equifinal, and asymmetrical pathways of work design configurations advance the study of designing jobs for different forms of work (Golden & Gajendran, 2019; Gratton, 2021; Jeske, 2022). We complemented the existing piecemeal or general research on job characteristics benefitting different forms of work that usually typically from flexible work arrangements, remote work/information systems, or telecommuting perspectives (Allen, Golden, & Shockley, 2015; Lange & Kayser, 2022; Wang et al., 2021). Our holistic approach focused on configurations revealed several vital principles for achieving task performance with work design and also compared the role of specific characteristics (when simultaneously viewed in combination with others) with the one found in prior research (usually viewed in isolation).

Addressing the central research question: "Which work design configurations benefit employees' task performance the most?", we found only subtle differences and nuances in the effectiveness of work design configurations across different forms of work: Nevertheless these distinctions are critical and underscore the importance of fine-tuning work designs to maximize employee performance. On top of the well-documented benefits of enriched work design that our study also supported, we found that to obtain higher levels of performance hybrid workers must have the most different work demands and resources (stemming from

their job characteristics) available simultaneously. This finding highlights the utmost difficulty in designing and managing hybrid work and emphasizes the importance of providing hybrid workers with diverse tasks and challenges, as well as resources, so they can perform at their best. Task identity was found to be pivotal and at high levels in all configurations studied for all forms of work.

High task variety and task identity are essential for workers to perform well on-site. Interestingly, our results suggest that low job complexity is generally favorable in this environment, meaning that performance in on-site work tends to be better fostered by simple, not complex work (Golden & Gajendran, 2019). This raises the question of the role of high performers in on-site environments and suggests that they may thrive better in roles with more clearly defined tasks and less cognitive overload. This holds important implications for work organization and work scheduling because routine, non-complex jobs can still be kept on-site without much loss of performance effects. This alludes to the importance of 'macro' work organization and forms of work literature to take stronger account of these principles stemming from motivational work design and job demands and resources. If on-site work is complex, it requires additional resources both social/ relational ones and cognitive ones (Van Gog et al., 2011), providing additional support for job enrichment.

Interestingly, these theoretical and practical implications are similar in off-site (remote and hybrid) work as well, which refers to the fact that work resources need to be matched by demands there as well and that managers cannot rely on the benefits of such work related to flexibility or autonomy as well. In line with earlier studies on designing remote and hybrid work, especially during the pandemic (e.g., Carroll & Conboy, 2020; Jämsen et al., 2022; B. Wang et al., 2021), our study points to the importance of relational and cognitive resources that stem from the design of work. The study shows that socially rich and varied hybrid or remote work provide the necessary resources to thrive in these work arrangements. Specifically, remote work requires task identity, information processing and social support for high performance. Unlike on-site work and hybrid work environments, we found two configurations where high job complexity does not hinder performance. This suggests that high performers may be well suited to complex tasks when working remotely, possibly due to the autonomous and flexible nature of remote work. It would be instructive to examine these two specific configurations to more profoundly understand how high job complexity can be effectively managed in remote work.

Another theoretically interesting finding relates to compensatory effects between certain job characteristics that perhaps entail a more opposite polarity than previously thought. This idea is not new; for example, Griffin and Chonko (2017) examined employees' preferences for core job design characteristics and determined that they prefer work feedback and job autonomy more than job variety and task identity. Yet, the novelty in our approach may be seen in the comprehensive treatment of work design configurations in this respect and in assessing compensatory effects within the realm of such comprehensiveness by relating them to a specific outcome, in our case, performance.

Examples of the compensatory or substitutive effects that we found are feedback from others and task interdependence in all forms of work. Employees apparently need relational connectedness, be it stemming directly from predefined work sequences embedded in the workflow or in the form of feedback from others. This corroborates prior research on relational work design and the social context of work (Freeney & Fellenz, 2013; Gittell et al., 2008; A. M. Grant & Parker, 2009) that is largely based on social exchange, reciprocity, and interconnectedness, or views social links as a resource counterbalancing the demands. In all forms of work, cognitive elements related to one's work were also found to be crucial, with at least one task identity or task significance needing to be present to achieve high levels of performance. This means non-routine and non-complex on-site work design needs to be mindful of the internal regulatory mechanisms and cognitive perceptions related to cognitive job characteristics, with social-cognitive theory perhaps offering the promise of explaining these effects.

The differences in work design configurations most beneficial for fostering performance across the three studied forms of work are not *that* different, and their key principles stem from the motivational benefits of enriched work design. This could be due to these work design models simply being unable to capture the complexity and technology-founded nuances of hybrid and remote work. Accordingly, another implication of our findings is that subsequent research should not merely follow the foundational work design models (Bakker & Demerouti, 2014; Hackman & Oldham, 1976; R. A. Karasek, 1979; Morgeson & Humphrey, 2006), but importantly extend them into the domain of human–computer interaction and include both aspects of virtuality and materiality (Nardi, 2015). This would constitute a novel approach that would help reduce the confusion that occurs when comparing various jobs under these different work arrangements. Comparing the same job across different work forms can help us better understand how the specific characteristics of ICT-enabled work and on-site work affect job performance. It is crucial to acknowledge that the design of work is changing and hence that future research should also include some new potentially substantial job characteristics; specifically: IT complexity, IT presenteeism, pace of IT change, intensity of teleworking (Suh and Lee, 2017), ICT use (Raghuram et al., 2019), technology overload and information exchange via ICT that involves information exchange frequency and quality (Fonner and Roloff, 2010), multitasking, demand for constant learning, non-work-related interruptions, and boundarylessness (Xie et al., 2019). Further, activities, systems, and services are today becoming ever more game-like. Gamification (i.e., the development of information systems that provide game-like motives and experiences to change user behavior) has become increasingly popular in recent years, leading to a rise in the number of gamified apps and studies. Koivisto and Hamari (2019) provided a thematic agenda point suggesting that future gamification research should consider gamification not only as a human–computer interaction or information system innovation but also as organizational and individual practices reminiscent of those observed in games. In line with this, we believe work design could also be one of the critical factors influencing motivation for new forms of work.

This endeavor seems particularly promising in light of the importance of job complexity as a difference-maker across forms of work, as revealed by our findings. Complexity theory (Byrne, 1999; Byrne & Callaghan, 2023) could thus serve as a 'bridge' for such research avenues. This perspective has previously been applied to the design of complex systems of organizational structures and processes (Brodbeck, 2002; Fish & Hardy, 2015; Lewin et al., 1998), but could be implemented in future research at the level of work and jobs when different levels of task complexity are in focus.

The third theoretical contribution involves the confirmation of earlier suggestions (Zamani et al., 2022) that hybrid work impacts work configuration more than remote work in the sense that configuring work in hybrid forms is a more complex task than in other ones. As noted as a potential proposition (Zamani et al., 2022), and confirmed by our findings, hybrid work permits more job categories and tasks to span work and non-work boundaries and its impact on work configuration and social relations at work is accordingly greater than telework. Our study suggests that hybrid workers require all the job characteristics that on-site workers and hybrid workers combined, together with high feedback from the job, to achieve high task performance. These findings complement the previous studies on work design in new forms of work, for example, a recent study by Handke et al. (2020) that explored how work design shapes the impact of team virtuality on team functioning. We add to their research by adding more job design characteristics, providing a more holistic approach, and comparing three forms of work, not just virtual work. Our research is also more specific, focusing on task performance rather than the team level.

To capture the human–computer interaction in hybrid and remote work, actor-network theory or theoretical perspectives stemming from digital communication studies (media synchronicity theory, media richness theory) could be integrated into motivational work design frameworks, and novel characteristics of work that span across different characteristics of distributed work and technology-mediated labor may be introduced and theoretically intertwined with those models. The increasing use of work technologies in companies means that they are no longer just used as instrumental tools for individual office work. Instead, these technologies have become important tools for social interaction and community building within organizations and have even taken on leadership roles with the help of advanced artificial intelligence capabilities. Such advances in work technologies make it clear that they hold the potential to transform the nature of work and the role of technology in the work (Baptista et al., 2020).

We also believe that with the 'new normal' it is critical to study human behavior in the development, building, and use of technologies as more and more COVID-19-related technologies are developed, integrated, and used by governments, businesses, and people. Many pandemic mitigation initiatives are taking advantage of new technological developments and methods that integrate multiple systems and breakthroughs. Still, we must be aware that individuals' misuse of technologies can compromise the effectiveness of technological interventions or countermeasures to combat the coronavirus outbreak. By

incorporating the knowledge of human behavior into the design and development of technologies, IS and technology scientists can contribute to the development of more useful technologies. IS and technology scholars, along with organization design scholars, could on the other hand, contribute our knowledge, experience, and time to better prepare societies, economies, industries, and specific firms for future critical events (e.g., pandemics; He et al., 2021).

2.2.5.2 Practical implications

On a practical note, our research provides managers with insights into how the work design configurations that are most beneficial for task performance vary between on-site, hybrid, and remote work. This has far-reaching implications for work organization and the establishment of organizational policies related to different forms of work and their combinations. It is essential that managers go about this task by viewing our suggestions related to work design configurations for specific forms of work as guidelines, while necessarily adapting them to their employees' nature of work, individual characteristics and preferences, and organizational characteristics. To do so, they can follow a three-step approach: (1) diagnosis: understanding the nature of each employee's work, individual characteristics, and preferences; (2) definition of the predominant form of work based on the first step; and (3) implementation of a work design configuration that corresponds to the previous two steps.

In the implementation phase, managers and designers of work and IS in organizations can take our specific findings into account. Specifically, perhaps to not much surprise, the enriched work design perspective was supported by our research and shown to be the most suitable. This discovery indicates that by inducing generally high levels of core task, social, and knowledge characteristics simultaneously, one can expect the best results in terms of employee performance. Managers designing work across all forms should thus generally be encouraged to increase the task variety (increasing the diversity of different work tasks), add meaning to jobs (connecting tasks to individuals' intrinsic passions, motives, and goals), create autonomy (enabling greater freedom in work scheduling and methods of tackling tasks), and provide feedback. They should also design work in a social/relational manner (increasing task interdependence, providing collegiate support, and potential interactions within and outside the organization) and in a way that requires high levels of cognitive skills (Hackman et al., 1975; S. K. Parker, 1998) at once.

Complementing these clear and well-established practical avenues related to inducing job enrichment, our findings are useful for managers designing work where the nature of work itself perhaps precludes involving high levels of particular job characteristics like autonomy or complexity. In particular, for different forms of work we have shown that high levels of complexity must be complemented with other high job characteristics. The results show that

the job characteristic necessary in all forms is task identity. Managers should namely strive to design tasks that are meaningful and contribute to the overall goals of the organization.

The low job complexity prevalent in most solutions suggests that high-performing workers often thrive in environments where cognitive overload is minimized. This contrasts with the common assumption that high performers always require considerable complexity to remain engaged and challenged. In the field and in hybrid work environments, it appears that providing clear, well-defined tasks with a low cognitive load enables these employees to perform at their best. This suggests that in hybrid work environments, where employees move between remote and on-site work, effective management of work complexity, feedback from the job, and social support are critical. Even though hybrid work offers flexibility and the potential for varied tasks, overloading employees with overly complex or cognitively demanding tasks can be counterproductive. Hybrid work may thus require a careful work design that considers the cognitive load and balances it with the flexibility and variety of tasks. These findings on the role of job complexity in hybrid work are essential for managers and organizations developing hybrid work strategies. The findings emphasize the importance of creating a balanced work environment that takes cognitive needs into account and leverages the unique benefits of both remote and on-site work.

While working on site, the combination of low job complexity with high task variety and identity seems to be an advantage. This means that while tasks should not be very complex, they should still offer variety and make a clear contribution to the organization's overall goals. This balance can lead to higher job satisfaction and a greater sense of fulfilment among high-performing employees. For managers, this entails creating on-site jobs that are not overly complex, yet still contain varied and meaningful tasks. This can help to keep high performers engaged and motivated.

For remote work, high levels of information processing are beneficial for task performance. Managers should hence enable remote workers to monitor a great deal of information and engage in a considerable amount of thinking. The exception, where high job complexity does not affect performance, may be due to the autonomous and flexible nature of remote work. High performers may be better able to manage complex tasks in remote work where they have greater control over their work environment and fewer immediate external stressors. For task performance in remote work settings, social support is also necessary. It facilitates the internalization of work roles and provides employees with more resources and task-directed help, which increases the employees' in- role performance (Brotheridge & Lee, 2002; Karatepe, 2011). This spotlights the importance of considering not only task characteristics, but also social characteristics (Kilduff & Brass, 2010; Peiró et al., 2020). Finally, hybrid work combines almost all of the identified job characteristics for on-site and remote settings and additionally requires high-level feedback from the job. Managers can structure hybrid work in such a way that employees receive regular, meaningful feedback on their performance, goals, and objectives. This feedback can come through a variety of channels, including regular performance appraisals, goal setting, and tracking.

But perhaps most importantly of all, on the basis of our research managers are encouraged to consider designing jobs not merely as a practice of inducing high levels of a particular job characteristic deemed conducive to performance by prior research, but to instead adopt a holistic approach. This means carefully considering the context (i.e., forms of work) and being mindful of the combinations that were established to indeed lead to task performance in given settings.

At the same time, matching these configurations in terms of demands-resources fit as well as in actual nature of tasks with the social, cognitive, and technical skills and expertise of job incumbents (person–job fit) remains equally pivotal to merely designing challenging work (Beer et al., 2018; Schaufeli, 2017). The normative theory of organizational efficiency and effectiveness originally focused on how to organize tasks so that they are performed efficiently, and how to establish and maintain mechanisms for coordinating the various organizational mechanisms of authority. Today, the focus is on how to create an organizational environment in which employees are motivated to join, stay in, and contribute vigorously and effectively to the organization's goals (Simon, 1973). Therefore, in addition to designing work, our research holds implications for the human resource management (HRM) practice of recruitment and selection. Here we have in mind matching job incumbents with particular job configurations and their 'ideal' form of work based on their individual characteristics and preferences. It also serves to support HRM practices of training and development with regard to closing potential gaps in the individual characteristics required for job incumbents to thrive in a particular configuration best suited for their dominant form of work. The aim of this is to make sure that the right profile of potential incumbents is both externally recruited and internally developed in order to ensure a person–job and person–environment fit (Boon et al., 2011; Carless, 2005) with respect to work design configurations in specific forms of work.

2.2.5.3 Limitations and future research directions

Although we believe that this research provides a significant and unique perspective on work design in different forms of work, we are aware of some limitations of our work and opportunities for improvement in future research. First, we acknowledge that we did not consider the characteristics of work context design (i.e., ergonomics, physical demands, work conditions, equipment use) that form part of the work design framework proposed by Morgeson and Humphrey (2006), which could lead to differences in the findings, despite perhaps not being as important in the changing nature of work. For future research, we suggest that studies include all proposed job characteristics to obtain an even more comprehensive take on our results and combine them with these contextual characteristics as well. Since ICT use has a significant impact on the nature of our professions and workers' work experiences as it grows ever more ingrained in today's increasingly digital businesses (B. Wang et al., 2020), we suggest that future research examine the characteristics of ICT-enabled work compared to on-site work for the same job. The inclusion of traditional job

characteristics in any theoretical development is necessary, even though they may need to be adapted to the modern context. The consideration of modern forms of work and employment reveals that a broader range of job characteristics must be incorporated (Lamovšek & Černe, 2023).

Moreover, our data were collected right after the pandemic period, which means that there could still be some influence from extreme, unpredictable situations. It would be interesting to see if certain configurations change when the environment is more stable and 'normal'. Further, the data were collected in Montenegro, and hence there could be some cultural influence as well. In addition, forms of work were not evenly represented as the majority of employees were working on-site, and fewer of them in hybrid and remote work arrangements. For future research, we also propose to consider some psychological factors that predict the individual adaptation of workers to remote work. During the pandemic, many employees were forced to work remotely and may have encountered difficulty adjusting. Employees who believe they can acquire the skills needed for remote work may be open to it, while those who believe it requires innate talents may risk being left behind (Howe & Menges, 2021).

We should also mention that in our research we chiefly focused on identifying work design configurations that improve task performance. While this approach provided valuable insights into optimizing employee performance, it is important to recognize that it did not take account of potential drawbacks like increased stress or burnout. The drive for higher task performance can inadvertently lead to work environments that are great for performance but can negatively impact employee well-being. Factors such as increased workload, constant connectivity, and blurred boundaries between work and personal life, which often accompany optimized work structures, could add to stress levels. Future research should thus consider the holistic impact of this work design and ensure that the pursuit of performance does not come at the expense of employee well-being.

To conclude, based on our findings, implications, and future research suggestions, it is clear that we must keep adding to our understanding of work design configurations and their interplay with IS for different forms of work.

2.3 The work design puzzle: Untangling its relationship with work-life balance across different forms of work

2.3.1 Introduction

Major shocks, such as the COVID -19 pandemic, have led to a significant shift in work dynamics, blurring the lines between work and home even more (Chan et al., 2023). Hence, it has become increasingly difficult to find a work-life balance (WLB; Haar & Brougham, 2020). Information and communication technologies (ICTs) play a critical role in facilitating

new forms of work, such as remote work and hybrid work (Raghuram et al., 2019). These technologies eliminate the strict requirement of physical presence in the office and enable workers to be virtually available from anywhere at any time (Gajendran & Harrison, 2007). While in some research the findings show that proliferation of technology has contributed to an increase in work-life conflict, leading to higher stress levels among employees (H. Li et al., 2021; Sarker et al., 2018), others report that new forms of work increase perceived WLB (E. Yang et al., 2023).

These issues are important because numerous empirical studies have shown benefits of WLB for both employees and employers (Eby et al., 2005). While it is associated with improved psychological well being (Eby et al., 2005), research also showed that when WLB initiatives are strategically implemented in organizations, it improve workforce recruitment, performance, engagement, and commitment (Hyman & Summers, 2004), and increase employee productivity and motivation (Lazăr et al., 2010). Needeless to say, WLB is a widely researched phenomenon, the aforementioned perplexity about new forms of work warrants further research to understand its antecedents and consequences (J. Haar & Brougham, 2020) in the new reality.

Current reports suggest that there is a discernible trend toward a broader range of remote work configurations, including hybrid models, which are likely to expand gradually in response to organizational and individual preferences and contextual factors (Gascoigne, 2021). While interest in remote work is growing, it is imperative for human resource (HR) practitioners to help employers make well-informed decisions about the nature and intricacies of remote work arrangements (Shirmohammadi et al., 2022). A recent study highlighted that work-related factors may contribute to work-life imbalance, and that the presence of personal obligations may affect WLB, especially in remote work, where work extends beyond established work hours or in the early stages of remote work (Bellmann & Hübler, 2020a). Furthermore, a recent systematic review by Chan and colleagues (2023) emphasized the need for interventions at multiple levels and from multiple agencies to address the multi-layered and diverse demands of working life. In addition, Chatterjee and colleagues (2021) suggested that it would be interesting to explore whether humanistic outcomes such as WLB are enhanced or compromised by new work environments, which will be of value to the information systems (IS) community. We want to correspond to these suggestions and complement previous research on WLB in a way that we will explore the phenomenon through the lens of work design, while also advance them with the direct comparissement between different forms of work.

Hence, the main purpose of the paper is to contribute to enhancing understanding of how to best design work for different forms of work. The study aims to obtain configurations of work design characteristics, i.e., specific levels of particular characteristics in combination with all other characteristics, to produce particular ‘paths’ consisting of different levels of specific job dimensions leading to highest levels of employee WLB for different forms of

work. Our main research question is: *Which work design configurations most benefit employees' work-life balance across different forms of work?*

The study bases, theoretically, on the (extended version of) the Job Demands Resources Model (JD-R; Bakker & Demerouti, 2017), that offers a dynamic view of the interplay between job demands and job resources. While Haar and Brougham (2020) found that job autonomy, job control, and job demands as important predictors of WLB, and Lamovšek, Černe, Radević and Božič (2022) found that enriched work design (i.e., work design configuration where all job characteristics are on a high level) is positively related to to WLB in on-site work, indicating that work design plays a role in predicting WLB, our study will advance this line of research in three ways. Firstly, by researching and comparing the influence of work design among different forms of work. Most of the existing studies on the matter researched on-site or remote separately, while some both of them together, none (to the best of our knowledge) yet compared all three different forms together. Our study will therefore advance the extended JD-R model, and contribute to the future of work conversations by examing work design through these novel forms of work lenses.

Secondly, we will advance the work design research by considering not only extended work design characteristics developed by Morgeson and Humphrey (2006), but also newly identified ICT characteristics (i.e., IT complexity, IT presenteeism, pace of IT change, technology overload; Suh and Lee, 2017; Raghuram, (i.e., IT complexity, IT presenteeism, pace of IT change, technology overload; Chan et al., 2023; Raghuram et al., 2019; Suh & Lee, 2017) that could be potentially important in modern work. With that our study will also complement the recent research by Martineau and Trottier (2022) who examined the influence of two work design characteristics, specifically autonomy and job feedback, on work-life conflict (WLC), and correspond directly to their future research avenue suggestion to examine other dimensions of work design outlined in the model of Humphrey et al. (2007). As they suggested, exploring these other characteristics would provide a deeper understanding of how the various elements of work design interact and influence employee outcomes.

Last but not least, by applying the fsQCA, our study will take a holistic approach to work design configurations. Our research will therefore not focus on specific job characteristics and their individual influence on WLB, but will explore their joint effect (i.e., work design configurations). With the latter, we intend to contribute to the recent study by Farivar and colleagues (2022) that explored work-life conflict using fsQCA. In their future research they suggested using this approach to examine configural phenomena and evaluate the combined effects of multiple concepts as a unique set on a given outcome.

A notable shift in employee preferences toward WLB as the primary motivator for their current job, ahead of salary considerations (Urquhart, 2022), shows the explored topic is crucial not only for academics, but practitioners as well. Our paper will therefore help managers to understand the importance of proper work design for employee WLB, while it

will also highlight main differences between on-site, hybrid and remote form of work. It will complement the existing practical recommendations made by Chan and colleagues (2023) by focusing on team/organizational- level HR strategies and examining the potential impact of work design on WLB, focusing specifically on different forms of work. The paper will connect conversations about HR management and development practices, and organizational design (OD), more specifically about the best effective work design practices, and conversations about the future of work. It will bridge the literature on work design, digital work (which is primarily done through ICT and investigated in the information systems field), and the future of work (organizational behavior).

2.3.2 Theoretical background

2.3.2.1 Work-life balance significance

Work-life balance research is a multidisciplinary field that includes areas such as management and organizational studies, HR, psychology, sociology, and family studies. As a result, scholars have been motivated to conduct extensive research examining various dimensions of WLB. Hence, there are various WLB theories (e.g., Overall Appraisal, Human Capital, Boundary and Integration Theories), conceptualizations and operationalizations of this construct (Bello & Tanko, 2020).

The term WLB was coined in 1986 and developed into a comprehensive concept that encompasses different perspectives and prioritization of life and work (Rincy & Panchanatham, 2014). The first term, 'work-life,' encompasses awide range of different constructs that include theconnection between paid work and other non-work activities that can be labelled 'life' (Chang et al., 2010). The second term 'balance' refers to achieving stability and harmony between different areas of life and work (Clarke et al., 2004). There are many different definitions of WLB. While Clark (2002; p.751) for example defines it as »*Satisfaction and good functioning at work and at home with a minimum of role conflict*«, Kalliath and Brough (2008; p. 326) define it as »*Work–life balance is the individual perception that work and nonwork activities are compatible and promote growth in accordance with an individual's current life priorities*«. This study adopts the definition of WLB taken from Omar and Zakaria (2016), which conceptualizes WLB as the state of equilibrium in which individuals can effectively manage and maintain a sustainable balance between the demands of their work and non-work lives. This perception-centered approach acknowledges the uniqueness of each individual. It further recognizes that an employee's sense of balance between work and non-work roles is subjective and influenced by personal life values, priorities, and goals (Kossek et al., 2014; Valcour, 2007).

WLB had been linked to many work and non-work related outcomes, such as improved job satisfaction (Jackson & Fransman, 2018), performance (Johari et al., 2018) and organziational commitment (Hutagalung et al., 2020), lower depression and anxiety, higher

life satisfaction (J. M. Haar et al., 2014) and lower burnout (Kocatepe et al., 2023). Harmonious integration of work and personal activities is critical to improving workers' overall well-being (Peng et al., 2011).

WLB has emerged as an important issue in response to changes in the workforce characterized by the growing presence of new generations which seems to have different expectations and preferences compared to older generations and desire a better work-life. The results showed that job satisfaction, flexibility and freedom, and feedback and support significantly affect the WLB of Millenials (Tennakoon & Senarathne, 2020). Rainer and Rainer (2011) identified a good WLB as the most important factor influencing this generation's job choice. This inclination may be due to their observations of parents who work long hours, prioritize work over family, and remain loyal to their employers only to lose their jobs when downsizing occurs (Lyons et al., 2012). Millennials value making time for family and friends and pursuing leisure activities in addition to their work commitments (Pasko et al., 2021; Twenge et al., 2010). While monetary incentives are often used as motivators in the work, employees who value WLB are less likely to be motivated by financial rewards if these benefits do not contribute significantly to the overall quality of their lives (Kaplan, 2021; Morgan, 2021).

Organizations play a critical role in helping employees effectively manage their work and personal lives. In a work context with where employees face multiple job demands that extend beyond their regular working hours is even more important for organizations to promote WLB among their employees and encourage individuals to achieve harmonious integration between their professional and personal domains. This approach enables employees to effectively manage their time and make a conscious decisions between their professional and personal commitments (Duan et al., 2023; Selim & Kee, 2023). It is suggested that WLB initiatives should be strategically designed and embedded into organizational culture to benefit employees and their respective organizations. In order for employees to achieve a healthy WLB, it is imperative that they are granted autonomy to fully enjoy their lives both inside and outside the work (Moore, 2007). WLB has proven to be a major factor in employee turnover in numerous companies. The lack of autonomy and the presence of rigid work schedules that prescribe certain methods, times, and places for task completion are the main factors leading to this problem (Nalla & Cobbina, 2017). Consistent with JD-R theory, organizations can buffer job demands (e.g., work overload) with job resources (e.g., autonomy, and job feedback; Bakker, Demerouti, & Euwema, 2005). Jindal and colleagues (2013) found a positive relationship between work design and work-life balance, suggesting that higher levels of work design lead to higher levels of work-life balance.

2.3.2.2 Diverse forms of work, one goal: Improving work-life balance through work design

The concept of work design has attracted considerable attention from researchers and practitioners in the field of the future of work, digitization, and organizaitonal design. It has been the subject of extensive research and analysis in academic circles as well as practical applications (Lamovšek & Černe, 2023). Work design encompasses various job elements, including roles, responsibilities, tasks, and activities, focusing on input information, work process, work outcome, and work context (Ferris et al., 2008; S. K. Parker, 2014). It provides a comprehensive framework for understanding and designing the components that contribute to the nature and structure of work within an organization. Traditional theories of work (e.g., Hackman & Oldham, 1976; Humphrey et al., 2007) support the idea that managers can use various strategies to promote work design that should lead to more motivated employees and better outcomes, such as better individual task performance and better WLB. The JD-R theory is widely recognized as a significant framework for understanding employee well-being (Bakker & Demerouti, 2017). According to JD-R theory, all occupations can be categorized into two main components: job demands (i.e., various aspects of work that require sustained physical, psychological, social, or organizational effort and result in potential physiological and psychological costs) and job resources (i.e., structural and psychological assets that enhance an individual's role functioning and performance). Therefore, in the context of this study, JD-R theory is particularly relevant for examining the effects of job demands and job resources on employees' work-life balance (Bakker & Demerouti, 2007; Selim & Kee, 2023).

Distributed work refers to an arrangement in which employees and their tasks are spread across different environments, instead of a central business office or physical organizational location (Be'langer & Collins, 1998; Templer et al., 1999). This term serves as an overarching framework encompassing various work concepts, e.g., remote work, telework, telecommuting, and work from home. It emphasizes the flexibility and decentralization of work practices that allow individuals to perform their tasks in various locations outside of the traditional office environment. Given the increasing adoption of ICT-enabled distributed work practices (Faik et al., 2019; Schöllbauer et al., 2021), major shocks (e.g., pandemic), research is urgently needed to examine the convergence of distributed work and work design. Investigating this intersection through the conceptual framework JD-R holds promise for developing an updated work design that meets the demands of modern ICT-enabled work environments (Lamovšek & Černe, 2023).

The adoption of telework practices by organizations allows employees greater flexibility in when and where they perform their official duties. Such arrangements can be beneficial to both organizations and employees. On the one hand, organizations can increase productivity, and on the other hand, employees can better manage their work and family responsibilities (Hill et al., 2003). Some research suggest that despite the ability to work from home, remote workers face the challenge of drawing clear boundaries between work and non-work (Vaziri

et al., 2022). The shift to using ICTs and navigating complex platforms resulted in increased psychological stress for workers, particularly those for whom remote work was new, who felt ill-prepared, or who lacked adequate technological resources (Carillo et al., 2021; Ipsen et al., 2021). Research has shown that ICT can improve task performance, productivity, work effectiveness, and employee well-being (B. Wang et al., 2020). However, there is also evidence of the occurrence of "techno-stress," in which the use of ICT in the work contributes to increased stress, burnout, and lower WLB (Garfin, 2020; Ma et al., 2021; B. Wang et al., 2020). The technostress concept encompasses several dimensions often referred to as "technostress inducers," including technological overload, uncertainty, insecurity, complexity, and invasion. Extensive research has focused on exploring the consequences of technostress, highlighting its potentially negative impact on job satisfaction, increasing burnout, and reducing employee well-being (Ma et al., 2021). However, it is important to note that technostress can also have positive effects, such as increased efficiency, productivity, improved communication and collaboration, and enhanced learning and knowledge acquisition. Technology advancements have allowed people to multitask, manage information, and complete tasks more efficiently, which can contribute to increased job satisfaction and a sense of accomplishment. In addition, individual characteristics, including age and personality traits, have been identified as factors that influence a person's susceptibility to technostress. Understanding the multifaceted nature of technostress and its various consequences is critical to effectively managing the impact of technology on employee well-being and optimizing the potential benefits it offers in the work (Pansini et al., 2023).

Moreover, with the emergence of new forms of work, an integration of ICT characteristics can be observed. Therefore, as already suggested, in addition to the traditional WDQ (Morgeson & Humphrey, 2006) characteristics, previously identified by Suh and Lee (2017), such as IT complexity, IT presenteeism, and pace of IT change (referred to as techno-uncertainty), and technology overload and information sharing through ICT (Fonner & Roloff, 2010), should be considered when examining work design. As distributed work becomes more prevalent, the JD-R model must evolve to include ICT-related characteristics of distributed work design (Lamovšek et al., 2023).

2.3.3 Methodology

Similar to the approach described in section 2.2, we applied the configurational method. This exploration focused on the simultaneous presence or absence of specific job design characteristic and how they collectively interact to shed light on the dynamics influencing employees' work-life balance.

2.3.3.1 Data collection and sample

Data was collected from November 2022 to December 2022 in France through an agency specialized in research. The final data sample resulted in 605 respondents. They age from 19 to 69, more specifically, 18.2% between 18 and 29 years, 32.9% from 30 to 44 years, the most (42.5%) from 45 to 59, and the least (6.4%) between 50 and 74 years. 44.3% of the respondents were men, and 32.7% of the respondents had at least a master's degree. Most of them (62.6%) had no children up to 12 years living with them, while 21.8% had 1, 11.7% 2, 3.1% 3, and 0.7% more than 3 children up to 12 years old living with them. 34% of the respondents worked completely on-site, 34% hybrid, and 32% completely remote. They worked in various different industries, for example, from business services (7.8%), to education (9.9%), telecommunications (2.3%), and multimedia designers, web agencies, online marketing (1.2%).

2.3.3.2 Measures

Job design characteristics (α = .95) were assessed using the adapted Work Design Questionaire by Morgeson & Humphrey (2006), which was expanded with newly recognized imporant characteristics by Suh and Lee (2017), and Raghuram, Hill, Gibbs and Maruping (2019). ICT characteristics were therefore taken and adapted from Raghuram et al. (2019). Alltogether, task (i.e., autonomy, task variety, task significance, task identity, feedback from the job), knowledge (i.e., job complexity, information processing, problem solving, skill variety, specialization), social (i.e., social support, interdependence, interaction outside the organization, feedback from others), and ICT (i.e., IT complexity, IT presenteeism, the pace of IT change, technology overload) characteristics were assessed, combining together 18 job design characteristics. A sample item for ICT characteristics: " I do not know enough about my organization's IT to handle my job satisfactorily."

Work-life balance (α = .93) was evaluated using four questions adapted from Omar and Zakaria (2016). A sample item: " I am satisfied with the way I divide my time between work and non-work life."

2.3.3.3 Data analysis

Firstly, to analyze if WLB differs across forms of work, the analysis of variance (ANOVA) was performed. The dependent variable, WLB_mean, was assessed using a Likert scale that measured participants' perceptions of work-life balance. The independent variable, FOW, consisted of three categories: On-site, hybrid, and remote work. The ANOVA was conducted using the Type III sum of squares method. The significance of the variable FOW was determined by examining the F-statistic and the associated p-value. A statistically significant result would indicate that the mean WLB values differ significantly among the three forms of work. Additionally, the mean WLB values and standard deviations for each form of work

were calculated to provide a descriptive summary of the data. R-squared and adjusted R-squared values were obtained to assess the goodness of fit of the model. These values indicate the proportion of variance in WLB scores that can be explained by the variable FOW. The significance level for the analysis was set at $\alpha = 0.05$, meaning that p-values of less than 0.05 are considered statistically significant.

Secondly, we performed fuzzy-set qualitative comparative analysis (fsQCA), that was introduced and developed by Ragin (1987, 2000), and has become one of the most prevalent configurational analysis techniques. It is widely used among scholars in different fields, and the information systems research area is no exception (I. O. Pappas & Woodside, 2021), particularly to understand user behavior (Liu et al., 2017). FsQCA explores the link between all potential combinations of factors and an outcome on the basis of set theory and Boolean algebra (Fiss, 2007; C. C. Ragin, 2008). It reveals the meaningful combinations of factors that lead to high levels of a particular outcome (Ganter & Hecker, 2014). Put differently, it goes beyond computing and assessing merely linear, potentially additive net (isolated) effects of each causal antecedent and discloses combinatorial effects by depicting combinations of antecedents that are joint in their configurations in relation to an outcome (Rihoux & Ragin, 2009). Interestingly, FsQCA distinguishes between necessary and sufficient conditions for a given outcome through necessity and sufficiency (Rihoux & Ragin, 2009).

Although (Mendel & Korjani, 2013) summarize the fsQCA method in 13 steps, the most important initial step is data calibration. In this work, we used fsQCA 3.0 (C. C. Ragin & Davey, 2016) to run our analyses. We used the direct method of calibration to transform variables into sets of fully in (1), neither in nor out (0.5), and fully out (0) (C. C. Ragin, 2008). Since we measured our variables on a five-item Likert scale, we assigned the membership values as 4, 3, and 2, respectively. Then, a truth table that lists all possible combinations of causal conditions was generated. We assigned the frequency cutoff at 1 and .85 as the consistency cutoff. The next step is conducting a necessity analysis to identify which variables are necessary for the presence of our outcome, work-life balance. A condition is considered necessary if it is present (most often) in every case (configuration) that leads to the outcome of interest. It should also have a consistency value equal to or greater than .90 (P. C. Fiss, 2007). The following step is to identify sufficient conditions that usually guarantee the presence of the outcome (based on the presence or absence of other variables). FsQCA shows results for three solutions: the complex, the parsimonious, and the intermediate (Mendel & Korjani, 2013). In this study, we reported the results of the intermediate solutions.

To evaluate the resulting solutions, multiple coverage measures are considered. In general, the concept of coverage is similar to that of effect size in hypothesis testing. It explains the proportion of cases that are explained by a minimum of one configuration from a set of configurations. While the raw coverage reflects the proportion of cases described by a configuration, the unique coverage reflects the proportion of cases that can be described by

only one configuration in the solution set (C. C. Ragin, 2000). As for consistency, it measures the degree to which cases correspond to the set-theoretic relationships described in a solution (Fiss, 2011).

2.3.4 Findings with propositions

The results of the between-subjects effects analysis (See Appendix 3: Table 9A and 20A) indicate a statistically significant relationship between the FOW and WLB scores ($F(2, 602) = 3.124$, $p = 0.045$). Mean WLB scores for each form of work were as follows: on-site ($M = 3.498$, $SD = 0.786$, $N = 215$), hybrid ($M = 3.684$, $SD = 0.803$, $N = 227$), and remote ($M = 3.529$, $SD = 0.924$, $N = 163$). Overall, the mean WLB score for all form of work was 3.5760 ($SD = 0.835$, $N = 605$). The corrected model, which includes the FOW as an independent variable explained a small but significant portion of the variance in WLB scores ($R^2 = 0.010$, adjusted $R^2 = 0.007$). The variable FOW contributed significantly to the model ($p = 0.045$), suggesting that the different forms of work have a discernible impact on WLB.

FsQCA provides three solutions: complex, parsimonious, and intermediate. In this paper, we have focused on the latter because it contains simplifying assumptions that allow interpretation of the results (Fiss, 2011). Since we included many conditions (i.e., work characteristics), in order not to complicate the results unnecessarily, based on similar prior research, we excluded configurations that are empirically trivial (rule of thumb < 0.2; Douglas, Shepherd, & Prentice, 2020; C. C. Ragin, 2008). We set coverage thresholds higher than the suggested minimum values by Ragin (2008) and included pathways where raw coverage was equal to or greater than 0.5. These results (see Appendix: Table 11A, Table 12A and Table 13A) serve as the basis for propositions that overview necessary conditions, specific job characteristics, and holistic configurations for each form of work. In what follows, we present our findings (Table 18), support them (where possible) and compare them with previous research, and suggest some propositions that can be explored further in the future.

Table 18: Summary of fsQCA results

	On-site work	Hybrid work	Remote work
Solution coverage	.453	.380	.109
Model/solution consistency	.893	.911	.885
Number of configurations[a]	5 possible configurations (see Appendix: Table 3A)	4 possible configurations (see Appendix: Table 4A)	3 possible configurations (see Appendix: Table 5A)
Necessary characteristics	• task variety • information processing, • skill variety • social support	• information processing • skill variety • social support • IT presenteeism	• task variety • information processing, • skill variety • social support

a. that include all necessary characteristics and had raw coverage above .10

Source: Own work.

2.3.4.1 Work design configurations in on-site work

The results for on-site work showed 27 possible configurations that are beneficial for WLB, while five of them met all the requirements. Based on these five configurations we propose that on-site work design should be enriched, meaning most of the job design characteristics should be on a high level, while organizations should demand from employees only one of complexity characteristics to be high (either job complexity or tech complexity). Hence, two potential work design options could be considered, specifically non-job complexity enriched work design (i.e., job complexity is on a low level), or non-tech complexity enriched work design (i.e., tech complexity is on a low level). Nevertheless, there are some possible deviations that managers could bear in mind:

Proposition 1a: *To provide on-site employees the basis for high WLB, organizations should offer non-job complexity enriched work design that allows one of the following job characteristics to be low: tech complexity, techno overload, feedback from others or interdependence.*

Proposition 1b: *To provide on-site employees the basis for high WLB, organizations should offer non-tech complexity enriched work design, while allowing job charcteristic interdependence to be low.*

2.3.4.2 Work design configurations in hybrid work

Hybrid work yielded four possible configurations, and all of them included all necessary characteristics and had raw coverage above .10. Based on these results, we propose that hybrid work design should be in general non-tech complexity enriched, while keeping in mind some variations:

Proposition 2a: *Hybrid work design should be non-tech complexity enriched and should therefore avoid tech-complexity unless there is no job complexity.*

Proposition 2b: *Hybrid work design should be non-tech complexity enriched, but should be careful about techno overload, which can be present only if work design is completely enriched and job complexity is low at the same time.*

2.3.4.3 Work design configurations in remote work

The results showed 26 possible configurations for remote work, but only three were eligible to be considered for interpretation. We propose that remote work design could be fully enriched, but managers should be aware of some potential setbacks that ICT characteristics and feedback from others may bring. Thus:

Proposition 3a: *Remote work design could be fully enriched, balancing all job design resources and demands.*

Proposition 3b: *Remote work design could be enriched, while one configuration shows that high levels of feedback form others, techno uncertainty and techno overload should be avoided.*

Proposition 3c: *Remote work design could be enriched, while one configuration suggests that tech complexity should be low.*

2.3.4.4 The comparative analysis between the theoretical foundations underlying the potentially most beneficial configurations for each form of work

Taken all together, it seems that enriched work design is beneficial for WLB in all three forms of work, while some minor (yet important) deviations should be considered. Job complexity and techno complexity have an interchangeable effect; therefore, it is recommended that only one of them is high, otherwise employees have too many demands and cannot achieve desired WLB. Both of them can only be present in remote form of work, considering all other characteristics to be high as well. This could be due to the fact that remote workers can have more focus, since working away from the central office reduces the interruptions (Block & Stokes, 1989). While they might still face electronic interruptions such as emails or phone calls, they have more autonomy in deciding when and how to respond (Wajcman & Rose, 2011).

On a related note, other ICT characteristics (i.e., tech uncertainty, techno overload and IT presenteeism) should also be carefully used in work design and should be balanced with job characteristics that are treated as job resources. Previous research suggests that increased ICT use leads to techno-overload which is characterized by higher volumes of email, telecommunications, and notifications from work scheduling applications (Ragu-Nathan et al., 2008). It is associated with increased stress and burnout, affecting both supervisors and employees (Gupta et al., 2022; B. Wang et al., 2020), while it has been found to increase work-life conflict and behavioral stress (Molino et al., 2020). Organizational monitoring, where technology is used to monitor employee performance, further contributes to techno-invasion (S. K. Parker et al., 2020). Furthermore, employees face technical complexity as they have to solve ICT problems independently, which requires time, energy, and cognitive resources to adapt to new ICT systems in their home environments (Carroll & Conboy, 2020; Garfin, 2020; Molino et al., 2020). The pandemic has led to several technical work demands resulting from remote work. Remote workers can experience a technological invasion as they feel constantly connected to work and are expected to be responsive during office hours (B. Wang et al., 2020).

The necesity analysis showed that all three forms of work should non-negotiably provide employees with high level of information processing, skill variety and social support.

Additionaly on-site and remote work also need task variety, while hybrid work showed the importance of IT presenteeism.

While information processing was previously not found as an important part of work design for WLB, the found importance of skill variety and social support confirms previous suggestions. Skill variety (along with autonomy) was already found to be a significant predictor of WLB by Jindal and colleagues (2013). Additionaly, social support's importance is also consistent with previous literature in this area. The study conducted by Erdwins et al. (2001) found that supportive practices, such as adaptive scheduling and supportive managers, directly impact workers' feelings of control over work and family matters. Social support, whether work-related or family-related, positively influences work and family roles by facilitating the exchange of ideas and the management of problems related to work and personal obligations (Oludayo & Ojo Omonijo, 2020). Individuals who perceive greater support from colleagues and experience greater support from their work report lower levels of emotional exhaustion, depersonalization, and greater feelings of personal fulfillment (Kocatepe et al., 2023). With findings that task variety is necessary for on-site and remote workers, we debunk some previous research on task variety that was previously found as potentially too demanding job chracteristic that is positively related to work-life conflict (E. S. T. Wang & Lin, 2018). Toffoletti and Starr (2016) for example found that many individuals in the academic profession struggle to effectively manage their professional and personal lives, due to the pressures of having to manage multiple responsibilities and tasks at work. The differences in the findings could be due to our holistic approch where task variety is accompanied by other job resources and job demands. Hence, their combination suggest positive influence on WLB. IT presenteeism, the extent to which technology enables employees to be reachable (Ayyagari et al., 2011), is imporant for WLB in hybrid work design, which on first glance seems contradictory. Many studies have found that IT presenteeism is a potential source of technostress and promotes an »always on« culture. While this can not be neglected, potential job resources could buffer this effect and provide more efficient work processes, higher transparency, employee empowerment, and well-being (Luoma et al., 2020).

Last but not least, we should not forget that the job characteristics found to be necessary in all configurations must be accompanied by other beneficial job resources and job demands and that enriched work design is preferable. For example, it was found that employees who have high task autonomy also report higher levels of work-life balance. These findings highlight the importance of providing employees with diverse tasks and a sense of control over their work to promote a better work-life balance (Walia, 2014). Next example is job feedback. Even though it was not found to be one of the necessary conditions for WLB, it was present in all configurations in all forms of work. The study by Martineau and Trottier (2022) underscores the importance of implementing mechanisms in organizations that provide teleworkers with direct feedback on their work. In a telecommuting environment where physical presence and immediate feedback from supervisors or colleagues may be

limited, the availability of job feedback is critical. Effective job feedback informs teleworkers about their performance and enables them to better manage the transition between work and personal life.

2.3.5 Discussion and conclusion

2.3.5.1 Theoretical contributions

Our study tried to answer the proposed research question and find which work design configurations are most beneficial to employees' work-life balance, and whether and how they differ among different forms of work. It, therefore, attempts to solve the practice-relevant problem of designing the work configuration that is most benefitial for WLB within a particular form of work, and the theory-relevant problem of traditional work design theories that need to be modernized to fit the technologically advanced new work environments. The study correspons to some suggestions from previous studies (Chan et al., 2023; e.g., Chatterjee et al., 2021) by complementing previous research on WLB by exploring the phenomenon through the lens of work design.

For example, Chan end colleagues (2023) already showed that boundaries between work and personal life have become more permeable, resulting in behavioral and time-related work-life conflicts being among the most challenging. Workers face higher technical work demands and must deal with issues such as techno-invasion, techno-overload, and techno-complexity, and finally that psychological and emotional work demands have intensified. Our study corresponds to their suggested need for interventions at multiple levels and from multiple agencies to address the multi-layered and diverse demands of working life. At the same time, the study also corresponds to the suggestion proposed by Chatterjee and colleagues (2021) to explore whether humanistic outcomes (e.g., WLB) are enhanced or compromised by new work designs.

The findings of our study suggest that work-life balance varries across forms of work, with workers in hybrid work arrangements reporting the highest average WLB scores, followed by workers who work remotely and on-site

Next, we advanced the previous studies (e.g., J. Haar & Brougham, 2020; Lamovšek et al., 2022) by comparing work design configurations most beneficial to WLB among different forms of work. Our results indicate that work design is an important aspect that organziations should keep in mind, since it has an effect on WLB for all forms of work. The findings suggest that work design matters for WLB the most employees work on-site, less when hybrid and the least when an employee works remotely. This confirms previous suggestions that on the average impact of remote work on WLB is not statistically significant since other factors (e.g., individual preferences, contextual elements) play an important role (Bellmann & Hübler, 2020a).

Moreover, while enriched work design seems beneficial for WLB across all forms of work, necessity analysis uncovered shared requirements across different forms of work, highlighting the importance of information processing, task variety, and social support. While previous research has not emphasized the importance of information processing in work design for WLB, our findings open up a promising avenue for future research, seeking to understand why this particular job design characteristic holds significance in promoting WLB. Information processing refers to the extent to which a job requires attention to and processing of data or other information and is usually treated as job demand. The presence of high cognitive demands is consistent with the motivational approach because of the inherent complexity of enriched work (Morgeson & Humphrey, 2006). However, further research is needed to elucidate the underlying mechanisms and specific benefits of information processing in promoting work-life balance to contribute to a more comprehensive understanding of the effect. Next, our findings confirm the importance of skill variety (e.g., Jindal et al., 2013) and social support (e.g., Erdwins et al, 2001; Oludayo & Ojo Omonijo, 2020). With that we confirm that social support is a great job resource that can buffer challenging job demands (Kocatepe et al., 2023). In contrast to previous studies that associated task diversity with increased work-life conflict (e.g., Toffoletti & Starr, 2016; Wang & Lin, 2018), our holistic approach that considers task variety along with other job resources and demands challenges these findings. Task variety is critical for both on-site and remote work arrangements, as it contributes to diverse job experiences and promotes engagement. Our findings therefore debunk previous research and underscore the multifaceted nature of work design and the importance of considering multiple factors to promote WLB effectively. Next, while numerous studies have highlighted the potential negative consequences of IT presenteeism, such as increased technostress and perpetuating an "always-on" culture being (Luoma, Penttinen, & Rinta-Kahila, 2020). However, our findings suggest that IT presenteeism is necessary job characteristics for hybrid workers. Perhaps IT presenteeism during work hours is better for WLB because all communication occurs during that time, and communication is quick and responsive. If, at that time, there was no IT presenteeism, you would think about tasks/emails/responses after hours or even wait on a response or give a response during that time. On a related note, we should also consider company culture and WLB policies that could mitigate the potential negative impact of IT presenteeism by having rules about answering questions after hours, response expectations, etc. While these are some interesting speculations, future research is definitely needed.

Additionally, we advanced the research on work design by considering extended work design characteristics (Morgeson & Humphrey, 2006), and newly identified ICT characteristics (i.e., IT complexity, IT presenteeism, pace of IT change, technology overload). All of the proposed ICT characteristics were found to be noteworthy for work design, while techno complexity seems to interact with job complexity, implying that these two job demands should not be at a high level at the same time. In the context of hybrid work, the presence of IT presenteeism, where employees are available during established

work hours and actively participate in virtual communication, emerges as a key factor to consider when optimizing work design for WLB. These findings shed light on the specific design elements that can enhance the work experience across different work forms and inform organizations in their efforts to create effective and supportive work environments. Organizations must recognize the unique challenges and opportunities associated with each form of work and consider tailored strategies to improve work-life balance accordingly. With that we also complement the recent research by Martineau and Trottier (2022) who examined the influence of two job design characteristics (autonomy and job feedback) independently on WLC. Next, by applying fsQCA in our study we also contribute to the conversation by Farivar and colleagues (2022) that explored WLC using fsQCA. We provide different configurations for each form of work that should (in theory) provide the best WLB. Overall, the results suggest that enriched work design contributes positively to achieving desirable WLB in all three forms of work, albeit with minor but significant differences that deserve attention. In particular, there appears to be an interchangeable effect between job complexity and techno complexity, suggesting that it is advisable to maintain a balance between these factors. Demanding high levels of job complexity and techno complexity from the employee at the same time can lead to excessive demands and hinder the achievement of optimal WLB. Hence, it is recommended to prioritize and emphasize either job complexity or techno complexity while ensuring that the other characteristics remains at a high level to promote employees' ability to achieve their desired WLB.

To summarize, the results show that in on-site work, work design could be enriched with non-job complexity work design or non-techno complexity enriched work design, with some nuances, while most hybrid work configurations show that there should be non-techno complexity enriched work design, unless there is no job complexity. In one remote work configuration, both work characteristics may be high, while some configurations indicate that ICT characteristics should be used judiciously. By considering these nuances in work design, organizations can create an environment that promotes employee WLB.

2.3.5.2 Practical implications

Work-life balance programs are recognized for their strategic value in promoting employee retention, minimizing costs associated with turnover, and reducing absenteeism (Eby et al., 2005; Hyman & Summers, 2004). In addition to these established factors, our study sheds light on another way to improve WLB. In particular, work design emerges as an important determinant that can influence WLB, although the impact varies across forms of work. Our results suggest that work design impact on WLB matters most for on-site workers, followed by hybrid workers and, to a lesser extent, remote workers. These findings underscore the importance of considering work design as one of the factors in promoting optimal WLB outcomes.

Chan and colleagues (2023) suggested many recommendations for Individual-level HR recommendations (e.g., building employee resilience), Team/organizational-level HR

recommendations (e.g., building a compassionate and supportive work culture), and Societal/governmental-level HR recommendations (e.g., reforming existing legislation relating to flexible working). With our study we complement their research and provide recommendations for team/organizational- level HR strategies and examining the potential impact of work design on WLB, focusing specifically on different forms of work. We do this by providing specific configurations that are most beneficial for WLB for each form of work.

Striking a balance between job demands and job resources is critical for managers to optimize work design and promote WLB across different work forms. The study results indicate that enriched work design holds promise for improving work-life balance across all three forms of work. However, it is noteworthy that job complexity and techno complexity show an interchangeable effect, suggesting that it is important to focus on one of the two components to avoid overwhelming employees with excessive demands. In addition, the necessity analysis identifies key work design requirements that apply equally to all three forms of work. These include providing employees with a high level of information processing, skill variety, and social support. Moreover, both on-site and remote work require providing task variety to promote employee engagement and satisfaction. On the other hand, hybrid work emphasizes the significance of IT presenteeism, which is the need for employees to be available for effective collaboration and communication during designated work hours. By adhering to these work design principles, managers can create an environment that promotes work-life balance and overall employee well-being.

2.3.5.3 Limitations and future research directions

Even though our study is comprehensive and provides theoretical contributions and practical implications, it is not without limitations. First, more job characteristics could be considered. Since we included ICT characteristics that are mainly job demands, maybe (to create balance) it would also be meaningful to include some new ICT-related characteristics that are considered as job resources. Furthermore, some research shows that men and women use their flexible work options in different ways, which translates into different outcomes in terms of well-being, WLB, and work intensity (Rodríguez-Modroño & López-Igual, 2021), meaning there are potential gender differences we did not consider. Next, some new research is already noting generational differences (Tennakoon & Senarathne, 2020) as well. Hence, we should acknowledge that also. There are also some potential individual differences, such as age, that influence workers' attitudes toward ICT, with older workers generally showing less comfort and lower self-efficacy in adapting to new technologies (Mitzner et al., 2019; Torkzadeh et al., 2006). The study was also done in only one country (France); accordingly, there could be cultural bias. Last but not least, we included various industries, while best comparison would be made if we looked at one specifically. For future research, we suggest taking some of these suggestions into account. We also need more research on ICT characteristics and shown beneficial configurations. Hence, we suggest the future research to test our propositions.

3 CHAPTER 3: WORK DESIGN, INDIVIDUAL CHARACTERISTICS, WORK CONTEXT AND WORK MODIFICATION MECHANISMS IN PREDICTING OUTCOMES

This chapter advances previous chapters by including additional moderators that can play an important role in the matter of work design configurations predicting outcomes based on different forms of work. Thus, the aim of this chapter is to include and explain boundary conditions. Three parts are expected to be prepared within this chapter.

First part analyzes three-way interaction effect of enriched work design (a configuration of all high job characteristics), work context (i.e., formalization) and individual characteristics (i.e., resilience and proactive personality) on work-life balance. The topic of work-life balance has been widely researched, resulting in complex definitions, theoretical approaches, measures, determinants, and consequences. It contributes to the fields of organizational behavior, work–life interplay, and HRM in the following ways. First, it contributes to the WLB literature by analyzing the influence of individual job design characteristics on WLB (Polat & Özdemir, 2020; Walia, 2014), advancing this stream of research by taking a holistic approach to capturing enriched work design as a composite second-order construct embodying key job characteristics, and examining its relationship with WLB. This provides important insights into complex interactions of individual, job, and organizational factors that shape organizational realities in predicting employees' WLB. This part also complements a recent study by Bakker, saart, Scharp, and de Vries (2021), in which the authors suggest that managers should encourage their employees to be proactive and provide them with autonomy and feedback in order to maintain job performance and satisfaction of employees' basic needs (Bakker et al., 2021).

Second part analyzes the interplay of work design (i.e., task enriched work design), work context (i.e., technology use at work) and forms of work (i.e., flexible work) in predicting burnout and work engagement. Digitally mediated work, which includes tasks, information storage, and stakeholder interaction, has numerous benefits for workers and organizations, such as easier process distribution (Dewett & Jones, 2001; Lund et al., 2020; Venkatesh & Vitalari, 1992). However, excessive IT use can lead to some drawbacks (Tarafdar, D'arcy, et al., 2015; B. Wang et al., 2020), such as IT overload, which can cause burnout and loss of engagement. The rise of flexible work arrangements and work hours has exacerbated this issue. The research questions whether digitally-mediated knowledge work helps employees buffer job demands by giving them more control over their work, or if it reduces control over work, resulting in low-level work engagement and high burnout.

Third part of this chapter explores which configurations of job design characteristics fosters work motivation and job crafting, and whether the beneficial work design configurations for predicting self-initiated work modification mechanisms differ among different forms of work. It has already been shown that employees' work motivation can be increased by higher job enrichment, achieved by higher levels of job characteristics (i.e., skill variety, autonomy, feedback; Hackman & Oldham, 1976) and that motivated employees are more likely to craft their job, which leads to higher level of work and personal resources and therefore even higher levels of work motivation (Bakker & Demerouti, 2007). Relied on the JD-R framework, the balance between job demands and job resources fostered by job crafting can improve the person-job fit which in turn contributes to higher job satisfaction, work engagement, work efficiency and performance (Tims et al., 2013a).

3.1 Is the key to work–life balance (enriched) work design? Three-way interaction effects with formalization and adaptive personality characteristics

3.1.1 Introduction

The topic of work–life balance has been widely researched, resulting in complex definitions, theoretical approaches, measures, determinants, and consequences. WLB has been positively associated with many personal (e.g., better life satisfaction) and organizational (e.g., better productivity) outcomes (Batt & Valcour, 2003; Beauregard & Henry, 2009; Brummelhuis & Lippe, 2010; Kelly et al., 2008; Sirgy & Lee, 2018; Yasbek, 2004). Since the outbreak of COVID-19, the boundaries between work and personal life have become even more blurred. The results of a multiregional study (Bilge et al., 2020) have shown that the greatest stressor since remote work is work–family life separation (e.g., lack of privacy, overwork) and isolation. In light of this, the concept of WLB has become more important than ever, and managers along with organizational settings play a key role in achieving it.

The literature review from Sirgy and Lee (2018) suggests there are two types of predictors of WLB, namely personal (i.e., individual characteristics and cultural values of an individual) and organizational predictors (i.e., job characteristics and support system). In our study, we will address some of the literature gaps pointed out in their literature review. First, most studies use subjective self-assessments of WLB, and second, research is lacking with regard to the interrelationships between antecedents in predicting WLB. In addition, we found that most studies focused on the effect of specific job design characteristics rather than taking a more holistic perspective on enriched work design as a key element of human resource management. This is relevant because such a piecemeal approach only captures a partial view of organizational realities that shape individuals' WLB through formal job and organizational design but lacks in accounting for their comprehensive assessment. Furthermore, such an approach lacks in considering potentially different effects for individuals who adapt to challenging contexts in different ways with regards to their personal characteristics. Job-Demand-Control (JD-C) model argues that control is an important factor

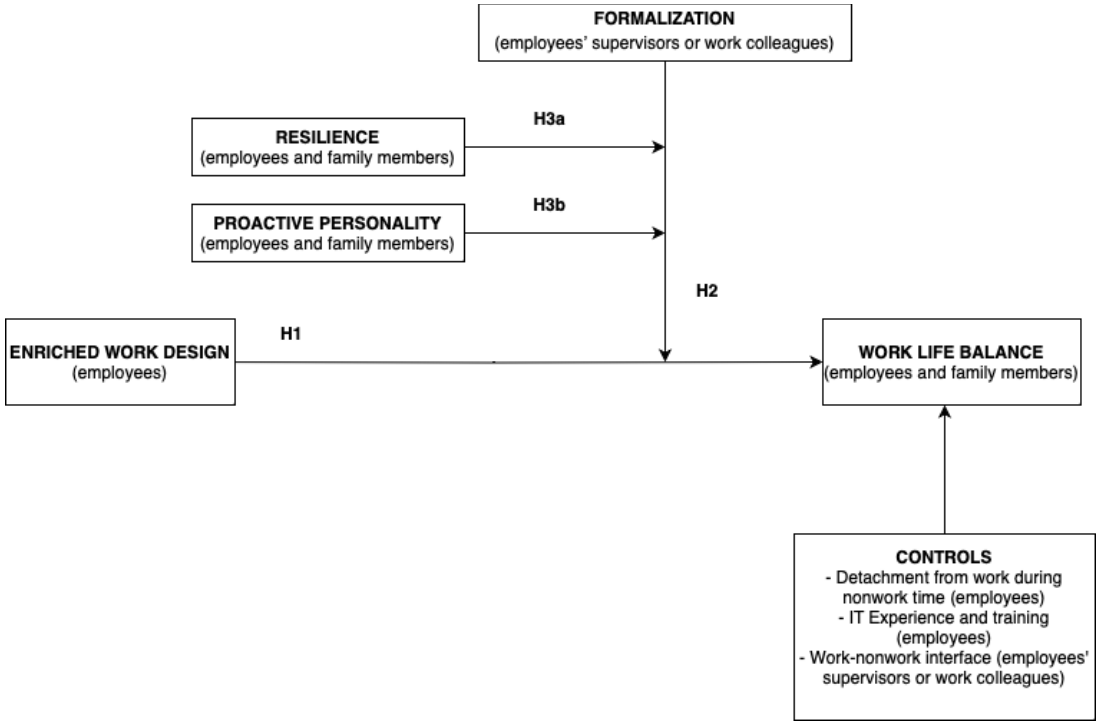
that can alleviate strain (R. A. Karasek, 1979), which opens up interesting potential avenues of investigation related to whether organizations can contribute to better WLB by increasing control through formalizing organizational arrangements.

Formalization, as an important organizational constraint that shapes individual adaptive responses and work behavior (E. R. Crawford & LePine, 2014), has rarely been researched in relation to WLB. It is believed that higher levels of autonomy and new, looser, less defined, and more flexible work practices lead to greater job satisfaction and job performance (Saragih, 2015) but can often result in longer overtime hours (Chung, 2017) and therefore worsen WLB. Perceptions of control, on the other hand, buffer the impact of job demands on strain and help employees engaging in challenging tasks and adapting to demands (R. A. Karasek, 1979). Hence, some studies have argued that formalizing organizational practices can help with this negative consequences and improve WLB (Cegarra-Leiva et al., 2012; Pasamar, 2015), but the extant literature remains silent on how this occurs for different individuals placed under different job contexts.

Our study thus aims to enrich the literature on WLB and HRM by exploring both personal (i.e., individual traits of proactivity and resilience) and organizational (i.e., formalization and enriched work design) factors that jointly influence WLB. Figure 20 illustrates our research model with the proposed hypotheses that are founded in the JD-C model (R. A. Karasek, 1979). We have identified three potential theoretical contributions to the fields of organizational behavior, work–life interaction, and human resource management. First, we will advance existing research on WLB by examining enriched work design in the context of WLB rather than focusing on one specific job design characteristic like most previous studies (e.g., Polat & Özdemir, 2020; Walia, 2014) have done. Second, we will also contribute to previous research on WLB that has focused on the big five personality traits (i.e., extraversion, openness to experience, conscientiousness, neuroticism, and agreeableness) that are more or less stable (P. T. Costa & McCrae, 1992; Kaur, 2013; Kundnani & Mehta, 2014; Leka & de Alwis, 2016; Pandey et al., 2018) by focusing on other individual characteristics (i.e., resilience and proactive personality) that can be trained in organizations and that are more malleable than basic personality traits. Because they are adaptive in nature, they represent natural candidates for being investigated in a context that responds to the COVID-19 crisis. Last but not least, we extend the theory of WLB with new insights into the moderating effect of increasing control through formalization at the organizational level as an adaptive measure that can serve as a juxtaposition for individual COVID-19 adaptation approaches. As an empirical contribution, to alleviate potential concerns related to common method bias, we will include three source assessments (i.e., employees, family members, and supervisors) of key constructs (i.e., WLB, resilience, and proactive personality), which are only self-assessed in most studies, providing additional rigor to tested relationships.

The findings of our study will also have practical implications and be useful for employees, (HR) managers, and policy makers. Policy makers will gain insights into how to develop policies and programs to promote WLB so that employees and managers understand their rights, benefits, and opportunities. Through our study, employees will better understand the importance of formalization, training that helps them become proactive and resilient, and the overall importance of WLB. Finally, it will provide practical implications on how managers and HR specialists can use organizational frameworks and employee training to help employees achieve a better WLB.

Figure 21: Research model with hypotheses underlying our three-source study



Source: Own work.

3.1.2 Theoretical background

Existing literature has proposed two types of predictors of WLB: individual characteristics (i.e., job involvement, job importance, family involvement, work-based self-esteem and self-efficacy, conscientiousness, neuroticism, coping style, and time management skills) and cultural values of an individual (i.e., individualism, power distance, masculinity, and uncertainty avoidance; Sirgy & Lee, 2018). Organizational predictors consist of job characteristics (i.e., job demands, work pressure, autonomy, role ambiguity, and scheduling flexibility) and support systems (i.e., flexible work arrangements, part-time work, childcare support, parenting/breastfeeding resources, health and wellness programs, family leave policies, work social support, etc.). Job characteristics are reliable and anticipated predictors of changes in well-being and psychological health, although their importance varies according to context and individual circumstances (Jones et al., 2017; Stansfeld & Candy,

2006; Theorell et al., 2015). In our study, we aim to examine how personal (i.e., resilience and proactive personality) and organizational (i.e., enriched work design and formalization) predictors interact in predicting WLB.

3.1.2.1 Work–life balance and enriched work design

There are many definitions of WLB, which can be categorized into two groups based on two key dimensions. In the first, WLB is defined as role engagement in multiple roles and nonwork life, and in the second, WLB is defined as minimal conflict between work and nonwork roles (Sirgy & Lee, 2018). WLB has many benefits for employees and organizations and is associated with job and life satisfaction, increased productivity, higher organizational commitment, higher career development, lower absenteeism, and lower turnover intentions (Allen et al., 2000; Baltes et al., 1999; Blazovich et al., 2014; Konrad & Yang, 2012; Kossek & Ozeki, 1998; Whiston & Cinamon, 2015). It has been shown that WLB is highly influenced by work support, which can come from a variety of sources, such as company policies, supervisors, and colleagues (Allen et al., 2000; C. A. Thompson et al., 1999).

The Job Characteristics Model suggests that employees' job motivation and job satisfaction can be increased by higher job enrichment (Hackman & Oldham, 1976). Higher job enrichment can be achieved by higher levels of job characteristics (i.e., skill variety, autonomy, feedback/social support, task identity, task significance, etc.) from the JCM. It has been shown that, if given proper attention in the organization, job enrichment can create a balance between work demands and commitments on one hand, and family life on the other (Sushil, 2014). A study of 300 managers found that a high level of job design characteristics lead to a higher level of WLB (Jindal, Agarwal, Garg, et al., 2013); thus, we hypothesize the following:

H1: *Enriched work design is positively related to higher levels of work–life balance.*

3.1.2.2 Moderating role of formalization

Formalization is defined as the extent to which specific rules, policies, and procedures are written and explicitly stated (Pugh et al., 1969). We know about various levels of formalization, from organizational formalization to job role formalization (M. A. Griffin et al., 2007; Lin & Germain, 2003; Pugh et al., 1969). Organ and Greene (1981) stated that formalization is needed for goal clarity, and Segars et al. (1998) ater showed that formalization is also necessary for strategic directions. We are aware of two types of organizational structures that are based on the degree of formalization. A high degree of formalization in an organization is known as a mechanical organizational structure, whereas a low degree of formalization is defined as an organic organizational structure (J. W. Alexander & Randolph, 1985; Robbins et al., 2020).

Studies on formalization have shown that it has positive and negative consequences and that the rules can be beneficial or not for employees and the organization. Employees' attitudes toward formalization depend on the type of formalization they face. Researchers have suggested that employees' attitudes are more positive when formalization enables them to perform their tasks better and more negative when it "*acts as a means by which management attempts to coerce employees into effort and compliance*" (Adler & Borys, 1996). For example, formalization made collaboration more productive because organizational members could, first, handle exceptions to practices and, subsequently, develop new practices that embodied both logics (Ramus et al., 2016). Hempel, Zhang, and Han (2012) analyzed how the consequences of formalization on team empowerment differ among various levels in the organization. They found that, on the one hand, the formalization of organizational processes enhances team empowerment, and, on the other hand, the formalization of jobs and roles moderates the effect of decentralization and reduces team empowerment.

Implementing formal processes that mandate meetings, enable planning, and establish evaluation processes can foster collaboration by defining a space in which the bearers of competing logics can interact (Battilana et al., 2014). It leads to an increase in firm gross profits and investments. Furthermore, it leads to an improvement in employment quality, as measured by a decrease in the use of casual workers (an increase in the share of workers with formal labor contracts; (Rand & Torm, 2012). Formal rules can complement informal procedures to facilitate cooperation between adherents of largely incompatible and central logics (Canales, 2014). Tata and Prasad (2004) found that organizational structure enhances the influence of self-management on team effectiveness judgments when the level of organizational formalization is low. Formalization also provides users with a clear understanding of the underlying reasoning behind why certain control mechanisms are in place. Such formalization also codifies best practice experiences, and users receive feedback on their performance (Adler & Borys, 1996).

As mentioned, higher job enrichment can be achieved by higher levels of job characteristics. Many empirical studies have supported this relationship, although it has sometimes been attenuated by personal (e.g., age, income, education, attitudes towards one's profession, individual perceptions) and organizational factors (e.g., organizational pressure, culture, values) (Aldag et al., 1981; Fried & Ferris, 1987; Hackman et al., 1975; Hackman & Lawler, 1971; Loher et al., 1985; K. H. Roberts & Glick, 1981; Spector, 1985). It has been previously found that we need to explore the person-situation interactional perspective as determinant of work outcomes, with, for example, different levels of self-leadership leading to different levels of job satisfaction in respect to the level of structure in the immediate working environment (H. E. Roberts & Foti, 1998). This opens opportunities for the study of its boundary conditions.

Hyman and Summers (2004) classified seven major problems that are associated with WLB practices, and one of them was a lack of policy formalization at the organizational level. It

has already been shown that the formalization of WLB policies, along with informal support for WLB, plays an important role in improving organizational outcomes such as job satisfaction and employee retention (Cegarra-Leiva et al., 2012). With written rules, organizations show how serious they are about WLB and how strong their commitment to WLB is. When rules are written, employees also have more information about their WLB benefits, so they are more likely to take advantage of them. Formalization also improves the distribution of benefits among employees and the achievement of the full benefits of WLB (Pasamar, 2015). Organizations that are keeping records of their activities and events are more likely to have elaborate benefit plans (Osterman, 1995).

In our study, we suggest that formalization in general (not only WLB practices) helps in achieving better WLB. Enriched work design evoke the motivation to perform and engage (Gallagher & Einhorn, 1976; Wood, van Veldhoven, et al., 2012), and formalized organizational practices, in line with the logic of the JD-C model, help in enabling employees to counterbalance their demands with higher levels of control. Specifically, to know what to expect and when to expect it, distribute their time and efforts better (Adler & Borys, 1996; Alshwayat et al., 2021), and become able to separate (or balance) their work–life interaction better (Hossen et al., 2018); therefore, we propose the following:

H2: *Formalization moderates the positive relationship between enriched work design and work–life balance in a way that the basic relationship will be more positive when employees work in organizations with more formalization.*

3.1.2.3 The three-way interaction with personality traits

Resilience Resilience means "bouncing back" from difficult experiences and is defined as employees' adaptive and resource-utilizing capacity, which reflects the robustness to manage work-related setbacks, challenges, and pressures effectively (Hodliffe, 2014). Researchers have claimed that resilience is not a static state but develops over time and comes into play when an individual is faced with unforeseen situations or events and has the capacity to be resilient (Sutcliffe & Vogus, 2003). It is not considered as a genetic trait but as a set of behaviors, thoughts, and actions that can be learned and developed (American Psychological Association, 2012); thus, it is the process of ongoing development (M. Kim & Windsor, 2015).

Resilience contains self-regulatory functions that serve to attenuate the negative consequences arising from the uncontrollable environmental factors, and it protects individuals from becoming involved in antisocial behaviors (Milczarek et al., 2009). It is a great personal resource in improving mental health (T. Hu et al., 2015) and employees' work performance (García-Izquierdo et al., 2018). It has been shown that employee resilience positively affects work happiness (Ali et al., 2019). Resilience and investing in human capital in general are also linked with better organizational productivity, innovation capacity, and post-recession competitiveness (Keep, 2016). In the work where organizational support

and recognition of effort were low, supervisors rated their employees with better social skills more highly with regard to job performance because they had the skills to make use of the limited resources available to them (Hochwarter et al., 2006). High resilience is positively connected with the ability of maintaining WLB (M. Kim & Windsor, 2015). More resilient individuals benefit from high control because it enables adaptive coping (S. L. Parker et al., 2015).

High levels of enriched work design (i.e., more autonomy, use of more skills, meaningful and less interdependent tasks, and more social support) help employees achieve their WLB (Jindal, Agarwal, Garg, et al., 2013), but when a stressful situation/unforeseen event occurs, employees may collapse regardless of their enriched work design. If employees are resilient (Figure 22, Scenario 1) and therefore more stable, they adapt quickly to the new environment and overcome the stressful situation by still having control over it; their WLB is more likely to still be at the same level as before the stressful situation (M. Kim & Windsor, 2015). If they are not resilient (Figure 22, Scenario 4), their WLB usually decreases when a stressful situation occurs (Weerasinghe & Dilhara, 2018), even if their enriched work design is still the same. We propose the following:

H3a: *There is a three-way interaction effect among enriched work design, work–life balance, and resilience; The positive relationship between enriched work design and work–life balance is stronger for people who are more resilient compared to those who are less resilient.*

Proactive personality Proactive behavior is defined as being "*motivated, conscious, and goal directed*" (S. K. Parker et al., 2010). It can be influenced by the degree of supervisor interaction and job autonomy (S. K. Parker et al., 2006). People with more proactive personalities usually craft their work environment (Thomas et al., 2010) and more innovatie behavior at work (Giebels et al., 2016). They work through their behaviors to intentionally and directly affect change on their current situation, essentially adapting the environment to themselves. Because these individuals have a long-term focus, they do not wait to respond to elements in their environment. Rather, they proactively search for information, scan the environment, anticipate future opportunities, and come up with a plan to create new circumstances (Bohlmann & Zacher, 2021; Fay & Frese, 2001; Thomas et al., 2010).

Individuals with higher levels of proactive personality are more aware of the dynamic, shifting nature of the work environment (Crant, 2000). They have a vision of what is possible, are strongly guided by it, and engage in behaviors that work to make it a reality (Gibson et al., 2019). Research has suggested that individuals with a higher expression of this trait engage in additional professional activities beyond the demands of their official role (Bateman & Crant, 1993; S. K. Parker, 1998). They usually work more hours per week and are more frequently engaged in task behavior and organizational citizenship behavior (Bergeron et al., 2014). Proactive personality is also associated with socializing and networking with others. Thus, they are establishing a high-quality relationship with one's

supervisor (N. Li et al., 2010) their colleagues (Thomas et al., 2010), meaning they usually have high social support.

It has been shown that employees' proactivity is positively related to overall operating efficiency (Walz & Niehoff, 2016), innovation, political knowledge, career initiative (Seibert et al., 2001), job satisfaction (Liao, 2012) and career satisfaction (Jawahar & Liu, 2016; Seibert et al., 2001), change-related advice giving (B. J. Kim et al., 2019), responses to organizational changes (Hornung & Rousseau, 2007), and fewer time-based conflicts between family and work (Cunningham & De La Rosa, 2008).

More proactive employees make the most of their circumstances (i.e., they are able to take greater advantage of high-quality relationships; (N. Li et al., 2010) and with the support that comes from their enriched work design, they are able to leverage a high degree of task identity and use a greater variety of skills (Figure 22, Scenario 1) than those who are not as proactive (Figure 22, Scenario 4). Because of this adaptability, they are able to achieve better control over their working demands and thereby higher WLB. Furthermore, their proactivity drives them to search for information, scan the environment (Fay & Frese, 2001), and act quickly, which makes them more efficient (Walz & Niehoff, 2016) and allows them more time for WLB; thus, we suggest the following:

H3b: *There is a three-way interaction effect among enriched work design, work–life balance, and proactive personality; The positive relationship between enriched work design and work–life balance is stronger for people who have more proactive personalities compared to those with less proactive personalities.*

Figure 22: WLB by different enriched work design, resilience/proactive personality conditions

Enriched work design	*High*	Scenario 4 *high enriched WD- low resilience/proactive personality* **→ WLB medium** - high enriched work design might buffer for the effect of low resilience/ proactive personality on WLB	Scenario 1 *high enriched WD – high resilience/ proactive personality* **→ WLB highest** - the "ideal": high WLB is achieved by high enriched work design and high resilience/ proactive personality
	Low	Scenario 3 *low enriched WD- low resilience/proactive personality* **→ WLB lowest** - low WLB is accompanied by low enriched work design and worsened by low resilience/ proactive personality	Scenario 2 *low enriched WD- high resilience/ proactive personality* **→ WLB medium** - although there is low enriched work design, the high resilience/ proactive personality should help WLB to a certain extent
		Low	*High*
Resilience/Proactive personality			

Source: Own work.

3.1.3 Methodology

3.1.3.1 Data collection and sample

We collected data in Montenegro in March 2021 using the nonprobability convenience purposive sampling strategy to target respondents (working professionals) across a wide variety of industries and workplaces. This was done to ensure variability in various work settings related to the studied organizational context variables (i.e., formalization) and the respondents' situation related to the COVID-19 measures and their implications during the time our research was executed. To obtain the most comprehensive results and alleviate potential challenges related to common method bias, we applied a three-source research design; we surveyed employees (517 respondents), their family members (456 respondents), and their supervisors or colleagues (464 respondents), resulting in 436 matched responses to constructs in our model. Our main units of analysis were employees. Their birth year ranges from 1954 to 2001; 59.3% of the respondents were male and 40.7% female. They worked in a variety of industries, from administration, finance, and information technology to construction and manufacturing.

3.1.3.2 Measures

Figure 21 depicts our model consisting of five main parts: independent variable, dependent variable, two sets of moderators, and control variables. We measured all items using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Enriched work design represents the independent variable. It is a second-order construct consisting of five items, each assessing a specific job characteristic, that were self-reported by employees. Autonomy was measured using three items: interdependence by one, task identity by one, skill variety by one, and social support by two items. Items were measured using questions from Morgeson and Humphrey's (2006) Work Design Questionnaire. The Cronbach's alpha of the scale was valued at .670. A sample item: "The work activities themselves provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance."

Work–life balance is treated as a dependent variable, it was self-reported by the employee and a family member, and it was measured with four items each, with a composite score of those two respondents used in the analyses. Items were taken from Omar (2016; α = .817). A sample item: " I am satisfied with the way I divide my time between work and non-work life."

The first moderator is the *formalization* variable. This was assessed by employees' supervisors or work colleagues and measured with five items taken from Schminke, Ambrose, and Cropanzano (2000; α = .757). A sample item: " There is a complete written job description for most jobs in this organization.". The second set of moderators were *resilience* and *proactive* personality. Both were assessed by employees and their family members, with composite scores across the two respondents used in the analyses. Proactivity was measured with four questions each (Cronbach's α = .697) and resilience with two questions each (Cronbach's α = .685). Items measuring proactivity were taken from Bateman and Crant (1993), whereas items capturing resilience were taken from Smith and colleagues (2008). A sample item assessing proactivity: " He or she is constantly on the lookout for new way to improve his or hers life.", while a sample item assessing resilience is: " He or she tends to bounce back quickly after hard times."

We also included three control variables: *detachment from work during nonwork time, IT experience and training,* and *work–nonwork interfac*e. The latter was assessed by the employee's supervisor or work colleague and measured by three questions, and the first two were self-reported by the employees. To measure *work–nonwork interface,* we adapted questions from Bogaerts, De Cooman, and De Gieter (2018). A sample item: "His or hers need for combining work and private life is met by the opportunities offered by the organization." (α = .805). Work–nonwork interface, defined as "*an employee's psychological experience of congruence between his/her personal boundary management preference and the boundary management supplies of his/her work environment*," is an important construct

because every person differs with regard to their personal experiences and the fit between their personal boundary management preference and the boundary management supplies provided by their work environment (Bogaerts et al., 2018). As Bogaerts, De Cooman, and De Gieter (2018) pointed out, this construct is important for employee well-being, job satisfaction, and reduced work–life conflict. *Detachment from work during nonwork time* or the lack thereof was measured with the three questions adapted from Sonnentag and Fritz (2007) and Park et al. (2011) assessing techno-invasion. A sample item: "I am not able to fulfil my family roles because I am doing technology enabled work activities from home. " (α = .703). Psychological detachment is important because it has been shown that people who can detach during nonwork time are less exhausted, have a better well-being, and have lower need for recovery (Sonnentag & Schiffner, 2019). ICT is blurring the line between work and nonwork life and can influence WLB (Nam, 2013). Hence, *IT experience and training* were measured with five questions from the questionnaire developed by Staples, Hulland, and Higgins (1999). A sample item: "I am experienced at using my organization's electronic collaborative (group support) system. " (α = .881).

3.1.3.3 Data analysis

First, we applied principal component analysis to verify that the proposed job characteristics represent a second-order construct of enriched work design. Next, to confirm overall model fit, we applied confirmatory factory analysis (CFA) by using the AMOS software (Arbuckle, 1997). The model fits data well when the goodness of fit index (GFI) is higher than .90 and the root mean square error of approximation (RMSEA) is less than .08 (Hoyle, 1995). After checking the overall model fit and item choice, we analyzed descriptive statistics. Hypothesis 1 was tested with an independent t-test, Hypothesis 2 with Model 1, and Hypothesis 3a and 3b with Model 3 in the PROCESS macro version 3 (A. Hayes, 2021).

In addition to testing the main hypotheses regarding the role of enriched work design on WLB and the moderating joint roles of formalization and personality, we conducted a supplemental analysis to test which of the five enriched job characteristics (i.e., task identity, interdependence, skill variety, social support, and autonomy) had the greatest effect in this three-way interaction model.

3.1.4 Findings

3.1.4.1 Principal component analysis and confirmatory factor analysis

The PCA, in which we included all mean scores of job design characteristics (i.e., task interdependence, task identity, skill variety, autonomy, and social support), showed that all five items formed one component (i.e., enriched work design), supporting our proposed model. Enriched work design explains 36.55% of the total variability in the data (KMO = .686, approx. Chi-square = 183.523, p = .000). The results of CFA with five latent variables

(enriched work design,WLB, formalization, proactive personality, resilience) showed a good model fit (GFI = .905, RMSEA = .044, Chi-square = 778.342, df = 425, p = .000)[9].

3.1.4.2 Descriptive statistics

Descriptive analysis showed that our participants had on average high levels of core job design characteristics, which means their work design was considered as enriched. Most of them were perceived as highly proactive (mean = 3.98) and highly resilient (mean = 3.69). Furthermore, the data showed, on average, that their WLB was rated as very good (mean = 3.99). Table 19 provides detailed data below.

[9] The residuals within the construct were allowed to correlate due to theoretical considerations (thematic overlap of items).

Table 19: Correlation matrix

		Mean	SD	Task interdependence	Task identity	Skill variety	Autonomy	Social support	Proactive personality	Resilience	WLB
Correlation	**Task interdependence**	3.47	1.095	-							
	Task identity	3.95	.949	.179**	-						
	Skill variety	3.93	.992	.253**	.117**	-					
	Autonomy	3.6274	.81465	.220**	.255**	.269**	-				
	Social support	3.9630	.70336	.106*	.204**	.180**	.265**	-			
	Proactive personality	3.9760	.49469	.171**	.185**	.290**	.448**	.258**	(.697)		
	Resilience	3.6955	.70115	.095**	.115**	.202**	.221**	.112*	.362**	(.685)	
	WLB	3.9998	.67175	.092**	.263**	.110*	.289**	.261**	.287**	.208**	(.817)

Notes. n = 436. Coefficient alphas are on the diagonal in parentheses. $^{**}p < .01$, $^{*}p < .05$

Source: Own work.

3.1.4.3 Hypotheses testing

Using the split-means approach, we delineated the respondents into a group of low (below the scale mean) and high (above the scale mean) enriched work design. The independent t-test (Table 20) showed significant differences ($\alpha = 0.001\%$; $\sigma = 0.13366$) between the group with high enriched work design (≥ 3; n = 469; WLB score = 4.04, SD = .63) and the group with low enriched work design (< 3; n = 45; WLB score = 3.56, SD = .88), with t(48.528)=3.578. Based on this result, we can support Hypothesis 1. Table 2 summarizes the results of PROCESS MACRO analyses.

Table 20: Results of the Analyses with PROCESS Macro

	Model 1 Moderation (W=Formalization)	**Model 3a Three way interaction with enriched work design, formalization and resilience**	**Model 3b Three way interaction with enriched work design, formalization and proactive personality**
Constant	3.0864** (.0007)	-3.2460 (.4593)	-8.4222 (.1722)
Enriched work design	.2944 (.2238)	1.5783 (.1713)	2.9884 (.0.0810)
Formalization	.0173 (.9432)	1.9535 (.0976)	3.6305* (0.0269)
Work-non work interface	.0963* (.0120)	.0995** (.0085)	.0774* (.0328)
IT experience and training	.0484 (0.1165)	.0445 (.1451)	.0415 (.1648)
Technology invasion	-.2195** (.0000)	-.2198** (.0000)	-.2263** (.0000)
Resilience		1.8785 (.1379)	
Proactive personality			3.2277* (.0514)
F	.0316	2.1771	4.5884
R^2	.0001	.0041	.0083
p	.8591	.1408	.0328

Notes. Entries are estimations of fixed effects with robust standard errors.

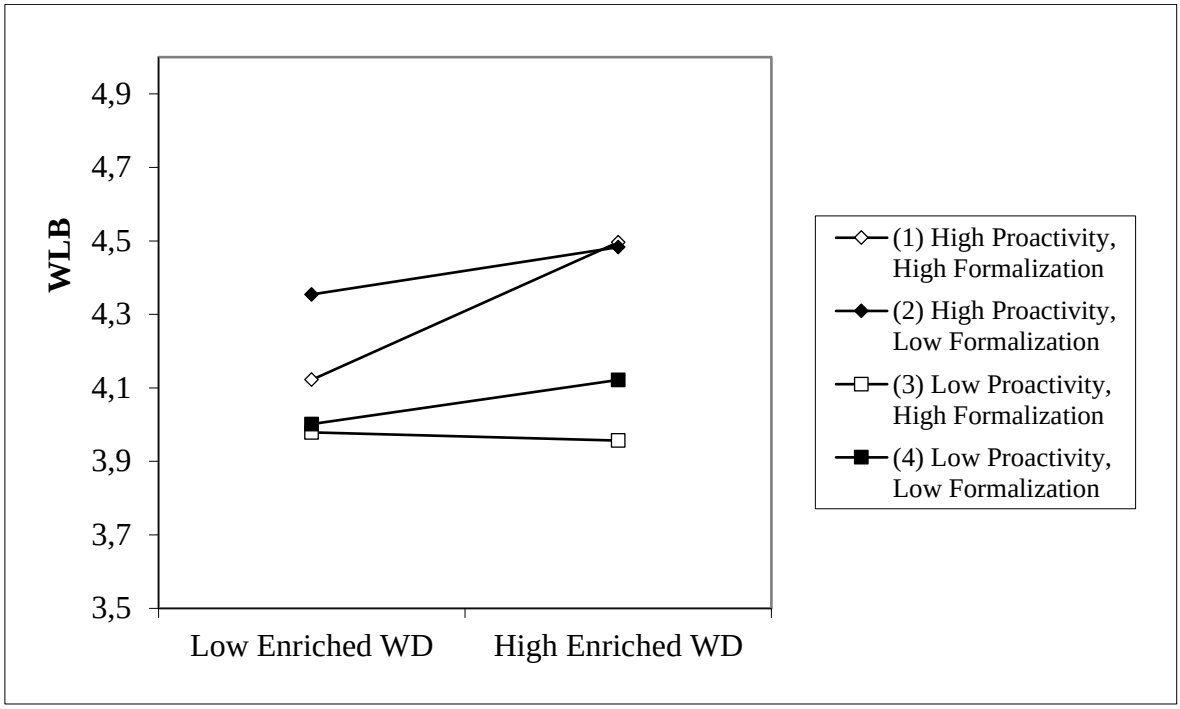
Source: Own work.

Model 1 showed that formalization did not significantly (R2 = 0.0001; F = 0.0316; p = 0.8591, n = 436) moderate the relationship between enriched work design and WLB (Int = –.0113, se = .0638, t = –.1776, p = .8591). Based on this result, we could not find support for Hypothesis 2.

Model 3a showed that resilience and formalization did not significantly (R2 = 0.0041; F = 2.171; p = 0.1408, n = 436) interact in moderating the relationship between enriched work design and WLB (Int = .1278, se = .0866, t = 1.4755, p = .1408). Based on this result, we could not find support for Hypothesis 3a.

Model 3b (Figure 23) showed that proactive personality and formalization did interact in significantly (R2 = 0.0083; F = 4.5884; p = 0.0328, n = 436) moderating the relationship between enriched work design and WLB (Interaction term = .25143, se = .1174, t = 2.1421, p = .0328). The slope difference tests showed a significant difference between the slope of line (1) and line (3): t-value = 2.882, p < .01. Based on this result, we can support Hypothesis 3b.

Figure 23: Three-way interaction effect among enriched work design, proactivity and WLB



Source: Own work.

Additionally, by relying on the three-way interaction effect among each job design characteristic separately, WLB, and proactivity/resilience, we performed supplementary analysis to delve deeper into the interactive role of specific enriched work design characteristics. Four analyses (Table 21) showed statistical significance regarding three-way interactions.

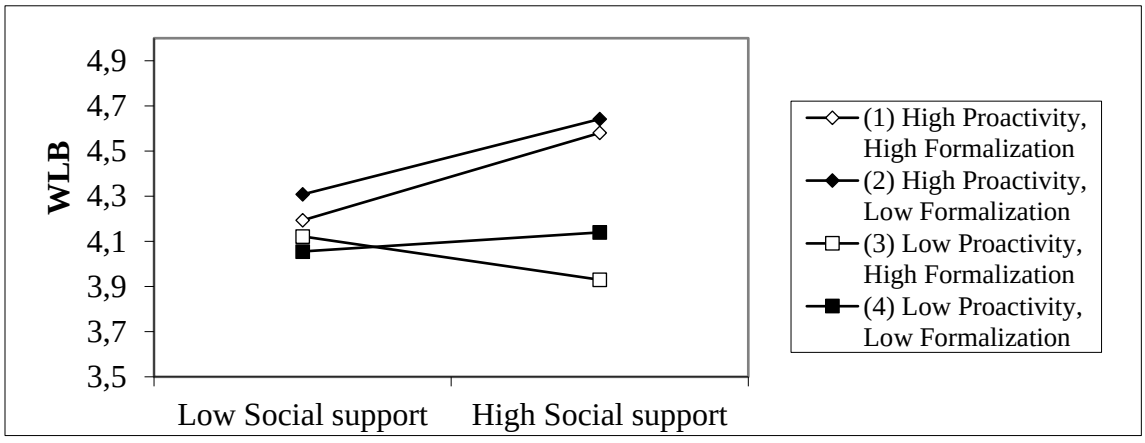
Table 21: Results of supplemental analyses

	Model 3c Three way interaction with social support, formalization and proactive personality	Model 3d Three way interaction with task identity formalization and proactive personality	Model 3e Three way interaction with skill variety formalization and resilience	Model 3f Three way interaction with social support, formalization and resilience
Constant	-3.6416 (.4067)	-6.0718 (.1206)	-3.5660 (.2665)	-5.2030 (.1152)
Social support	1.6249 (.1809)			2.2384** (.0.0115)
Task identity		2.1231* (.0359)		
Skill variety			1.5853* (.0491)	
Formalization	2.8745 * (.0186)	2.3954* (.0251)	1.9426 (.0241)	2.4857* (0.0057)
Work-non work interface	.0630 (.0868)	.0740* (.0488)	1.232** (.0012)	.0999* (.0262)
IT experience and training	.0532 (.0684)	.0467 (.1138)	.0675* (.0275)	.0590 (.0501)
Technology invasion	-.2389 (.0000)	-.2289 (.0000)	-.2264** (.0000)	-.2207** (.0000)
Resilience			1.9516* (.0306)	2.2721* (.0154)
Proactive personality	1.7192 (.1395)	2.7604** (.0064)		
F	4.0283	5.3055	3.8499	6.3744
R^2	.0071	.0096	.0075	.0120
p	.0454	.0217	.0504	.0119

Notes. Entries are estimations of fixed effects with robust standard errors. **$p < .01$, *$p < .05$
Source: Own work.

Model 3c (Figure 24) showed that proactive personality and formalization did significantly (R2 = 0.0071; F = 4.0283; p = 0.0454, n = 436) moderate the relationship between social support and WLB (Int = .1688, se = .0841, t = 2.0071, p = .0454).

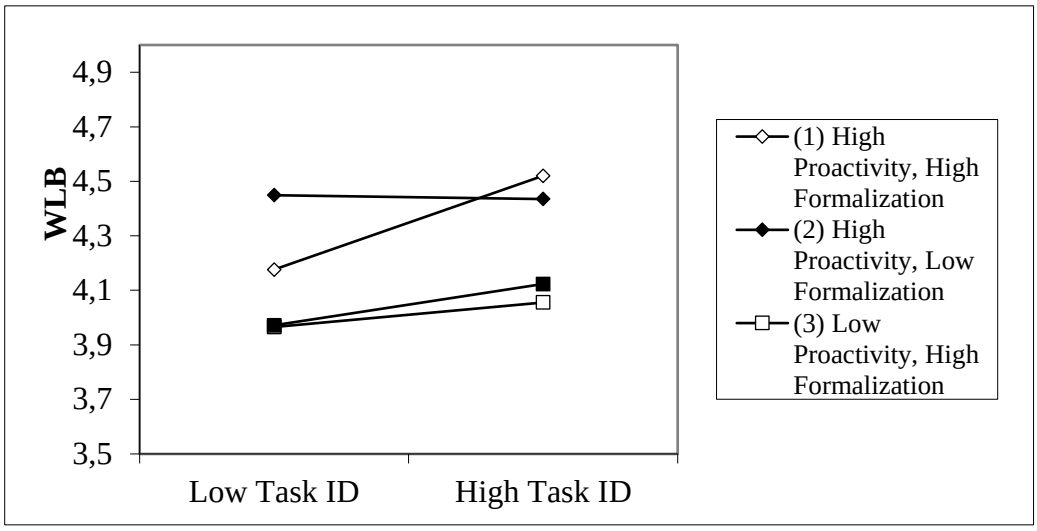
Figure 24: Three-way interaction effect among social support, formalization and proactivity



Source: Own work.

Model 3d (Figure 25) showed that proactive personality and formalization did significantly (R2 = 0.0071; F= 5.3055; p = 0.0217, n = 436) moderate the relationship between task identity and WLB (Int = .1592, se = .0691, t = 2.3034, p = .0217).

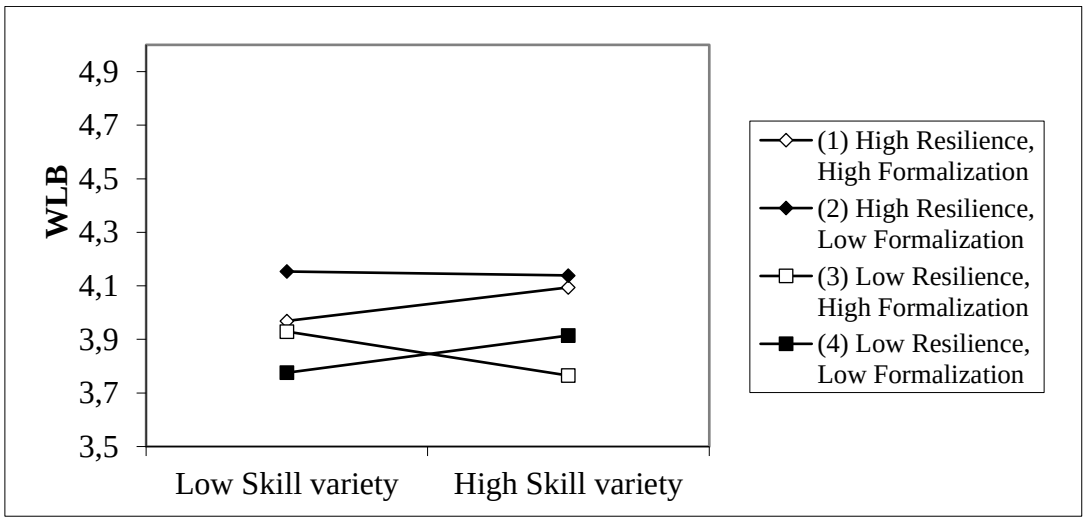
Figure 25: Three-way interaction effect among task identity, formalization, and proactivity



Source: Own work.

Model 3e (Figure 26) showed that resilience and formalization did significantly (R2 = 0.0075; F = 3.8499; p = 0.504, n = 436) moderate the relationship between skill variety and WLB (Int = .1135, se = .0578, t = 1.9621, p = .0504).

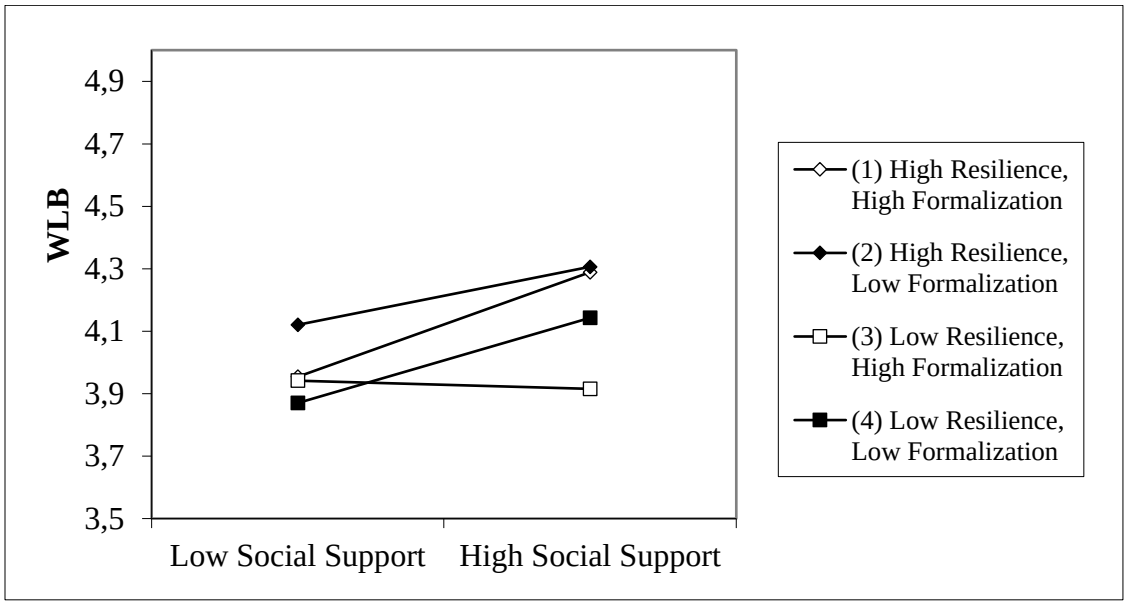
Figure 26: Three-way interaction effect among skill variety, formalization, and resilience



Source: Own work.

Model 3f (Figure 27) showed that resilience and formalization did significantly (R2 = 0.120; F = 6.3744; p = 0.0119, n = 436) moderate the relationship between social support and WLB (Int = .1618, se = .0641, t = 2.5248, p = .0119).

Figure 27: Three-way interaction effect among social support, formalization and resilience



Source: Own work.

3.1.5 Discussion and conclusion

The results showed that enriched work design (i.e., high skill variety, autonomy, task identity, task significance, and social support) is positively related to WLB (i.e., individuals who had higher levels of enriched work design also reported higher levels of WLB). Next, we proposed that formalization moderates the positive relationship between enriched work design and WLB but could not find support for this hypothesis. We can conclude that formalization alone does not significantly alter the relationship between enriched work design and WLB; however, this finding opened avenues for the potential roles of additional moderators.

We then examined the joint moderation of formalization and personality traits on the relationship between enriched work design and WLB. We found a significant moderation of formalization and proactive personality (but not resilience) on the relationship between enriched work design and WLB. Interestingly, we found that WLB was highest in conditions with low enriched work design when there was high proactivity and high formalization. Moreover, there was high proactivity in conditions with high enriched work design, whereas formalization did not play as important of a role.

We performed supplementary analyses to determine which job design characteristics play the most important role in predicting WLB, in combination with formalization and proactivity. We found four significant relationships. Proactive personality and formalization moderated the relationship between social support and WLB. Interestingly, we found that

the best WLB is achieved when social support is high, combined with high proactivity and low formalization. Further, the results showed that high WLB is achieved when task identity, proactivity, and formalization are high. However, surprisingly, WLB is also high when task identity is low, proactivity is high, and formalization is low. Resilience had no influence on the relationship between enriched work design and WLB, whereas supplemental analysis showed the significant influence on the relationship between some individual job design characteristics and WLB. When analyzing skill variety, we found that the highest levels of WLB are achieved when skill variety is low, employees are resilient, and formalization is low. WLB is highest when support is high and resilience is high, whereas formalization does not matter as much.

3.1.5.1 Theoretical contributions

Our study contributes to the fields of organizational behavior, work–life interplay, and HRM in the following ways. First, we contribute to the WLB literature by analyzing the influence of individual job design characteristics on WLB (Polat & Özdemir, 2020; Walia, 2014), advancing this stream of research by taking a holistic approach to capturing enriched work design as a composite second-order construct embodying key job characteristics, and examining its relationship with WLB. We confirmed Jindal and colleagues' (2013) findings that enriched work design leads to higher WLB and then corroborated it by including not only the self-assessments of WLB but also the assessments of their family members.

In doing so, we improved the objectivity of the assessments, which Sirgy and Lee (2018) also highlighted as one of the main gaps in their literature review on WLB research. Our composite multi-informant approach in treating key variables with insights from multiple sources, not just a single perspective, represents an important empirical contribution not only toward the study of WLB but to organizational behavior in general, with the aim of improving the empirical assessments of questionnaire-based research. We added to the field by including important control variables, such as detachment from work during nonwork time, IT experience, and training and work–nonwork interface. These did not exhibit a consistent pattern of relationships on WLB; however, in some of our studied models, work–nonwork interface and IT experience and training exhibited a positive relationship, whereas detachment from work, measured by techno-invasion, showed a negative relationship with WLB. These findings go in line with prior studies (Althammer et al., 2021; Carlson et al., 2006; Felstead & Henseke, 2017; Nnadozie et al., 2015).

Secondly, we included both types of predictors proposed by Sirgy and Lee (2018): personal (i.e., resilience and proactive personality) and organizational (i.e., enriched work design and formalization). Although other studies (Akkani & Oduaran, 2017; Kundnani & Mehta, 2014; Pooja & Kanupriya, 2019) mostly focused on the big five personality traits, our study complements this research by focusing on individual traits that can be trained in organizations (Bateman & Crant, 1999; Linz et al., 2019; Strauss & Parker, 2015; Thomas

Hendricks & Albright, 2018) and are more malleable than basic personality traits. This has important implications for the study of organizational behavior and HRM with regard to setting up conditions in organizations that are in line with existing individual, job, or organizational contexts but allow for organizations to develop individual characteristics beneficial for yielding the best results from such contexts in the form of employees' WLB.

Our findings support findings from previous studies that job characteristics are reliable and anticipated predictors but that their importance varies in the context of individual circumstances (Jones et al., 2017; Stansfeld & Candy, 2006; Theorell et al., 2015). We have shown that individual characteristics are more important than organizational ones for the relationship between enriched work design and WLB and that proactive personality is more important than resilience. Employees with proactive personality are better able to take advantage of enriched work design (N. Li et al., 2010) and prepare for change (Fay & Frese, 2001); therefore, their WLB is not severely affected (Walz & Niehoff, 2016), whereas employees with higher resilience are able to recover quickly after a stressful situation (Kent & Davis, 2010), but their WLB is still affected during stressful situations. This provides important insights into complex interactions of individual, job, and organizational factors that shape organizational realities in predicting employees' WLB.

We also extended the line of inquiry investigating job characteristics and individual characteristics as predictors of WLB (Jindal, Agarwal, Garg, et al., 2013; Polat & Özdemir, 2020; Saleem & Abbasi, 2015) by including formalization as a moderating organizational factor, on the basis of the JD-C model. Our study showed that organizational formalization has no significant effect on the relationship between enriched work design and WLB or on the relationship between individual job design characteristics and WLB. Our study confirms Li and colleagues' (2010) findings that proactive employees are able to derive greater benefits from high-quality relationships. Thus, we point out the importance of setting up a relationally supportive context for proactive individuals that will enable them to capitalize on their proactivity in achieving high levels of beneficial outcomes such as WLB.

Our supplemental analysis confirmed the findings of previous studies (Allen et al., 2000; C. A. Thompson et al., 1999) by showing the importance of social support on WLB. We further developed these studies by showing that both resilience and proactive personality can positively moderate the relationship between social support and WLB. Furthermore, we confirmed Jindal and colleagues' (2013) findings by showing that task identity has a significant impact on WLB, and we advanced their study by showing that this relationship can be positively influenced by proactive personality. Although the study by Jindal and colleagues did not show a significant effect of skill variety on WLB, our study suggests that the relationship between skill variety and WLB can be positive when individuals are highly resilient.

Our findings also complement a recent study by Bakker, Breevaart, Scharp, and de Vries (2021), in which the authors suggest that managers should encourage their employees to be

proactive and provide them with autonomy and feedback in order to maintain job performance and satisfaction of employees' basic needs (Bakker et al., 2021), by showing that these elements of enriched work design are also crucial for achieving WLB.

3.1.5.2 Practical implications

Our study also has important practical implications for employees, managers, HR managers and specialists, and policy makers. Policy makers have gained insights into the importance of developing WLB policies and programs so that workers and managers understand their rights, benefits, and opportunities. This can be achieved through policies that promote an enriching work design and by organizing appropriate training and workshops to improve important personality traits such as proactivity and resilience. It has been shown that proactivity can be improved through various trainings on identifying opportunities, planning and pursuing goals, providing training on building self-confidence and self-efficacy, and so on (Bateman & Crant, 1999). Managers can encourage employees to be more proactive also by shaping work environment in a way that stimulate proactivity (e.g., providing more social support) (Ghitulescu, 2012). There is also a well-known movement (i.e., the high involvement or commitment model) that (1) includes methods that go beyond the narrow confines of the work (i.e., teamworking, idea-capturing schemes, and functional flexibility), (2) promotes employee proactivity, flexibility, and collaboration with colleagues, and (3) allows employees to participate in decision-making (Wood, Veldhoven, et al., 2012). Resilience can also be improved when managers enhance social support and self-regulation (Thomas Hendricks & Albright, 2018).

Next, as work design has been shown to be an important element of HR practices intended for better WLB, (HR) managers are advised to strive for enriched work design that promotes this (e.g., more autonomy, more skill variety, better social support). Based on its definition, enriched work design can be achieved when managers redesign jobs so that they are high quality and allow employees an element of discretion and flexibility in performing and accomplishing their primary task (Arthur, 1994; Walton, 1985; Wood & de Menezes, 2008). Job redesign is usually accompanied by managers giving their employees more discretion, variety, and high levels of responsibility (Wood, Veldhoven, et al., 2012).

Furthermore, our study showed that individual characteristics are more important than organizational ones for the relationship between enriched work design and WLB. Both individual characteristics studied can be trained and developed through various HR practices (Bardoel et al., 2014). These programs help employees deal with pressure and rapid change in ways that are sustainable for their well-being and the organization's performance (Ollier-Malaterre, 2009). These include flexible work design, wide-ranging training and growth programs, developmental and performance-based appraisals, rigorous selection processes, cutthroat payment, and wide-ranging benefits (Raza et al., 2018). Employees can now better understand the importance of training that helps them become more proactive and resilient, as well as the overall importance of creating WLB.

3.1.5.3 Limitations and further research directions

A few limitations of our study should be noted. In particular, the data were collected in only one country (i.e., Montenegro) during the period of the pandemic, so the findings cannot be generalized due to possible cultural and exceptional situational influences. As for our questionnaire, each job design characteristic was measured by 1-3 items, which means that the work design assessment was quite scarce. Although we measured the job design characteristics with few of items, previous studies (O'brien, 1983; Piccolo & Colquitt, 2006) have confirmed the reliability of this measurement scale. Future research could include formalized WLB practices as moderators to explore these, as well as use full scales to capture the core constructs.

For further studies, we propose that researchers should extend our study by including cross-cultural participants in the post-pandemic period. They could also advance our study by exploring various additional individual traits that can be trained (e.g., self-efficacy and self-leadership). Our study could also be advanced by exploring other job design characteristics (e.g., job complexity, skill variety, specialization) that could also have a large impact on WLB. In addition, we could also explore playful work design (PWD) proposed by Bakker et al. (2021) in relation to WLB. It would also be interesting to see if findings differ for various modes of work (i.e., office work, hybrid work, and remote work) that have gained further momentum during the pandemic.

3.1.5.4 Conclusion

Organizations increasingly offer enriched work design possibilities to employees, yet their effects depend on both individual and organizational characteristics, as well as their interplay. The results of the study showed that the positive relationship between enriched work design and WLB can be strengthened with more formalization, but only for employees high in proactive personality. Supplementary analyses showed the importance of social support and task identity on WLB when interacting with formalization and proactive personality, as well as the importance of social support and skill variety on WLB when interacting with formalization and resilience. Taken together, our findings indicate that it further behooves us to add to our understanding of the complex interplay among individual, job, and organizational factors predicting employees' WLB.

3.2 Digitally-mediated knowledge work: The roles of task enriched-work design, technology use, and flexible work in navigating burnout and engagement paradox

3.2.1 Introduction

In modern organizations, most of the workforce comprises knowledge workers, described as employees whose primary occupation is the development of products and services using knowledge acquired through formal education (Drucker, 1959). Based on some estimates, the number of knowledge workers worldwide exceeds 1 billion (Roth, 2019). In such jobs, *digitally mediated work* is on the rise (Field & Chan, 2018). It includes all types of work performed using digital tools or technologies in general to complete tasks, store information, and interact with stakeholders, among other functions (Claggett & Karahanna, 2018; Hsieh et al., 2011; Tilson et al., 2010). In digitally mediated work, the *use of technology* influence (organize and shape), if not determine, how employees perform their duties, and work in its current form exists due to the existence of technologies. However, the outcomes of this type of work (physical transactions, services, and products) remain predominantly non-digital. In this perspective, IT is the medium for knowledge work (Baiyere et al., 2023). Another key element of digitally-mediated knowledge work is that such working professionals' tasks are non-routine, focus on solving open-ended problems (Pyöriä, 2005), and are characterized by higher levels of *task job characteristics*, with greater autonomy, task variety, task significance, task identity and feedback from job (Morgeson & Humphrey, 2006), making their task design enriched.

While digitally-mediated work has elicited many benefits for workers and organizations, e.g., easier and more effective distribution of work processes (Dewett & Jones, 2001; Lund et al., 2020; Venkatesh & Vitalari, 1992), previous research also has noted the drawbacks of excessive information technology use at work (Tarafdar, D'arcy, et al., 2015; B. Wang et al., 2020). For example, IT overload (i.e., constant connectedness, technostress, and techno-invasion associated with excessive technology use) is a job demand that can lead to burnout (Berg-Beckhoff et al., 2017; Bunjak, Černe, & Popovič, 2021) and loss of work engagement (Srivastava et al., 2015). In addition, digitally-mediated knowledge work is exacerbated by the reality that *flexible work arrangements* in terms of work location (e.g., work from home, remote work, hybrid work, work from anywhere, etc.) and work hours (working at any time, split work hours, four-hour work week, etc.) are on the rise (Peters et al., 2009). This trend accelerated during the COVID-19 pandemic, as knowledge workers needed to shift quickly to remote work in virtual and hybrid work environments (Bartik et al., 2020; Golden, 2006; Rockmann & Pratt, 2015).

While existing management and information systems research recognizes that organizations can intervene and motivate employees through enriched (task) work design (Lamovšek et al., 2022), we know little about how to mitigate IT's potentially harmful effects on

knowledge workers with high levels of enriched task characteristics. Furthermore, digitally-mediated knowledge work and its characteristics have been viewed as bringing both positive and negative effects on work outcomes depending on work context and related factors. In particular, we do not know how technology use at work interacts with flexible work arrangements available to workers in predicting specific work outcomes.

Technology use at work and flexible work arrangements have been categorized as both job demands (Vranjes et al., 2022) and job resources (Lange & Kayser, 2022; Marino & Capone, 2021), depending on specific contextual conditions. This paper's central research question is whether digitally-mediated knowledge work helps employees buffer job demands by giving them more control over their work, or whether it leads to new job demands that reduce control over work, resulting in low-level work engagement and high burnout.

We addressed this research question and offer an integrative perspective on digitally-mediated knowledge work through a field study of 3,647 workers at 127 firms. In doing so, we controlled for nested observations (i.e., workers' affiliations with specific firms) using a multilevel model that includes multisource ratings of key firm-level control factors that potentially influence workers' perceptions and outcomes related to (flexible) work and technology use, i.e., technological turbulence, firm digital readiness, and environmental dynamics in the firm's industry. We employed the job demands-resources framework (Bakker & Demerouti, 2017, 2018) from a multilevel perspective to understand how organizations should manage technology use at work and set up flexible work arrangements for individual and firm-level jobs while trying to prevent worker burnout and keep workers engaged. In this sense, by controlling for important firm-level factors in combination with individual-level work demands and resources, we can understand their cumulative effects comprehensively.

Our study makes important contributions to the study of HRM and IS. Our first intended contribution is to the motivational work design literature and can be seen in the extension of the model of job characteristics and motivational job dimensions (Morgeson & Humphrey, 2006) into the field of flexible work and IT use. Our study advances the line of research that mostly has provided isolated applications of these theoretical frameworks to one specific domain (technology, work design/specific job characteristics, or flexible work) by providing a holistic examination of the complex interplay between enriched task characteristics, technology use at work, and flexible work arrangements simultaneously, thereby offering a stronger three-dimensional conceptualization of digitally-mediated knowledge work comprising work design, technology, and flexible time/place.

Our second contribution concerns the literature that theoretically draws on the JD-R framework to examine the work design processes that link IT use with employee work outcomes, burnout and/or work engagement, respectfully (see Salanova et al., 2002; Zaza et al., 2000). The IT use has been viewed as "double-edged sword" bringing both beneficial and detrimental effects depending on the specific contextual circumstances (Bunjak, Černe,

& Popovič, 2021; B. Wang et al., 2020). However, the literature is missing the integrative perceptive on how digitally-mediated knowledge work and its related characteristics may influence employee level outcomes. We aim to add to this literature by proposing technology use at work and flexible work arrangements as potential job resources and/or demands in predicting burnout and work engagement, depending on the degree to which work tasks are enriched by management and in the context of technological turbulence, readiness, and dynamism.

Third, we aim to contribute to IS research, particularly the relatively recent and popular study of the "dark side of IT." Our study responds to D'Arcy, Gupta, Tarafdar, and Turel (2014) and Tarafdar, Gupta, and Turel's (2015) calls to examine the occurrence context, negative consequences, and mechanisms to avoid negative IT impacts at different analytical levels by proposing and testing a novel interplay between technology use at work and available flexible work arrangements. This can provide managers, organization work designers, and enterprise systems designers with a more nuanced understanding of the complex interplay between concurrent work design, flexibility arrangements, and IT systems in predicting employee engagement and burnout at work.

3.2.2 Theoretical background

3.2.2.1 Work technologies and their "dark side"

Work technologies refer to a variety of digital services that facilitate organizational work (Baptista et al., 2020). In today's digital work, these technologies vary from office applications to integrated social, mobile, analytics, cloud, and smart sensing technologies utilizing smart agents, work robots, and self-learning algorithms (Faraj et al., 2018; Klein & Watson-Manheim, 2021; Lyytinen et al., 2020). We observe a steady accumulation of increasingly complex work technologies within organizations (Kane, 2017), from early work technologies based on individual office applications to email, collaboration platforms and social media and, more recently, to advanced work technologies that include artificial intelligence and cognitive knowledge and collaboration systems, and integrated digital platforms of work.

Previously, work technologies were instrumental in facilitating discrete office tasks performed by individuals. The arrival of email, content platforms, and social media has connected workers to form communities, requiring effort to manage conversations and interactions. Recent years have witnessed the introduction of sophisticated algorithmic features and AI capabilities that leverage information and the features of individual and social work technologies to establish patterns of use that aim to anticipate worker and organizational needs, connect people to knowledge, and sometimes perform management functions (Baptista et al., 2020).

Yet, the recent intensification of digital work has brought to light not just the beneficial side of work technologies but also their negative aspects. The reality for many users is one of difficulty and overload, with devices and applications causing tension, exhaustion, and burnout (Marsh et al., 2022). Collectively, these unintended, negative effects of work technology have been referred to as its 'dark side,' an area that is attracting an increasing amount of research and which Tarafdar et al. (2015, p. 161) define as a broad collection of 'negative' phenomena that are associated with the use of IT, and that have the potential to impair the well-being of individuals, organizations, and societies. While recognition for this extensive collection of negative effects is growing, it remains unclear how they are associated with digital work and how they play out collectively.

3.2.2.2 Digitally-mediated knowledge work: A three-dimensional conceptualization comprising task enriched work design, technology use at work, and flexible work arrangements

Work tasks are becoming increasingly complex, suggesting that human skills are an important prerequisite for accomplishing such demanding tasks. Employees can cope with complexity at work by creating, internalizing, and applying knowledge, usually *using technology*. A prerequisite for the creation of useful information is the successful transformation of raw data into knowledge. In this regard, the worker's contribution is evaluated based on their ability to interpret information within a given subject area (Bratianu & Dincă, 2010) Therefore, knowledge workers primarily can be associated with IT utilization. Nevertheless, teachers, nurses, lawyers, and other professions also fall under this description. Today, organizations rely heavily on IT use, expanding job demands on workers to include a wide range of skills, and enriching their work as a result.

Herzberg (1974) suggested that instead of the prevailing method of simplifying jobs, employees' performance and satisfaction should be enhanced by introducing so-called motivators that promote employee responsibility, performance, skill growth, recognition, and advancement (Oldham & Fried, 2016). Similarly, changes in typical work designs have been noted as IT plays a critical role in everyday work (T. Johns & Gratton, 2013). Since the early 2020s, the COVID-19 pandemic's impact has challenged existing work conditions further by leading to a significant reshaping of work and, thus, new job demands that remain as most of the lockdowns have ended worldwide, including remote working as a new normal. Recently, the term digital work has emerged, one that scholars use regularly to describe a comprehensive form of IT (Marsh et al., 2022). Marsh (2018, p. 16) views the digital work as a "wide range of technologies that employees use every day to get their work done" regardless of remote work or physical presence in the office.

Although *task enriched work designs* provide many benefits for knowledge workers, organizations still face challenges when it comes to designing such work environments optimally. They need to find the right level of agility and control in terms of organizational

structures, apart from the reality that work digitization can inflict negative consequences on individuals (Köffer, 2015). Organizations have adopted nonstandard work arrangements to be more agile and competitive, bring more diversity into their workforces, and benefit from positive organizational impact. Generally, *flexible work arrangements*, defined as "working without rigid boundaries around working spaces, schedules, and contracts" (Soga et al., 2022, p. 648), represent a job resource, as they improve employees' work-life balance and positively impact their relationship with their organization by increasing satisfaction, engagement, and productivity (Martin & MacDonnell, 2012). However, both flexible work arrangements and technology use at work are often viewed as double edged because of their potential to improve and hamper work processes and employee health at work. It has been shown that the relationship between flexible work arrangements and health outcomes is mixed (Shifrin & Michel, 2022), and technology use at work leads to constant interruptions in workflow, creating job demands that ultimately result in burnout (Bunjak, Černe, Nagy, et al., 2021).

Similarly, the JD-R framework focuses on two main components: job demands and job resources. The former refers to aspects of work that require constant mental and physical effort and, therefore, are associated with "certain physiological and psychological costs" (Demerouti, Bakker, et al., 2001, p. 501). The latter affects health when it comes to job characteristics, which can minimize job demands or lead to positive outcomes for individual progress and overall health. *Burnout*—defined as a syndrome of emotional exhaustion, depersonalization, and diminished personal accomplishment that may occur in individuals who work in some way with others (Maslach et al., 1997) —is viewed as the opposite of work engagement (Schaufeli & Bakker, 2010). The latter can be described as a "positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption" that is not a momentary, but rather a permanent work attitude. In this sense, burnout and work engagement are individual and independent constructs (Schaufeli et al., 2002, p. 74).

Accordingly, and as previously noted, both technology use at work and flexible work arrangements, as a potential benefit or/and burden on work processes, may play an important role in the relationship between enriched work designs and employee work engagement and burnout. Consistent with our overarching theoretical approach—the JD-R framework—we focused on task enriched work designs as work design processes responding to rapid technological changes in combination with contextual factors that may be determinants of employee work valued outcomes. With this in mind, we identified two contextual factors, technology use at work and flexible work arrangements, and examined the relationship between task enriched work designs and work engagement and burnout, respectfully.

3.2.2.3 Task enriched work designs and technology use at work

Job enrichment refers to work design that includes a variety of job content, higher levels of knowledge and expertise, greater responsibility and autonomy in planning, directing, and

controlling work (Sungkit & Meiyanto, 2015). It is known that task characteristics influence employee attitudes and behavior (Steers & Mowday, 1977). Prior research has also associated task enriched work designs with IT. Since routine tasks are often performed by smart technologies that do not inquire human input, employees are left with complex task execution. In order to accomplish those tasks in information-heavy and ambiguous work environment, workers use and are dependent on ICT to overcome complexity (Vuori et al., 2019). With increasing complexity of information in the digital era, knowledge workers must thereby make use of an infrastructure comprising ICT to handle and manage the vast amount of data and carry out their work.

Non-routine tasks without clearly laid-out procedures require much explicit coordination between colleagues and demand synchronizing activities, and using IT to make plans or create schedules explicitly is invaluable (Maruping & Magni, 2014). Furthermore, autonomy and job control have been found to be related positively to technology use (Ahuja & Thatcher, 2005; Kraan et al., 2014). Technology use at work includes digital tools such as enterprise social media, e.g., collaboration tools (e.g., Slack) or Intranet platforms, providing users with the ability to communicate with each other, maintain communication with partners, post/edit/view messages asynchronously, and, thus, support the formation and maintenance of social relationships (Fu et al., 2020; Van Osch et al., 2015) (Fu, Shang, Jeyaraj, Sun & Hu, 2019; Van Osch, Steinfield & Balogh, 2015). Enterprise social media also enable employees to perform their work tasks better, implying that enriched work designs are the most direct external factor to consider when researching digitally mediated work (Fu et al., 2020).

Similarly, Koo, Wati, and Jung (2011) found a positive direct effect from task characteristics (analyzability, urgency, and complexity) on the use of social communication technologies. Enriched tasks require large volumes of data to perform the work and need to be coupled with a processing technology capable of disseminating cognitive resources for better individual decision making (Jiang & Benbasat, 2007). Furthermore, Ghani (1992) found that greater task variability involves the need to tackle varied tasks with a wide variety of IT tools and, thus, was related positively to the variety of computer applications used. In order to execute complex tasks, users are dependent on technology. Thus, interdependencies between the task enriched work design and technology use at work. Based on these arguments, we propose that greater task variety and autonomy in decision making, work methods, and work schedule (i.e., greater control), grouped under the umbrella term of *task enriched work design*, enable and motivate workers to use more technology (i.e., perform more technology use at work):

H1: Task enriched work design is related positively to employees' technology use at work.

3.2.2.4 Technology use at work and employee work valued outcomes

The constant nature of digitally connected work forces workers to work irregular and long hours, stretching their capacities to the limit. These increasing job demands come with psychological costs (Demerouti, Bakker, et al., 2001). Technology-related stress, information overload, and interruptions are some examples of technology-related job demands (e.g., Bunjak, Černe, Nagy, et al., 2021; Srivastava et al., 2015). Therefore, various negative phenomena associated with IT use's "dark side" can deplete employees' psychological resources and lead to burnout. Moreover, digitally-mediated work presents new and complex configurations of human-technology interactions in the work that, based on the JD-R framework (Demerouti, Bakker, et al., 2001), can become work stressors when used interchangeably and exceed workers' ability to manage or control multiple work demands simultaneously.

On one hand, technological demands in terms of quantity, time pressure, and overall workload can lead to work stress and, eventually, burnout when workers are exposed to such working conditions over a long period of time (Bakker & Demerouti, 2018; Bunjak, Černe, & Popovič, 2021; Bunjak, Černe, Nagy, et al., 2021). On the other hand, cutting-edge technologies at work allow people to spend fewer cognitive and mental resources on tasks, giving them more control over their time and tasks, thereby improving their engagement and well-being at work (Chesley, 2010). Likewise, research is suggesting that creates a sense of control and provides accessibility to employees and information (Ter Hoeven et al., 2016) fostering work engagement (Carvalho et al., 2022). Similarly, Okolo et al. (2018) have found a positive link between techno-stressors and work engagement, so that techno stressors actually are positively related to work engagement. Although scarce in quantity, these results suggest that there is an association between challenging ICT demands and individual work engagement. Work engagement is presented as the antithesis of burnout (e.g., Demerouti, Bakker, et al., 2001; Maslach & Leiter, 2008), and advanced technology may improve work engagement, but if employees cannot cope with too much technological intrusion, they are likely to experience burnout. Therefore, technology use at work may be related positively to both work engagement and burnout (a "mixed blessing" dilemma):

H2a: Technology use at work is related positively to employee burnout.

H2b*:* Technology use at work is related positively to employee work engagement.

3.2.2.5 Flexible work arrangement as a double-edged sword in combination with technology use at work

This paper's core premise is that digitally-mediated knowledge work's comprehensive nature can be conceptualized and tested by considering the "holy trinity" of work design, technology, and work flexibility. Therefore, we propose that the interplay between task

enriched work design, technology use at work, and the availability of flexible work arrangements plays a role in predicting burnout and work engagement.

The logic behind the following hypotheses also is based on the JD-R framework. Technology use at work may represent both job demands and resources in modern knowledge work and is induced by task characteristics that emerge from knowledge workers' jobs, proposed in H2a-b. Similarly, a lack of flexible work arrangements in the form of scheduling and decision-making autonomy has been found to be problematic for workers under work stress when adopting new software or using technology and can lead to work fatigue (M. Ahuja et al., 2007; M. K. Ahuja & Thatcher, 2005). On the other hand, employees with higher levels of work flexibility, can take time to learn newly introduced applications' features or new technology upgrades more easily, or they can take advantage of technology-based flexible work options (Day et al., 2010; Kraan et al., 2014) which can help with coping with the stress and burnout. This indicates that flexible work arrangements, similar to technology use at work, can represents both job demands and resources.

On the positive side of flexible work arrangements, workers who are flexible in time and location are also better able to deal with friction and scheduling conflicts that arise from digital work demands (S. Li et al., 2022) e.g., potential overload from digital (video) calls, meetings, and coordination activities via digital platforms. Flexible work arrangements allow workers to cope more effectively with fulfilling multiple roles (Rau & Hyland, 2002). The ability to self-manage working hours (i.e., flexitime) mitigates the occurrence of difficulties and consequently reduces stress and potential burnout (S. Li et al., 2022; Utami & Supriyadi, 2013). Flexible work environments also typically provide individuals with autonomy and independence in completing tasks, allowing them to engage with their work further (Lee et al., 2017).

However, on the negative end, when already faced with digital demands that generally prompt individuals to engage in work, additional flexibility may not be a good thing. After all, if technology use at work is in overload—and as such represents a demand for employees and is present with flexible resources simultaneously—the benefits that each brings could be negated. Social interactions are an important source of meaningfulness in work engagement (Aguinis & Glavas, 2019; Aleksić et al., 2023). Under high-level technology use at work and work flexibility conditions, many workers are more likely to do their work independently, potentially missing out on the social resources needed to activate and engage at work (Gerdenitsch et al., 2015; Glowacka, 2020). Hence, we argue that too much flexibility combined with technology use at work may leave employees disconnected from work processes and roles that they should be fulfilling in interactions with others (Kubicek et al., 2022; Neirotti et al., 2019) eventually leading to less engagement.

Moreover, flexible work decisions, work arrangements, and control of work processes are all resource-intensive activities, as recent research by Zhou (2020) has indicated. Although generally viewed as resources, these flexibility-related activities are actually time- and

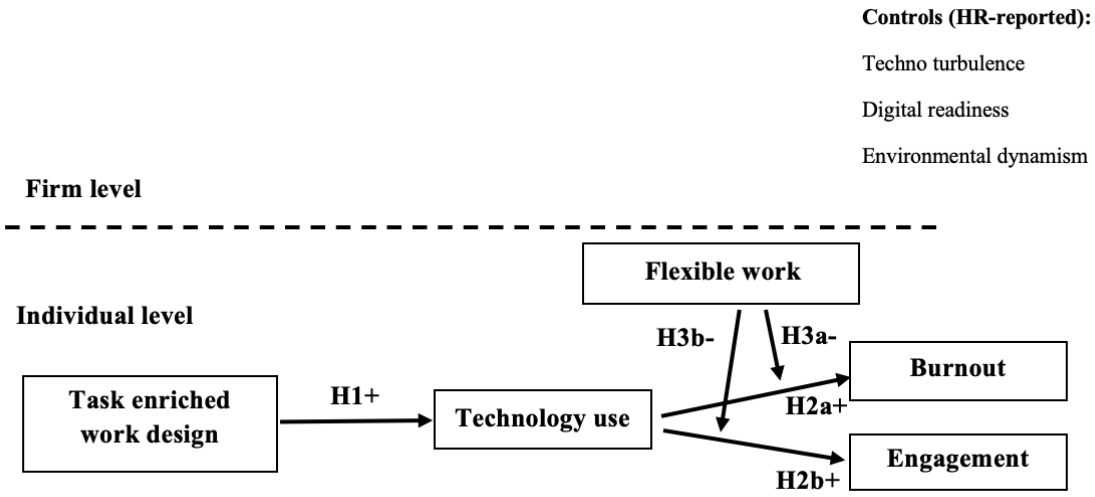
effort-intensive, and can deplete resources if used excessively (this is also consistent with the JD-R framework; Bunjak, Černe, Nagy, et al., 2021). Therefore, we hypothesize that flexible work arrangements in relationship with the technology use at work, should be observed as "double edged" contextual factor, as it has a potential to lower both, work engagement and burnout:

H3a: Flexible work arrangements moderate the relationship between task enriched work design and burnout, mediated by technology use at work, making it less positive.

H3b*:* Flexible work arrangements moderate the relationship between task enriched work design and work engagement, mediated by technology use at work, making it less positive.

Figure 28 presents the multilevel model developed and tested in this study, whereas Table 22 provides a contextualized specification of specific digitally-mediated knowledge work elements comprising our research model based on the JD-R framework. It specifies whether a particular element of digitally-mediated knowledge work is proposed to act as a resource or a demand in a specific condition (and related to other contextual factors in our model).

Figure 28: Multilevel model with hypotheses



Source: Own work.

Table 22: Contextualized specification of digital knowledge work elements (task enriched design, technology use at work, flexible work arrangements) based on the JD-R framework

	Digital knowledge work elements			**Proposed association with outcomes**	
Hypotheses-based context framing of specific constructs	*Task enriched design*	*Technology use at work*	*Flexible work arrangements*	*Burnout*	*Engagement*
H1: Task enriched design -> (+) Technology use at work	High demands and resources simultaneously	High demands and resources simultaneously	n/a	n/a	n/a
H2a: Technology use at work -> (+) Burnout	High demands and resources simultaneously	High demands	n/a	↑	n/a
H2b: Technology use at work -> (+) Engagement	High demands and resources simultaneously	High resources	n/a	n/a	↑
H3a: Negative moderation of flexible work -> (-) Burnout	High demands and resources simultaneously	High demands	High resources (resource control)	↓	n/a
H3b: Negative moderation of flexible work -> (-) Engagement	High demands and resources simultaneously	High resources	High demands (resource depletion)	n/a	↓

Notes. ↑ = more positive; ↓ = less positive.

Source: Own work.

3.2.3 Methodology

3.2.3.1 Data collection and sample

The data were collected as part of a large benchmarking project involving German companies operating in various industries and employing fewer than 5,000 employees. In return, these companies were offered an extensive benchmarking report. A specialized agency conducted data collection using a procedure that included direct mailings to the

companies. Of the 135 companies that voluntarily applied to participate in the research, eight did not participate or did not provide sufficient data, reflecting an organizational response rate of 94%. Due to other missing data on particular items (not whole constructs), a listwise missing value deletion procedure was adopted, and the final data sample comprised 127 organizations. The participating companies came from different types of industries (51% from the service industry, 27% from manufacturing, 11% from trade, and 11% from finance and insurance) and varied in size from 13 to 1,959 employees (M = 284). In line with Podsakoff, MacKenzie, Lee, and Podsakoff's (2003) recommendations on reducing the risk of common method bias, we obtained the data from two different sources: an employee survey and an HR management survey.

Data were collected in two steps. First, HR management provided key information on each particular organization's general characteristics, e.g., number of employees and affiliation with a particular industry, to confirm organizations' participation in the study and report on techno-turbulence, digital readiness, and environmental dynamism levels in their organization. Second, employee survey data were collected to obtain information on focal individual-level variables: enriched task work design; technology use at work; flexible work arrangements; burnout; and work engagement. All members received an e-mail invitation from the HR department, with the description of the study's purpose and a web link to a survey hosted by an independent entity.

On average, participating employees were 41 years old (SD = 11.28, 35% female) and had been employees at the company for 10 years (SD = 8.55). Third, we asked a member of each company's top management team to assess the control variables related to their firms that frame our research model specifically. The top management sample's employees were 44 years old (SD = 6.59) on average and also mostly male (91%).

3.2.3.2 Measures

Professional translators translated all survey versions into German while following a double-blind back-translation process to ensure semantic equivalence with the original English items (Schaffer & Riordan, 2003). The respondents were assured full anonymity. Unless otherwise noted, all measures were assessed on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Task enriched work design. We measured enriched task characteristics as a core part of enriched work design by using four items adapted from the Work Design Questionnaire (Morgeson & Humphrey, 2006). A sample item: "I can make my own decisions about how to schedule my work" ($\alpha = .785$).

Technology use at work. Technology use at work was measured using four items adapted from the Chesley (2010) and Sandoval-Reyes, Acosta-Prado, and Sanchís-Pedregosa (2019)

scales. A sample item: “I use smartphones, tablets, and other mobile devices for my work” (α = .780).

Flexible work arrangements. Flexible work was measured using six items adapted from Hayman (2009) and Thompson, Payne, and Taylor (2015). A sample item: “I can arrange my working hours flexibly.” (α = .769).

Burnout. Burnout was measured using five items adapted from Maslach and Jackson (1981). A sample item: “I feel burnt out from my work” (α = .932).

Work engagement. We assessed task engagement using the three items with the highest validation-article factor loadings adopted from the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2019). Example items for the vigor, dedication, and absorption components, respectively: “At my work, I feel bursting with energy”; “I am enthusiastic about my job”; and “I feel happy when I am working intensely” (α = .910).

Control variables. We controlled for the following variables (at Level 2). Techno-turbulence—as indicated by Akgün, Lynn, and Byrne (2006) —can cause workers to experience fear, pressure, and uncertainty, leading to emotional burnout. Digital readiness, pointed out in Nguyen and Broekhuizen (2022), plays an important role in mitigating technology demands vis-à-vis potential burnout. Environmental dynamism can influence subjective burnout levels significantly due to individuals responding with stress and emotional exhaustion to quickly changing environmental factors affecting their work (Bunjak, Černe, Nagy, et al., 2021).

3.2.3.3 Data analysis

Our data set comprised two hierarchically nested levels: individuals (Level 1; n = 3,647) nested into firms (Level 2; n = 127). We used hierarchical linear modeling (random coefficient modeling) to test our multilevel model using MLmed (Beta 2), an SPSS (v25) macro for fitting multilevel models (A. F. Hayes & Rockwood, 2020). Such an approach allows for simultaneous estimation (while applying restricted maximum likelihood principles) of all the model’s parameters. Between-group and within-group effects and direct and indirect effects are specified and tested separately, and confidence intervals are provided in the mediation analysis for different levels of the moderator, along with moderated-mediation indices for testing the overall model. The splitting of variance also allowed us to model the flexible work arrangement’s moderating effects on both individual (within) and firm (between) levels.

3.2.4 Findings

3.2.4.1 Confirmatory factor analysis

To examine overall model fit, we applied confirmatory factory analysis using AMOS software (Arbuckle, 1997) version 22.0. Without within-construct residuals being allowed to covary, the results of CFA with five latent constructs (task-enriched work design, technology use at work, flexible work arrangements, burnout, and work engagement) were the following: CFI = 0.774, RMSEA = 0.103, chi-square = 8249.911, df = 209, p = 0.000. With the residuals within constructs allowed to correlate due to theoretical considerations (thematic overlap of items), the results showed good fit: CFI = 0.933, RMSEA = 0.061, chi-square = 2548.525, df = 175, p = 0.000.

3.2.4.2 Descriptive statistics

Table 23 reports the descriptive statistics for all variables analyzed in our study.

Table 23: Means, standard deviations, alpha reliabilities, and correlations among variables

	Mean	SD	α	1	2	3	4	5	6	7	8
1 Task enriched design	3.7920	.76594	.785	-							
2 Technology use	3.3496	.92310	.781	.431**	-						
3 Flexible work arrangements	3.0559	.71042	.769	.304**	.433**	-					
4 Burnout	2.4648	.96650	.932	-.322**	-.145**	-.167**	-				
5 Work engagement	3.6612	.71345	.910	.336**	.231**	.168**	-.276**	-			
6 Digitalization readiness	4.1030	.66359	.811	-.023	.059**	-0.027	.078**	.016	-		
7 Technological turbulence	3.3759	.46396	.822	-.005	.106**	.214**	-.055**	.046*	.201**	-	
8 Environmental dynamism	4.2654	.68942	.663	-.009	-0.011	0.031	0.01	-.012	-.160**	-.054**	-

Notes. **. Correlation is significant at the 0.01 level (two-tailed) *. Correlation is significant at the 0.05 level (two-tailed).

Source: Own work.

3.2.4.3 Hypotheses testing

The results from multi-level analyses with MLmed are provided in Table 24. The moderated-mediation analysis comprises two parts. The first column presents results from analyses that predicted the mediator (technology use at work), whereas the second and third columns present results from predicting the respective outcome variables (burnout and work engagement, respectively). At both the within and between levels, task enriched work design direct effects on technology use at work were positive and significant (*within effect size* = .44, *se* = .02, *p* < *.01; between effect size* = .78, *se* = .17, *p* < *.01*), thereby supporting Hypothesis 1.

Technology use at work was related positively, but not significantly, to burnout at the within level (*effect size* = .10, *se* = .09, *ns*), whereas it was related negatively to burnout at the between level (*effect size* = -.73, *se* = .23, *p* < *.01*). When examined in isolation from other effects, and after combining both levels' effects, this effect was negative and significant (β = .15, *se* = .09, *p* < .01), thereby not supporting H2a.

Turning to work engagement as the dependent variable, technology use at work was related positively, but not significantly, to work engagement at the within level (*effect size* = -.08, *se* = .08, *ns*), whereas it was related negatively, but again not significantly, to work engagement at the between level (*effect size* = -.18, *se* = .17, *ns*). When examined in isolation from other effects and after combining both levels' effects, this effect was positive and significant (β = .23, *se* = .01, *p* < .01), thereby supporting H2b.

In examining the relationships proposed in Hypotheses 1 and 2 in more detail, we also found a significant positive indirect effect from task enriched work design on burnout via technology use at work (*indirect effect size* = -.52, *p* < *.05*) and an insignificant negative indirect effect from task enriched work design on work engagement via technology use at work (*indirect effect size* = -.14, *ns*).

Table 24: Results from multi-level analyses using MLmed

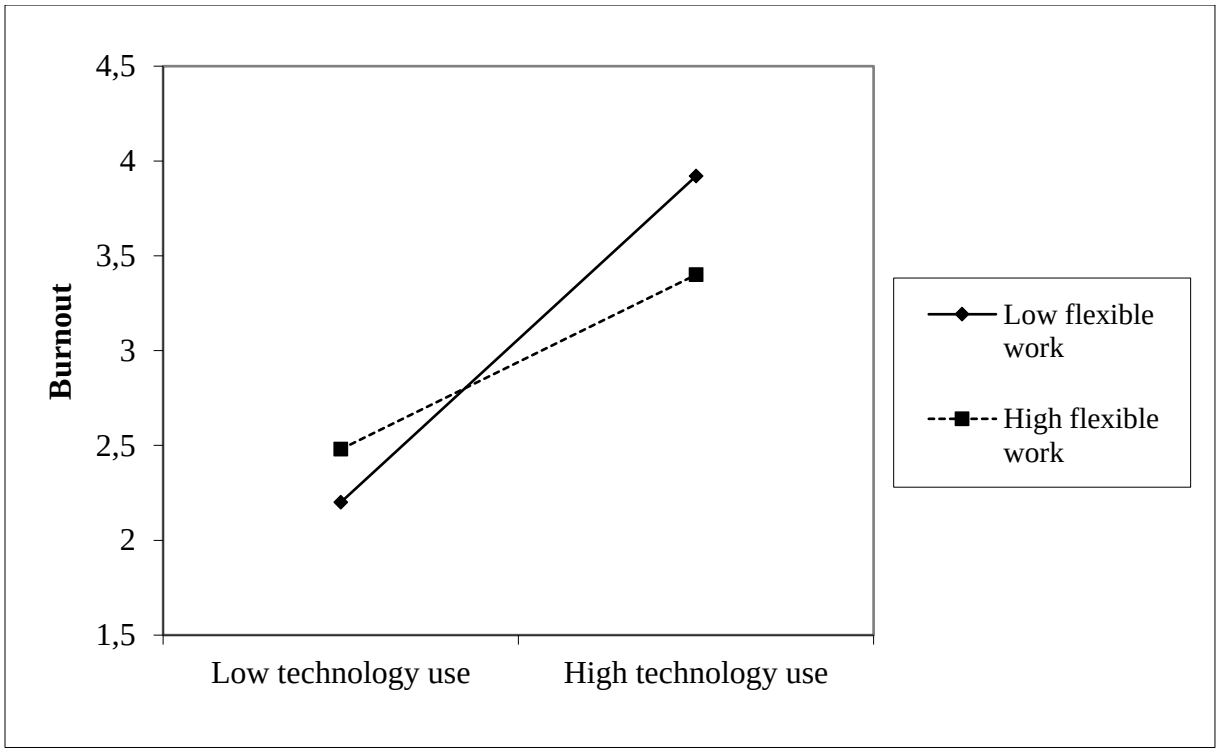
Moderated-mediation model	**Predicting technology use at work = mediating variable**	**Predicting burnout = first outcome variable**	**Predicting engagement = second outcome variable**
Within-Effects (between individuals)			
Constant	-.40 (.95)	2.22* (1.02)	2.13* (.71)
Task enriched design	.44** (.02)	-.38** (.03)	.26** (.02)
Technology use at work		.10 (.09)	-.08 (.08)
Interaction effect: Technology use at work × Flexible work arrangements		-.03 (.03)	.05† (.03)
Between-Effects (between firms)			
Task enriched design	.78** (.17)	-.63** (.16)	.62** (.10)
Technology use at work		-.65** (.14)	-.18 (.17)
Flexible work arrangements		.73** (.23)	-.46** (.18)
Interaction effect: Technology use at work × Flexible work arrangements		-.21** (.07)	.11* (.05)
Technological turbulence	.18† (.10)	-.05 (.08)	-.04 (.05)
Digital readiness	-.03 (.07)	.14** (.05)	.03** (.03)
Environmental dynamism	.05 (.07)	-.03 (.05)	.00 (.03)
Indirect effect of enriched task design on respective outcome via technology use at work		.52* (LLCI = .14; ULCI = .097)	-.14 (LLCI = -.44; ULCI = .11)
Index of moderated mediation (for respective outcome)		-.16 (LLCI = -.30; ULCI = -.05)	.09 (LLCI = .01; ULCI = .19)
Model fit (BIC) for moderated-mediation model predicting a respective outcome		10,868.12	9,326.165

Notes. N = 3,647 individuals (Level 1) nested into 127 firms (Level 2). *p < .05; **p < .01; †p<.10. LL = lower-level confidence interval; UL = upper-level confidence interval;

Source: Own work.

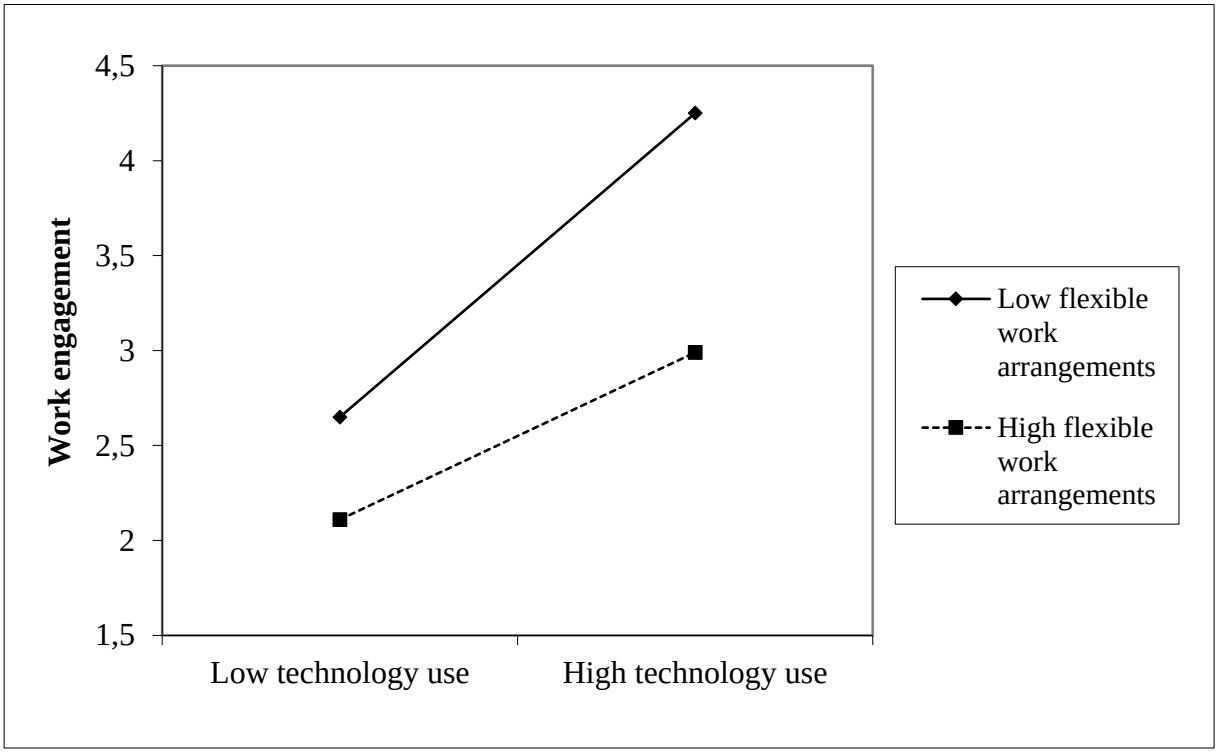
Turning to the full moderated-mediation model (H3) and the moderation of flexible work arrangements in the mediated relationship, the moderated mediation indices can be viewed as significant for both outcomes because their respective confidence intervals excluded zero (*index* = -.16 with confidence intervals LLCI = -.30 and ULCI = -.05 for burnout as the dependent variable, thereby supporting Hypothesis 3a; *index* = .09 with confidence intervals LLCI = .01 and ULCI = .19 for work engagement as the dependent variable, thereby supporting Hypothesis 3b). Plots in Figures 29 and 30 provide additional insight into the tested interactions (plotted at the between level). All plots' simple slopes were significantly ($p < .01$) different from zero.

Figure 29: The interplay between technology use at work and flexible work arrangements in predicting burnout



Source: Own work.

Figure 30: The Interplay between technology use at work and flexible work arrangements in predicting work engagement



Source: Own work.

3.2.5 Discussion and conclusion

While the use of IT in the workplace has elicited many benefits for workers and organizations (Dwivedi et al., 2020; Lund et al., 2020; Venkatesh & Vitalari, 1992), previous research also has identified drawbacks from excessive technology use (Berg-Beckhoff et al., 2017; S. K. Parker & Grote, 2020; B. Wang et al., 2020). With technology use at work and flexible work arrangements on the rise, many organizations have been struggling to understand how digitally-mediated worker predicts specific (positive and/or negative) work outcomes. The JD-R theory assumes that job resources (such as flexible work arrangements) and job demands (such as technology use) can influence employee work engagement and wellbeing. Task-enriched work design characterized by variety, significance, autonomy, and feedback is seen as a job resource that increases work engagement by satisfying basic psychological needs and promoting personal growth, learning and development. In principle, the use of technology at work can be both good and bad. It is good when it helps people adapt to new tools at their own pace, making work less stressful. But it can also be stressful if new technologies are difficult to learn or use and lead to fatigue or burnout.

Our results indicate that greater task variety, autonomy in decision making, work methods, and work schedules (task enriched work designs) allow workers to use more technology, and that such use of technology use at work is related positively to employee work engagement. However, when enriched work designs were linked to employee outcomes via technology use at work and flexible work arrangements, these contextual factors changed the direction of predicting employee burnout and work engagement. More specifically, the respective factors managed to decrease individual burnout but at the same time they made employees less engaged in their work. According to the findings, the use of technology in the workplace is therefore a multifaceted phenomenon, which can be identified as job demand and/or job resource in modern knowledge work. This duality arises from the task characteristics inherent in knowledge worker occupations, where technology promotes efficiency and creativity (Dewett, 2003) on the one hand, and sets expectations due to constant connectivity and potential technology overload (Day et al., 2010; Delpechitre et al., 2019). Flexible work arrangements, characterized by scheduling and decision-making autonomy, similarly embody a dual nature. On the one hand, flexible work arrangements are associated with outcomes, such as better physical health, reduced absenteeism, better work-life balance, and better managing personal resources and preventing stress (Shifrin & Michel, 2022). In addition, flexible work environments offer autonomy and independence in task completion, engaging employees more in their work (Lee et al., 2017). However, on the other hand, the findings show that benefits of flexibility can become counterproductive if they are accompanied by a high level of technology use. A high use of technology and high flexibility can promote independent work and reduce the opportunities for social resources that facilitate engagement (Rosales, 2016). This counterproductivity is rooted in the connectivity paradox, in which ICTs are intended to bridge geographical divides and increase flexibility, but at the same time create a state of constant connectivity. This ubiquitous connectivity increases the perceived barriers to effective work by imposing an expectation of constant availability, which in turn can force individuals to seek disconnection in order to escape the relentless demands of the office environment (Leonardi, Treem, & Jackson, 2010). Thus, consistent with the JD-R framework, our findings suggest that while the use of technology and flexible work arrangements offer significant benefits as work resources, their interaction can trigger complex dynamics that can reduce work engagement. This dual nature underscores the importance of managing technology use and flexibility to optimize their benefits while mitigating the potential for increased work demands and resource depletion.

Nonetheless, regardless of the degree of flexible work, high-level technology use at work elicits more burnout than low-level technology use at work. We conclude that both technology use at work and flexible work arrangements can be a "mixed blessing," eliciting both benefits (work engagement) and burdens (burnout) under specific conditions. Taken together, technology use at work is more suitable for engaging employees, whereas flexible work arrangements are more important in reducing burnout. This can provide managers, organizational work designers, and enterprise systems designers with a more nuanced understanding of the complex interplay between concurrent work design, flexibility arrangements, and IT systems in predicting employee work engagement and well-being.

3.2.5.1 Theoretical contributions

This study contributes to human resource management and IS research in three meaningful ways. First, we contribute to the motivational work design literature by extending the model of job characteristics and motivational job dimensions (Morgeson & Humphrey, 2006) into the flexible work and IT use field. Isolated applications of these theoretical frameworks are limited to examining specific job dimensions, e.g., autonomy (Petrakaki & Kornelakis, 2016; Pichault & McKeown, 2019), or focusing on either flexible work arrangements (Groen et al., 2018; Ter Hoeven et al., 2016) or interactions with IT (Y. Liu et al., 2018). We advanced this research stream by offering a unique three-dimensional conceptualization of digitally-mediated knowledge work, comprising work design, technology, and flexible time/place. We operationalized and examined it in a holistic way by capturing a complex moderated-mediation interplay between enriched task characteristics, technology use at work, and flexible work arrangements simultaneously in predicting employee work outcomes.

Second, we contribute to the literature that theoretically draws on the JD-R framework to examine burnout and/or work engagement as specific outcomes of employees' technology use at work (see Salanova et al., 2002; Zaza et al., 2000). These are separate outcomes, yet they frequently have been related through prior research applying the JD-R framework that mostly treats them as opposites. It already has been speculated that job demands are a "double-edged sword" that can be both beneficial and detrimental depending on the specific contextual factors (Bunjak, Černe, & Popovič, 2021; Bunjak, Černe, Nagy, et al., 2021). We add to this literature by proposing technological and work flexibility as either resources or demands in predicting burnout and work engagement (but not necessarily only reversed for the two outcomes), depending on the extent to which work tasks are enriched by management, and in the context of technological turbulence, readiness, and dynamism.

Indeed, technology use at work and flexible work arrangements negatively predicted burnout; therefore, reflecting back on what we proposed in Table 1. Hence, for knowledge workers, digitally-mediated knowledge work generally should not be viewed necessarily as a demand, but rather as a resource that enables more efficient work performance with perhaps less stress, ultimately lowering burnout and contributing to enhanced well-being. Furthermore, flexible work arrangements that moderated the relationship between enriched task characteristics and work engagement mediated by technology use at work made such a relationship less positive too. This provides insights for managers and organizations about the combination of contextual factors and their interplay that may harmonize work but perhaps take away from the work engagement benefits at work These findings significantly advance human resource research founded in the JD-R framework by providing a comprehensive, yet nuanced, take on the interplay between job enrichment, flexibility, and technology at work.

Third, we contribute to extant research on the "dark side of IT," which has been on researchers' radar for the past decade. This research area examines a variety of phenomena

related to the use of technology that in some way undermine the well-being of individuals, families, employees, organizations, and/or society (Vaghefi et al., 2017). Examples of such behaviors include excessive, compulsive, and addictive use of IT; technostress; IT interruptions; and other harmful IT-related behaviors (Beaudry et al., 2020). Recent evidence indicates that such unexpected and/or undesirable use of organizational technologies can have unexpected consequences, e.g., decreased performance (Turel & Qahri-Saremi, 2016), frequent distractions and loss of focus on productive tasks (Addas & Pinsonneault, 2018), and psychological consequences (Lapointe et al., 2013), among others. In recent years, an increasing amount of research has focused on (excessive) IT use's negative effects (see Marsh, 2018; Mikalef et al., 2022). Following Tarafdar et al.'s (2015) calls, our study examined the occurrence context, negative consequences, and mechanisms to avoid negative impacts from technology at different analytical levels, which underpins this research stream by proposing and testing novel interplay between technology and available flexibility. In line with these calls, the occurrence context is represented by individual and firm-flexible work arrangements, the broader organizational context at the firm level (technological turbulence, readiness, and dynamism), and mechanisms by enriched task characteristics driving technology use at work and indirectly leading to the examined work outcomes.

When infusing knowledge work with IT, the "road to hell" seems to be "paved with good intentions," i.e., we might think that we are trying to instill something positive by providing two elements that often are viewed as benefiting employees (job resources): technology use at work and flexible work arrangements. When viewed separately, our findings support both to some extent in terms of contributing to beneficial employee outcomes, thereby reducing burnout and increasing work engagement. However, when put together, although they lower burnout, they also reduce work engagement levels, creating a paradox. Nonetheless, regardless of the degree of flexible work, high-level technology use at work produces more burnout than low-level technology use at work.

3.2.5.2 Practical implications

Our study offers some important lessons for HR managers and IT and business leaders. First, the challenges associated with technology use at work are of great interest to both business and IT executives now that the digital work has become the norm in many organizations, particularly for knowledge workers. Direct employee participation is one of the most advocated interventions for influencing organizational performance and employee well-being. Digital work initiatives inevitably require employee engagement, i.e., these activities directly affect employees' experiences. However, previous IS literature, which mainly has focused on improving high-level performance, somehow has ignored the employee experience. Our findings indicate that digital work initiatives can change employees' experiences positively, particularly work engagement. Leaders can learn that deploying digital work initiatives can make employees happier because they feel that the firm is keeping up with the changing business environment and adjusting to the competitive

landscape's disruptive forces. This study also informs business and IT leaders that happy employees produce more and better output, as they are more physically, emotionally, and cognitively engaged. Therefore, this study provides guidance on how to achieve higher job performance by developing digital work initiatives.

Second, leaders can play a role in helping employees successfully adopt and adapt to digital technologies in the workplace. To begin with, it's important for leaders to lead by example by using the technology themselves and regularly reminding employees of the support and resources available. Next, organizations can offer a stipend for technology adoption. Pair this with guidance to make it easier to use across the organization, which will ensure that the process is consistent. Furthermore, organizations should focus less on the technology itself and more on training employees to adapt to change more effectively. Technology changes constantly, and workplaces must adapt constantly as well. Organizations need to focus on helping their employees develop the skills needed to deal with change effectively, become more resilient, unlearn old behaviors, and adopt new ones.

Third, it is important that human resource managers and organizational and enterprise systems designers not consider specific elements of digital work in isolation, but rather adopt a holistic view when designing organizational realities. Such an approach enables them to recognize whether and which conditions a particular facet related to technology, work design, and flexible work arrangements require as either resources or demands to foster beneficial employee outcomes. Our finding that regardless of the degree of flexible work, high-level technology use at work produces more burnout than low-level technology use at work can help shape digital and technology-related elements at work, which likely should be accompanied by stress- and burnout-reducing interventions, trainings, or even simply awareness-building. Thus, organizational leaders and their workers should be warned about potentially excessive technology use because although such technology can motivate knowledge workers to engage with their work more intensely, they also are at higher risk of burnout. Specific conditions related to high-level enriched task characteristics in combination with low-level flexible work arrangements and high-level technology use at work lead to frequent burnout, whereas the highest engagement was found in the case of high-level technology use at work and low-level flexible work arrangements. This highlights an important trade-off between technology and time/location flexibility in stimulating knowledge workers' engagement.

3.2.5.3 Limitations and future research directions

This study contains some limitations that may lead to avenues for future research in human resource management and IS. First, the study's context may limit the findings' generalizability (i.e., Germany, knowledge work). We suggest that future researchers examine whether a sample of worldwide firms or a different context validates the research model. Second, our research model's dependent variables (i.e., work engagement and

burnout) were measured using subjective self-reported data. Although we applied multiple *ex ante* checks to prevent common method bias, we encourage future researchers to extend this line of research with potentially other-rated data on employee outcomes.

Third, the definition of digitally mediated work encompasses a wide range of technologies, and this study made no distinctions regarding digital technology types. Thus, future IS research could examine different types of digital technologies' effects on worker outcomes, and also delineate between the intention behind technology use (e.g., for personal benefits during work hours, for work during off hours, i.e., supplemental work). Indeed, some studies support the idea that occupations increasingly are embedded in and influenced by different digital technologies (Vaast & Pinsonneault, 2021).

Fourth, although this was not the present study's focus, future research could extend the proposed research model and examine how technology use at work and flexible work arrangements can create business value by improving various aspects of employee performance (e.g., task performance, adaptive performance, and contextual performance) and firm performance (e.g., innovation performance, operational performance, and financial performance). Finally, future research could focus on delineating between different subgroups of participants based on workflexibility in which digital work components' effects on burnout and engagement may differ. For example, for those with long commuting times, location flexibility's importance is higher than for those with short commuting times (S. Li et al., 2022). Future research should investigate these differences and specifically model them in relation to our studied phenomena.

3.2.5.4 Conclusion

As the business environment changes rapidly, and competition in the market becomes more intense, the labor-intensive work sector is diminishing, and the knowledge-intensive work sector is growing. While labor-intensive work requires that employees passively perform given tasks, knowledge-intensive work asks employees to determine the scope and method of tasks actively by considering their own capabilities and surroundings. The nature of contemporary work tasks requires enriched task designs, leading to excessive technology use at work, and as such affecting employee engagement and burnout. Our study indicated that technology use at work contributes to work engagement but does not lead to burnout as expected. However, when jobs are enriched, employees use technology at work, and jobs are supported with high-level flexible work arrangements, such work conditions resulted in both lower burnout and work engagement. Our study elicits a better understanding of the "holy trinity" of digitally-mediated knowledge work—work design, technology use, and flexible work arrangements—and these subcomponents' complex interplay in predicting specific work-valued outcomes.

3.3 Fostering work engagement with enriched tech-optimized work design in different forms of work: The role of self-initiated modification mechanisms

3.3.1 Introduction

How to foster employee work engagement in a modern increasingly digitized work has become a pressing and oftentimes puzzling matter. Work engagement is a phenomenon characterized by a positive and fulfilling work-related mental state that is marked by a sense of vigor, dedication, and absorption (Schaufeli et al., 2002). It is highly popular and coveted because it is associated with numerous favorable outcomes (Ofei-Dodoo et al., 2020; Rai & Maheshwari, 2021; Santhanam & Srinivas, 2020). It can be conceptualized as either a trait-like experience or a state-like experience, with recent research showing that the state-like approach, which highlights its actionability and the construct's malleability, may be more useful in examining situational predictors of work engagement (Sonnentag et al., 2008).

The work context represents a crucial source of factors that can enhance employee work engagement. Extensive research in the field of work design has identified job resources as key predictors of this important outcome (e.g., Christian et al., 2011; Halbesleben, 2010). The Job Demands-Resources theory suggests that resources can have joint effects with job demands influencing work engagement via different processes. Job-resources (e.g., social support) are those physical, psychological, social, or organizational aspects of a job that help achieve work goals, reduce job demands and associated costs, or promote personal growth, learning, and development, while job demands (e.g., work pressure) refer to the physical, psychological, social, or organizational aspects of a job that require sustained cognitive or emotional effort and are associated with physiological and psychological costs (Bakker & Demerouti, 2007). A job characteristic can function as either a job demand or a job resource, depending on the context.

This duality is illustrated by the example of job autonomy. Autonomy can be a job resource if it enables employees to develop and apply appropriate task strategies, thereby improving work engagement and coping with job demands (W. Zhang et al., 2017). However, autonomy can also be a job demand when the job requires a high degree of self-management and decision making, which can be potentially detrimental (e.g., Dettmers & Bredehöft, 2020). Well-designed jobs balancing between job demands and resources via a higher level of job characteristics such as skill variety, autonomy, and feedback, and has indeed been linked to increased work engagement (Sushil, 2014), work-life balance (Lamovšek et al., 2022) and is positively associated with greater work motivation (Bakker & Demerouti, 2007; Choudhary, 2016) and job crafting, the process of employees shaping their jobs by making changes to job demands and resources (Tims et al., 2012). According to JD-R theory, employees are proactively driven to acquire resources to meet their job expectations. Bindl and Parker (2010) define proactive work behaviour as "self-initiated, anticipatory action aimed at changing either the situation or oneself" (p. 567). In recent years, JD-R theory has

recommended various proactive work behaviours, such as job crafting, proactive vitality management, and playful work design (Bakker et al., 2023). In this paper, we refer to work motivation and job crafting as self-initiated work modification mechanisms.

Due to the recent technological advancements, technology enabled job (re)design has recently gained increasing attention with the aim to optimize workflow in a rapidly changing work environment for many individuals (DeShon & Gillespie, 2005). Currently, much of the job redesign literature has been catering to the need to use digital information and communication technology to complete work tasks more efficiently and how it affects the work design through shaping job demands and relations (B. Wang et al., 2020). While a work design perspective can guide managers in designing better jobs in future flexible work practices (Wang et al., 2020), the work design model itself currently does not cater to ICT enabled job characteristics that were not considered when it was founded.

Therefore, given the rapid advancement of technology in the work, first of all, we suggest that an expanded work design approach (Humphrey et al., 2007; Morgeson & Humphrey, 2006) should be updated to incorporate the technological characteristics, as previously pointed out in different papers, e.g., in the bibliometric review of distributed work (Lamovšek & Černe, 2023), mixed-method investigation of remote workers challenges and virtual characteristics (B. Wang et al., 2020), or comprehensive review of 100 years' worth of research on work design (S. K. Parker et al., 2017).

Second, the causal relationship between job crafting as a bottom-up work design approach and work motivation (i.e., the forces within an individual that spur or drive him or her to satisfy basic needs or desires; Yorks, 1976) remains inconclusive, as different studies show different results, i.e., that job crafting causes employees to be more motivated to work (e.g., Kooij et al., 2015) or, conversely, that work motivation causes employees to increase their job crafting behavior (e.g., Saragih et al., 2020), and highlight which phenomenon managers should better focus on when planning to increase their employees' work engagement.

Finally, research on work engagement is usually done separately in on-site, hybrid or remote settings, therefore it would be interesting to advance the research by providing comparison between all three forms of work. Wontorczyk and Rożnowski (2022) already addressed this gap and explored work engagement within all three forms of work, but found no significant differences in work engagement. Since this research was done in the peak of COVID-19, the recurrence under normal circumstances is needed.

The main aims and intended contributions of this study are threefold. First, we intend to integrate technological characteristics with the existing enriched work design framework, i.e., to propose a tech-optimized enriched work design in response to the technological trends in the workplace. We explore the differences between already well-established original extended enriched work design (Humphrey et al., 2007; Morgeson & Humphrey, 2006) and the proposed new one (i.e., tech-optimized enriched work design) that includes ICT

characteristics. This will advance traditional work design theories, ensure a comprehensive understanding of job resources and demands across all three primary forms of work, and gain a more complete understanding of the topic. We believe that exploring work design in new forms of work is important as they become more prevalent (Kane et al., 2021; Lamovšek & Černe, 2023).

Second, we utilize a longitudinal research design, which was already suggested by Wang et al. (2020) to track dynamic work processes over time. Such an approach provides a more robust insight into the dynamics behind employee engagement in contemporary workplaces. It specifically enables us to establish causality between self-initiated work modification mechanisms, namely work motivation and job crafting, addressing the existing perplexity regarding their interrelationship (cf., Kooij et al., 2015; Saragih et al., 2020), since using longitudinal data allows us to determine the temporal order of these mechanisms.

Third, we analyze the within (time) and between (individuals) effects of the relationship between (tech-optimized) enriched work design, self-initiated work modification mechanisms, and work engagement, and compare them across different forms of work. In this way, we intend to advance research on work engagement (Bakker et al., 2014; Dubbelt et al., 2019; Halbesleben, 2010) by investigating how proposed enriched technology-optimized work design can foster work engagement through self-initiated work modification mechanisms in different forms of work, and with that complement recent research regarding work engagement in differents form of work (e.g., Halgin et al., 2015; Panteli et al., 2019; Wontorczyk & Rożnowski, 2022). Complementing these theoretical contributions, the paper concludes with practical suggestions for managers to enhance work engagement level among their employees with the most appropriate application of work design for specific forms of work.

3.3.2 Theoretical background

3.3.2.1 Tech-optimized enriched work design

The emphasis of work design is currently transitioning from conventional on-site settings to emerging new forms of work (e.g., remote, hybrid) settings, leading to a global challenge for managers in the form of distributed work. Given the rapid pace of technological advancements, the rise of remote work, and mounting concerns regarding worker well-being, it can be argued that effective work design is more critical now than ever before (S. K. Parker & Grote, 2020). Wang et al. (2020a) highlight that ICT usage has a notable influence on work design. Through the utilization of advanced technologies (e.g., electronic collaboration systems), employees can now effortlessly communicate and collaborate with their co-workers and supervisors, regardless of time and physical location (Coenen & Kok, 2014; Cox, 2009), which led to development and establishment of distributed work. Distributed work is an umbrella term that has been characterized by various forms, descriptions, and

definitions in literature and practice, including telecommuting, remote work, telework, work from home, among others (Haddon & Brynin, 2005; Raiborn & Butler, 2009), which differ on the basis of variations in ICT use, location of work and geographical distribution (Lamovšek & Černe, 2023).

We believe that the Work Design Questionnaire (Morgeson & Humphrey, 2006) which includes job characteristics classified into four primary categories: task characteristics, knowledge characteristics, social characteristics and contextual characteristics, should be advanced by incorporating ICT characteristics, and such a corroborated version therefore labeled *tech-optimized enriched work design*. Analyzing distinct work characteristics can offer valuable perspectives on the direction of work in the future (B. Wang et al., 2020). The choice of additional variables that tech-optimize the enriched work design stems from prior suggestions on the matter. Suh and Lee (2017) already identified IT complexity (i.e., the level of difficulty and challenge associated with utilizing information technologies for work-related tasks; Ragu-Nathan et al., 2008), IT presenteeism (i.e., the degree to which individuals can be reached and accessible through technology; Ayyagari et al., 2011) and pace of IT change (also known as techno uncertainty; i.e., the frequency of new IT systems introduced in the business; Suh & Lee, 2017) as important characteristics that should be observed in telework context, while Karr-Wisniewski and Lu (2010) recognized the importance of technology overload (i.e.,occurs when the addition of new technology results in diminishing returns), and Fonner and Roloff (2010) the importance of information exchange via ICT (i.e., ability to sustain important connections), specifically information exchange frequency and information exchange quality. Information quality was also recognized by Wang et al. (2020). Therefore, we propose:

Proposition 1: *Tech-optimized enriched work design, that includes all characteristics proposed in WDQ plus additional ICT characteristics (i.e., IT complexity, IT presenteeism, pace of IT change, technology overload, and information exchange frequency and quality via ICT) represents an appropriate for capturing work design that includes technology.*

3.3.2.2 Self-initiated work modification mechanisms: The chicken or egg question

JD-R provides a dynamic perspective on the interplay between job demands and resources, highlighting that employees can take proactive steps to modify their work environment (Bakker & Demerouti, 2017). Research has already shown that higher job enrichment, characterized by higher levels of job characteristics such as skill variety, autonomy, and feedback, can increase work motivation and lead to job crafting (e.g., Hackman & Oldham, 1976), while on the other hand studies have also found that when employees engage in strengths-based job crafting, they create congruence between an employee's job and his or her individual preferences, personal passions, enhance work meaning and their intrinsic motivations (Dubbelt et al., 2019; Z. Yang et al., 2021). Studies have also found that motivated employees are more likely to engage in job crafting, resulting in higher levels of

work and personal resources and, in turn, even greater levels of work motivation (Bakker & Demerouti, 2007). Hence, job crafting, which involves bottom-up adjustments of job demands and resources, appears to play a significant role in the mechanisms proposed by JD-R theory. Employees can proactively alter their work design by selecting tasks, negotiating different job content, and assigning meaning to their tasks or jobs (Duranova & Ohly, 2016). The JD-R model recognizes the importance of job crafting in preventing burnout and sustaining work engagement (Bakker et al., 2014; Bruning & Campion, 2018), while the balance between job demands and resources fostered by job crafting can also improve person-job fit, leading to greater job satisfaction, work engagement, work efficiency, and performance (Tims et al., 2013).

So does the work motivation lead to self-initiated job crafting or is it the other way around? As already mentioned, the research has shown that both directions of causality are possible and that the relationship between the two variables can be bidirectional. In order to advance our understanding of self-initiated modification mechanisms (i.e., work motivation and job crafting) it is important to explore their causal relationships. Therefore we propose two competing hypotheses:

H1a: *Work motivation is a stronger predictor of job crafting than the opposite.*

H1b: *Job crafting is a stronger predictor of work motivation than the opposite.*

Furthermore, with new forms of work emerging, it is important to investigate whether these mechanisms differ depending on the form of work. It has been shown that individuals can proactively craft their jobs in remote work settings to cope with challenges, which complements the top-down approach of redesigning remote work and can enhance job satisfaction and well-being (Demerouti & Bakker, 2023). Previous research has suggested that job crafting can be an effective strategy for employees to proactively shape their work tasks, social interactions, and cognitive appraisals of work demands and resources to enhance work engagement and well-being (Tims et al., 2013; Wrzesniewski & Dutton, 2001). By actively engaging in job crafting, remote workers can increase their sense of autonomy and control over their work, leading to improved work-related outcomes (Demerouti & Bakker, 2023). We hypothesize that:

H2: *The causality of constructs constituting self-initiated modification mechanisms (i.e., work motivation and job crafting) is different for different forms of work.*

3.3.2.3 Self-initiated work modification mechanisms and work engagement

Work engagement is favorable for many outcomes, such as enhanced employee performance (Christian et al., 2011; Demerouti & Cropanzano, 2010; Halbesleben & Wheeler, 2008), creative ideas, innovative and entrepreneurial behavior (Gawke et al., 2017), job satisfaction (Ofei-Dodoo et al., 2020; Rai & Maheshwari, 2021), reduced burnout (Ivanovic et al., 2020),

lower turnover intention (Santhanam & Srinivas, 2020) on employee level, as well as better team performance (P. L. Costa et al., 2015; Tims et al., 2013) team level, and better organizational engagement (Rai & Maheshwari, 2021), citizenship behavior (Christian et al., 2011), and financial results (Xanthopoulou et al., 2009) on organizational level (Bakker et al., 2014).

Job resources (including task variety, task significance, autonomy, feedback, social support from colleagues, and high-quality relationships with supervisors) have been identified as a key factor in initiating a motivational process that leads to increased work engagement and performance among employees (Bakker & Demerouti, 2007). Employees who have access to numerous job resources can cope better with their job demands, while job demands amplify the impact of job resources on motivation and engagement. Job demands can enhance the positive effects of job resources on work-related outcomes by promoting intrinsic motivation and learning (A. Schneider et al., 2017) or by encouraging the active use of job resources (den Broeck et al., 2010). Empirical evidence has shown that job resources are more salient and have a stronger positive effect on work engagement when employees face job demands (Bakker & Demerouti, 2007; Hakanen et al., 2005). Petrou et al. (2012) found in their diary study that employees who sought job resources and challenges were more engaged in their jobs, while those who simplified their work experienced less engagement.

Recent research has shown that employees can influence their own work engagement also through bottom-up approach, job crafting. The studies showed that job crafting can proactively increase job resources, increase challenging job demands, or reduce hindrance job demands, resulting in higher levels of work engagement and task performance. Research also suggests that employees can learn to craft their jobs, resulting in increased job and personal resources, better performance and higher work engagement (Bakker & Albrecht, 2018; Tims et al., 2012; Wrzesniewski & Dutton, 2001).

Furthermore, in a recent systematic literature review on antecedents of work engagement in the public sector, authors revealed that positive emotions and values, including work motivation, meaningfulness, and work ethics, have a significant impact on improving public employees' work engagement (Zahari & Kaliannan, 2022). Zeng et al. (2022) more specifically found that while extrinsic motivation did not have a significant effect on work engagement, intrinsic motivation played a crucial role. Individuals with higher levels of intrinsic motivation, such as being driven by a sense of purpose, were found to be more engaged in their work. Therefore, we propose that:

H3: *Work motivation mediates the relationship between tech enriched work design and work engagement.*

Recently, several new research fields have emerged, which aim to investigate the nature of work characteristics, outcomes, and consequences associated with novel forms of work. The

growing number of literature reviews on this topic suggests its increasing significance and relevance to the field of work design (Lamovšek & Černe, 2023). Various studies have shown that new work arrangements have both favorable and unfavorable outcomes for employees. On the one hand, these arrangements can lead to reduced levels of stress, lower transportation and clothing costs, lower work-home conflicts, higher job performance, increased flexibility, and higher levels of job satisfaction and work engagement. On the other hand, they may also result in negative consequences such as social isolation, technological expenses, greater exhaustion, lower work engagement and challenges related to ergonomic issues (Burbach & Day, 2014; Delanoeije & Verbruggen, 2020; Duxbury & Halinski, 2014; T. W. Greer & Payne, 2014; Potter, 2003; Sardeshmukh et al., 2012; R. J. Thompson et al., 2015).

Remote work presents challenges to employee engagement due to factors that complicate job performance and alter the relationship between resources and demands. It is critical to examine the impact of a partial transition to remote work on employee engagement and to analyze the precise requirements of on-site, hybrid, and remote work. Recent studies suggest that despite the convenience of electronic devices, remote work is still perceived as inferior to on-site work (Wontorczyk & Rożnowski, 2022). They found no significant differences in work engagement within all three forms of work, but the research was done in the peak of COVID-19, meaning the circumstances were not normal and could affect the results. Control was strongly related to hybrid and remote modes, while relationships were strongly related to hybrid and on-site modes. Employees who work remotely on a daily basis perceive the most positive and negative aspects of remote work. The predictors of work engagement differed depending on the current form of work, with factors related to work situation being predictors for on-site and hybrid work, and a broader range of predictors including demographic variables, social conditions, and attitude towards remote work being identified for remote work.

The challenges virtual team (VT) leaders face when managing geographically distributed and culturally diverse team members in a technology-mediated environment. Due to the time-limited team membership and the scarcity of face-to-face communication, VT leaders face significant challenges in effectively managing these teams. The authors advocate that organizations encourage work engagement within the short lifespan of a VT and technological constraints to overcome these difficulties and achieve project success. The communication media used in virtual teams can influence work engagement by facilitating information sharing, clarifications, and communication support. The research has demonstrated that work engagement can be developed even in asynchronous mediated environments (Panteli et al., 2019). Boccoli, Gastaldi and Corso (2023) also emphasize the need that organizations have to restructure their model due to the increase in hybrid work forms. It is important to explore the impact of hybrid working on employee engagement, including how digital technologies affect peer-supervisor relationships and their impact on employee engagement. To address these challenges, organizations should invest in new

forms of social interaction, social exchanges, and social recognition using digital solutions that enable communication and collaboration. New moments and spaces should also be planned to foster the social dimension in the workplace.

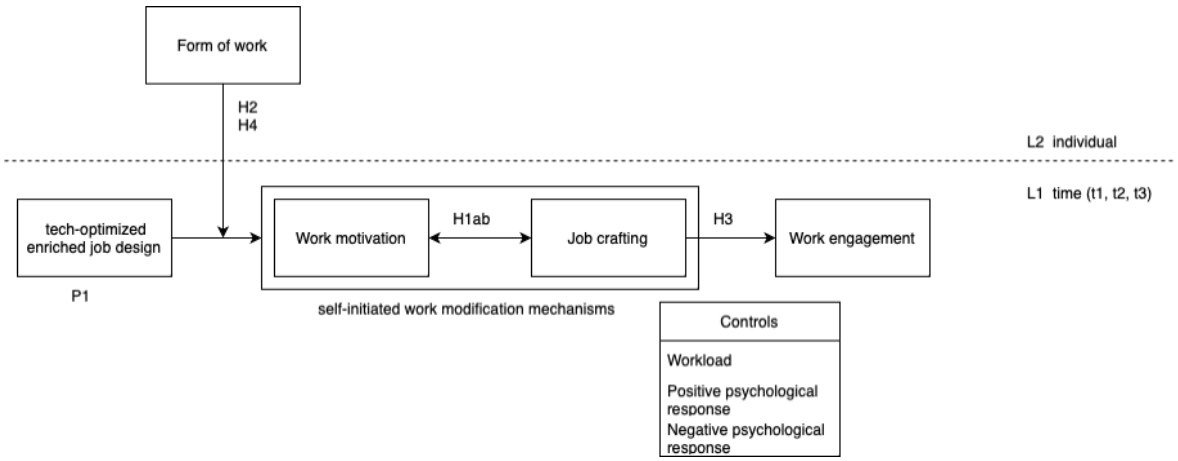
In a recent integrative literature review on antecedents of work engagement in remote work and traditional workplaces (Hajjami & Crocco, 2023) the authors found that organizational factors had an impact on employee engagement during the pandemic. These factors included leadership, training, organizational culture, and work design. Their influence on employee engagement could be either positive or negative. For example, having JD-R theory in mind that suggests that job autonomy can be a resource that positively impacts employee engagement, they found that remote employees who had job autonomy experienced participative leadership and were able to create goal-oriented schedules based on priorities and deadlines. The results highlight the importance of organizational support for remote workers and the need for appropriate work designs that provide workers with an adequate level of autonomy (Hajjami & Crocco, 2023).

Although work engagement is commonly regarded as a stable individual characteristic, there is a possibility that network relationships in remote work may also have an impact on future levels of engagement. As such, conducting a longitudinal study that examines the coevolution of work engagement, networks, and performance in the context of networked distributed work could be of value in shedding light on this issue (Halgin et al., 2015). The topic of longitudinal work engagement during remote work is of particular importance in understanding the extent to which employees are able to sustain their levels of energy, commitment, and focus over time. Despite its significance, this area remains underexplored, as evidenced by the limited number of longitudinal studies conducted on the topic (Charalampous et al., 2019; Hajjami & Crocco, 2023; Mäkikangas et al., 2022).

H4: *Form of work moderates the relationship between tech enriched work design and work engagement, mediated by work motivation.*

Our research model with the proposed proposition and four hypotheses can be seen below (Figure 31).

Figure 31: Research model - Fostering work engagement with enriched (tech-optimized) work design and self-initiated work modification mechanism(s)



Source: Own work.

3.3.3 Methodology

3.3.3.1 Data collection and sample

We collected longitudinal data on working professionals through an agency that specializes in academic research data collection. We used quota sampling, i.e., non-probability sampling by which a particular attribute of a population sample is reflected exactly as the researcher intended (Acharya et al., 2013). In our case, we requested quotas on age (mean = 46.42 years, SD = 9.83), gender (49.5% female, 50.5% male) and industry (ratio) that match the Slovenian population. The final sample included 242 employed individuals across industries (i.e., administration, design, marketing, sales). Data were collected at three different time points, during October (T1), November (T2) and December 2022 (T3), resulting in a total of 726 units of observation. Most of them (76.9%) worked on-site, while 18.6% worked hybrid and 4.5% remotely.

3.3.3.2 Measures

The study used two different surveys to gather information. The baseline survey was distributed only once at the beginning of the study (T1) and included general questions about basic demographic information, work design, personal characteristics, cultural values, employee development, and technology. This survey provided an initial snapshot of participants' characteristics and work design and allowed us to establish a baseline for our longitudinal study.

The longitudinal survey was administered three times (T1, T2, T3) over the data collection period and focused on more specific aspects of work design, technology, and work and non-work outcomes. This survey was designed to capture changes and developments over time (over four-week periods), and it allowed us to track participants' experiences and perceptions over time. Therefore the baseline survey provides initial cross-sectional data and the longitudinal survey provides repeated measures data to capture the nuances and complexities of participants' work and non-work experiences. All constructs, with the exception of the form of work, were measured utilizing a 5-point Likert scale, ranging from 1 (strongly disagree/not at all/never) to 5 (strongly agree/exactly/always),

Work design characteristics were measured by the original Morgeson and Humphrey (2006) Work Design Questionnaire scale. First survey included all constructs for each characteristic (i.e., task characteristics, knowledge characteristics, social characteristics and work context) and all their items, while the following surveys included 1-2 items per construct. The sample item is " The job allows me to make my own decisions about how to schedule my work. ". Furthermore, for advancing the work design characteristics for new forms of work, we also included ICT characteristics, where information exchange quality and frequency were measured by Fonner and Roloff (2010) scale, while techno-complexity, techno-uncertainty (i.e., pace of change) ad techno-overload were measured using the adapted Ragu-Nathan, Tarafdar, Ragu-Nathan (2008) scale, and IT presenteeism was measured by scale developed by Ayyagari, Grover, and Purvi (2011). Sample item is »"I feel that there are frequent changes in the characteristics of ITs I use.". Enriched work design, i.e., all job design characteristics together, excluding ICT characteristics : (α_{t1} = .85, α_{t2} = .87, α_{t3} = .86, $\alpha_{cumulative}$ = .86). Tech-optimized enriched work design, i.e., all job design characteristics together, including ICT characteristics: (α_{t1} = .90, α_{t2} = .91, α_{t3} = .91, $\alpha_{cumulative}$ = .91).

Form of work was measured by one simple question: What is your primary form of work (choose one): (1) office/physical location, (2) hybrid (rotating; some days/weeks from home, some in the office), (3) hybrid (can choose to work from home or in the office, (4) from home/remote.

Job crafting was measured by eight items by Wrzesniewski, Bartel and Wiesenfeld (2013)in all three short surveys. The sample item is " In the last month, I have taken action to modify my job. " (α_{t1} = .93, α_{t2} = .93, α_{t3} = .94, $\alpha_{cumulative}$ = .94)

Work motivation was measured using six items by Gagné et al. (2010) in the first survey and using one item scale by Stamov-Roßnagel and Biemann (2012) in other ones. Sample item is " All things considered, how motivated would you say you are for your job? " (α_{t1} = .78, α_{t2} = .78, α_{t3} = .78, $\alpha_{cumulative}$ = .78)

Work engagement was measured by using ultra short measure for work engagement developed by Schaufeli et al. (2019)in all three short surveys. Sample item is " At my work, I feel bursting with energy. " (α_{t1} = .83, α_{t2} = .82, α_{t3} = .81, $\alpha_{cumulative}$ = .82)

We also included three control variables, namely workload, positive psychological response, also called eustress, and negative psychological response, also called distress.

Workload, job demand, is defined as the perceived inability of people to do the work assigned to them or to be productive, resulting in stress (de Bruin & Taylor, 2005). Studies have shown that individuals facing high workloads often exhibit personal initiative and self-leadership strategies (Ohly & Fritz, 2010). In addition, workload has been shown to promote proactive behavior and goal achievement (den Broeck et al., 2010). The research found that employees who participated in the job crafting intervention showed a significant increase in job crafting behaviors that were aligned with their interests. This job crafting, in turn, was positively related to higher levels of engagement and absorption, particularly among workers who had a high workload (Kuijpers et al., 2020). Since it is expected that people who have higher levels of workload, craft more, we believe that workload should be included in the study as a controlling variable.

Workload was measured by using nine items from a scale developed by De Bruin and Taylor (2005) in all three short surveys. Sample item is " I feel that there are too many deadlines in my work that are difficult to meet. " (α_{t1} = .89, α_{t2} = .88, α_{t3} = .90, $\alpha_{cumulative}$ = .89).

According to Selye (1956, 1983) stress refers to the pattern of physiological response and psychological interpretation that people experience when confronted with external stimuli such as stressors or demands, meaning that in this sense, it is considered neither negative nor positive (Li, 2009). Only when a person's ability to maintain homeostasis is exceeded and he or she negatively evaluates the physiological responses to stress, does he or she experience stress and the resulting negative consequences (Le Fevre et al., 2003). Lazarus (1966) states that an individual's evaluation of job demands determines his or her response. When employees evaluate events positively, demands promote engagement and improve performance, and vice versa (Wefald & Downey, 2009). Psychological work demands were found to actually promote work engagement when perceived as eustress (Selye, 1983) rather than distress. Therefore, it is important to include positive psychological response and negative psychological response variables in order to control for individuals' perception of stress.

*Positive psychological respons*e (i.e., eustress), was measured using three items of an adapted scale by O'Sullivan (2011) in all three short surveys. Sample item is " How often do you effectively cope with stressful changes that occur because of technology in your work life? " (α_{t1} = .87, α_{t2} = .92, α_{t3} = .91, $\alpha_{cumulative}$ = .90).

*Negative psychological respons*e (i.e., distress) included adapted four items from Kessler et al. (2002) in all three short surveys. Sample item is " During the last 30 days, about how often did your organization's IT contribute to you feeling tired out for no good reason? " (α_{t1} = .94, α_{t2} = .95, α_{t3} = .96, $\alpha_{cumulative}$ = .95)

3.3.3.3 Data analysis

Confirmatory factor analysis: Analytic support for Tech-optimized enriched work design

We first observed the factor structure of the focal variables, and particularly attempted to support the validity of tech-optimized work design, and thus conducted confirmatory factor analyses using AMOS software. We compared the second-order models of traditional work design with an expanded, tech-optimized version, and repeated the CFA with additional focal variables (work motivation, job crafting, work engagement).

Longitudinal multilevel regression analysis

Multilevel regression analysis is used to address the violation of the independence assumption resulting from data clustering around subjects with common associations in a dataset (Darlington & Hayes, 2017) - in our case, three observations nested within individual respondents.

To examine multilevel moderation and mediation effects we used the MLmed calculation macro for SPSS (A. F. Hayes & Rockwood, 2020) that allows for the fitting of multilevel moderated mediation models within the SPSS environment. It applies constrained maximum likelihood estimation, both as a single moderated mediation model at the individual level and separately for each hypothesis. It automatically centers the person-level variables to account for intra-individual influences on the relationships between participants, while group centerins is used to eliminate the effects of between-person interference from the time-level variables, allowing for a better understanding of the relationships between time-level variables and interactions between levels. Confidence intervals for the indirect effects were calculated using the Monte Carlo method.

3.3.4 Findings

3.3.4.1 Confirmatory factor analysis

Comparing the second-order models of traditional work design with an expanded, tech-optimized version showed a significantly better fit of the latter ($\chi^2(252) = 1078.154$, $p < .01$, Comparative Fit Index (CFI) = 89, Tucker Lewis Index (TLI) = .85, Root Mean Square Error of Approximation = .11, Standardized Root Mean Square Residual (SRMR) = .09). Adding other focal variables to the tech-optimized work design construct, the expected four-factor solution (tech-optimized work design, work motivation, job crafting, work engagement) displayed good fit with the data ($\chi^2(819) = 2315{,}031$, $p < .01$, CFI = .96, TLI = .94, RMSEA = .08, SRMR = .07). The standardized factor loadings ranged from .59 - .88 for tech-optimized work design items, .50 - .80 for work motivation, .92 - .98 for job crafting, and .86 - .97 for work engagement items. Taken together, this provides support for construct validity of the tech-optimized work design construct, and our measurement model.

3.3.4.2 Descriptive statistics

Table 25 shows means, standard deviation, correlations, and reliability coefficients for the key study variables. Based on Cronbach's alpha coefficients, all measurement scales, including the newly tested tech-optimized work design, were internally consistent. They all exceeded the .70 criterion established in the literature (Hair et al., 1998).

Table 25: Descriptive statistics and Pairwise Correlations

	Mean	Std. Deviation	Enriched WD - original	Enriched WD - tech-optimized	Form of work	Job crafting	Work motivation	Workload	Positive Psychological Response	Negative Psychological Response	Work engagement
Enriched WD - original	3.40	.52	(.86)								
Enriched WD - tech-optimized	3.36	.49	.96**	(.91)							
Form of work	1.44	.87	.19**	.21**	-						
Job crafting	2.93	.89	.38**	.44**	.03	(.94)					
Work motivation	3.33	.96	.51**	.50**	.17**	.23**	(.78)				
Workload	2.68	.88	.04	.10**	-.06	.25**	-.11**	(.89)			
Positive Psychological Response	2.72	1.05	.06	.11**	.01	.20**	-.02	.34**	(.90)		
Negative Psychological Response	2.19	1.04	.03	.10**	-.02	.21**	-.07	.55**	.44**	(.95)	
Work engagement	3.67	.88	.53**	.52**	.05	.24**	.56**	-.22*	-.04	-.09**	(.82)

Notes. N = 726 observations (Level I) nested into 242 individuals (Level 2); Coefficient alphas are on the diagonal in parentheses; * < .05; **p < .01.

Source: Own work.

3.3.4.3 Hypothesis testing

Motivation first, job crafting second

The results (see Table 26) show that work motivation was the driving force behind self-initiated job crafting, therefore we confirm Hypothesis 1a. Specifically, we found that individuals who were highly motivated were more likely to engage in job crafting (between indirect effects in tech-optimized enriched work design is .2188; p=.0555) compared to those who engaged in job crafting to increase their work motivation (between indirect effects in tech-optimized enriched work design is .1182; p=.0301). Moreover, the effects were lower when analyzing original enriched work design, but the main findings remain the same. Between indirect effects in original enriched work design is .1984 (p= .0065) for indirect effect from work motivation to job crafting, while the indirect effect from job crafting to work motivation was .1031 (p=.0447). We repeated the procedure, but this time we included time as a second-level covariate. The results were largely consistent with our previous findings. While there were minor differences in the specific numbers, the overall conclusion remained unchanged, further confirming the direction of causality.

Table 26: Direct moderated mediation and indirect effects of (tech-optimized) enriched work design, work motivation and job crafting across forms of work: Comparison between tech-optimized enriched work design and enriched work design

	TECH-OPTIMIZED ENRICHED WORK DESIGN			**ENRICHED WORK DESIGN**		
WORK MOTIVATION → JOB CRAFTING						
	EST	SE	p	EST	SE	p
Within- Direct Effect(s)	.1967	.1186	.0978	.0807	.0928	.3844
Between- Direct Effect(s)	**.6592****	.1120	.0000	**.6477****	.1111	.0000
	EST	MCLL	MCUL	EST	MCLL	MCUL
Within- Index of Moderated Mediation	.0013	-.0299	.0345	.0043	-.0205	.0324
Between- Index of Moderated Mediation	-.0126	-.0596	.0286	.0015	-.0428	.0467
	EFFECT	SE	p	EFFECT	SE	p
Within- Indirect Effect(s)	.0011	.0165	.9467	.0026	.0113	.8152
Between- Indirect Effect(s)	**.2188****	.0788	.0055	**.1984****	.0728	.0065
JOB CRAFTING → WORK MOTIVATION						
	EST	SE	p	EST	SE	p
Within- Direct Effect(s)	**.8808****	.1228	.0000	**.6507****	.0968	.0000
Between- Direct Effect(s)	**.9197****	.1146	.0000	**.9099****	.1133	.0000
	EST	MCLL	MCUL	EST	MCLL	MCUL
Within- Index of Moderated Mediation	-.0006	-.0203	.0188	-.0014	-.0166	.0113
Between- Index of Moderated Mediation	**.0476**	.0026	.1107	**.0575**	.0090	.1250
	EFFECT	SE	p	EFFECT	SE	p
Within- Indirect Effect(s)	.0018	.0238	.9400	.0039	.0146	.7874
Between- Indirect Effect(s)	**.1182***	.0545	.0301	**.1031***	.0513	.0447

Notes. N = 726 observations (Level I) nested into 242 individuals (Level 2). * < .05; **p < .01; MCLL = Monte Carlo lower limit; MCUL = Monte Carlo upper limit. Statistically significant values (< .05) are bolded.

Source: Own work.

Next, the findings reveal that the Between Index of Moderated Mediation (see Table 27) is significant (MCLL = .0026; MCUL = .1107) for the indirect relationship between tech-optimized enriched work design, job crafting and work motivation, moderated by forms of work, therefore we can confirm Hypothesis 2. Tests of simple slopes, i.e., conditional effects on path a found a stronger association between tech-optimized enriched work design, job crafting and work motivation for those who work remotely (B = 3.085, p = .0083) relative to those who work on-site (B = 1.657, p = .0041), or hybrid where they rotate (B = 2133, p = .0032), or hybrid where they can choose alone whether they want to work on-site or remotely (B = 2.609, p = .0051). For participants who have the option to work remotely or work solely remotely, job crafting has a stronger effect on their motivation than for those who work solely on-site.

Table 27: Between-index of moderated mediation of tech-optimized enriched work design, job crafting and work motivation: Comparison among different forms of work

	On-site FOW	**Hybrid (rotation) FOW**	**Hybrid (choose) FOW**	**Remote FOW**
Between Index of moderated mediation EST	.1657**	.2133**	.2609**	.3085**
SE	.0578	.0724	.0932	.1168
p	.0041	.0032	.0051	.0083

Notes. N = 726 observations (Level I) nested into 242 individuals (Level 2). FOW=form of work; * < .05; **p < .01.

Source: Own work.

Tech-optimized enriched work design and work motivation enhance work engagement

The results of the study indicate (see Table 28) a significant (MCLL = .0040; MCUL = .0660) Within-Index of Moderated Mediation (.0292), meaning that there is effect of the moderator (forms of work) on the relationship between the independent variable (tech-optimized enriched work design) and the dependent variable (work engagement) via the mediator (work motivation). The Within-Index of Moderated Mediation was slightly lower **(**.0270) but significant (MCLL = .0053; MCUL = .0580) for the original work design as well. Therefore, our Hypothesis 3 *Work motivation mediates the relationship between tech enriched WD and work engagement* is supported.

Table 28: Direct moderated mediation and indirect effects of (tech-optimized) enriched work design, work motivation and work engagement: Comparison between tech-optimized enriched work design and enriched work design

	TECH-OPTIMIZED ENRICHED WORK DESIGN			**ENRICHED WORK DESIGN**		
	EST	SE	p	EST	SE	p
Within- Direct Effect(s)	**.4480****	.0876	.0000	**.3017****	.0688	.0000
Between- Direct Effect(s)	**.5283****	.0918	.0000	**.6055****	.0888	.0000
	EST	MCLL	MCUL	EST	MCLL	MCUL
Within- Index of Moderated Mediation	**.0292**	.0040	.0660	**.0270**	.0053	.0580
Between- Index of Moderated Mediation	-.0362	-.1543	.0779	.0041	-.1095	.1161
	EFFECT	SE	p	EFFECT	SE	p
Within- Indirect Effect(s)	.0257	.0237	.2781	.0168	.0194	.3880
Between- Indirect Effect(s)	**.6272 ****	.1161	.0000	**.5362****	.1088	.0000

Notes. N = 726 observations (Level I) nested into 242 individuals (Level 2). * < .05; **p < .01; MCLL = Monte Carlo lower limit; MCCL = Monte Carlo upper limit.

Source: Own work.

Table 29 shows a test of simple slopes results for the within indirect effects of tech-optimized enriched work design, work motivation and work engagement, compared among different forms of work. The within indirect effect among tech-optimized enriched jobs design, work motivation and work engagement is significantly stronger for employees who work remotely (I=.1424; p= .0187) than those who wore on-site (I=.0549; p= .0237) or hybrid, where they rotate (I=.0840; p= .0118) or hybrid where they can choose alone whether they want to work on-site or remotely (I=.1132; p= .0144). For participants who have the option to work remotely or work solely remotely, the within indirect (work motivation mediated) effect of tech-optimized enriched work design on work engagement is stronger than for those who work solely on-site or hybrid. Results therefore support our Hypothesis 4: *Form of work moderates the relationship between tech enriched WD and work engagement, mediated by work motivation.* Table 30 and 31 show fixed within-effects estimators with standard deviations and p-values among different forms of work, for both work motivation and work engagement as an outcome.

Table 29: Within-indirect effects of tech-optimized enriched work design, work motivation and work engagement: Comparison among different forms of work

	On-site FOW	**Hybrid (rotation) FOW**	**Hybrid (choose) FOW**	**Remote FOW**
Within indirect effect(s)	.0549 *	.0840*	.1132*	.1424 *
SE	.0242	.0334	.0463	.0606
p	.0237	.0118	.0144	.0187

Notes. N = 726 observations (Level I) nested into 242 individuals (Level 2). * < .05; **p < .01; FOW=form of work.

Source: Own work.

Table 30: Fixed within-effects among different forms of work (work motivation as outcome)

Work motivation	**On-site**			**Hybrid (rotation)**			**Hybrid (choose)**			**Remote**		
	estimate	SE	p	estimate	SE	p	estimate	SE	p	estimate	SE	p
constant	.1407	.3955	.7223	.4409	.4416	.3190	.7411	.7431	.3196	1.0413	1.1081	.3483
int1	.3502**	.1290	.0069	.3502**	.1290	.0069	.3502**	.1290	.0069	.3502**	.1290	.0069
Enriched work design	.6585**	.1467	.0000	1.0087**	.1302	.0000	1.3590**	.2137	.0000	1.7092**	.3281	.0000
Workload	.0488	.0597	.4140	.0488	.0597	.4140	.0488	.0597	.4140	.0488	.0597	.4140
Positive Psychological Response	-.0459	.0341	.1779	-.0459	.0341	.1779	-.0459	.0341	.1779	-.0459	.0341	.1779
Negative Psychological Response	-.0361	.0463	.4367	-.0361	.0463	.4367	-.0361	.0463	.4367	-.0361	.0463	.4367

Notes. N = 726 observations (Level I) nested into 242 individuals (Level 2); * < .05; **p < .01.

Source: Own work.

Table 31: Fixed within-effects among different forms of work (work engagement as outcome)

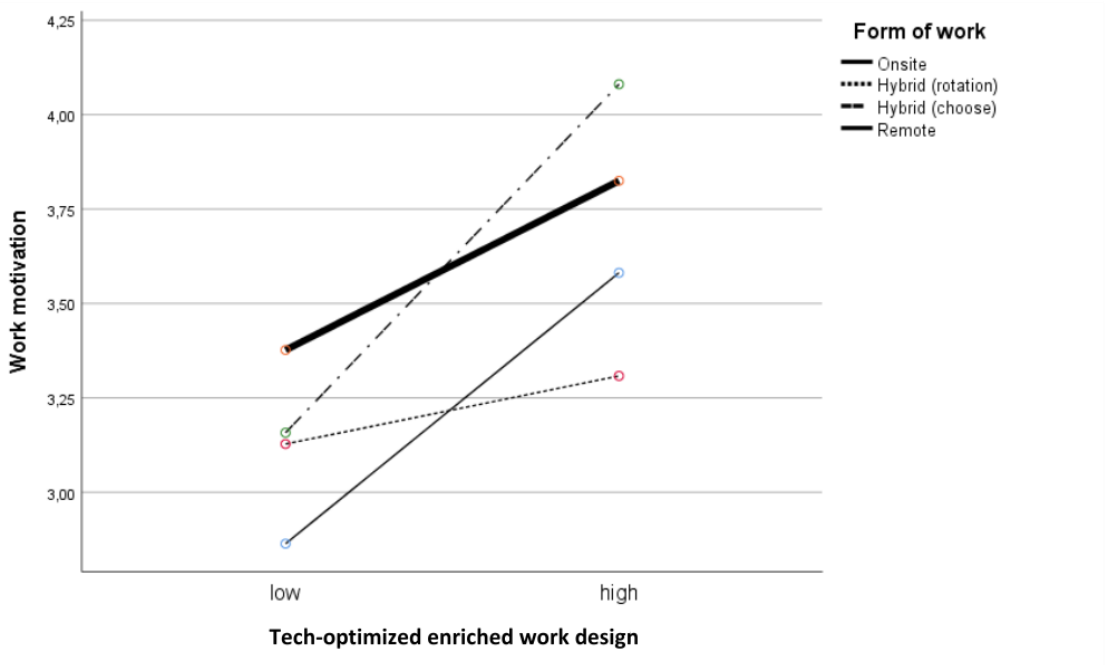
Work engagement	**On-site**			**Hybrid (rotation)**			**Hybrid (choose)**			**Remote**		
	estimate	SE	p	estimate	SE	p	estimate	SE	p	estimate	SE	p
constant	.5259*	.2683	.0511	.5259*	.2683	.0511	.5259*	.2683	.0511	.5259*	.2683	.0511
EnJD_tog	.4480**	.0876	.0000	.4480**	.0876	.0000	.4480**	.0876	.0000	.4480**	.0876	.0000
WM_Mean	.0833**	.0310	.0075	.0833**	.0310	.0075	.0833**	.0310	.0075	.0833**	.0310	.0075
Workload	-.0630	.0409	.1238	-.0630	.0409	.1238	-.0630	.0409	.1238	-.0630	.0409	.1238
Positive Psychological Response	-.0092	.0233	.6926	-.0092	.0233	.6926	-.0092	.0233	.6926	-.0092	.0233	.6926
Negative Psychological Response	.0250	.0315	.4269	.0250	.0315	.4269	.0250	.0315	.4269	.0250	.0315	.4269

Notes. N = 726 observations (Level I) nested into 242 individuals (Level 2); * < .05; **p < .01.

Source: Own work.

Figure 32 shows the effects of tech-optimized enriched work design on work motivation among different forms of work. The results suggest that high tech-optimized enriched work design is beneficial to employees' work motivation in all forms of work, while it is the most beneficial for employees who work in hybrid work settings and can choose which days they want to work on-site and which days remotely. We can see the biggest changes in work motivation when transferring from low to high tech-optimized enriched work design in on-site workers and hybrid (choose) workers.

Figure 32: The effects of tech-optimized enriched work design on work motivation among different forms of work



Source: Own work.

3.3.5 Discussion and conclusion

In this article, we presented and discussed one proposition, and four hypotheses. The proposition focused on the importance of incorporating ICT characteristics to the extended work design and therefore suggests technology-optimized enriched work design. Hypotheses 1a and 1b aimed to examine the causal relationship between work motivation and job crafting, while Hypothesis 2 explored whether this causal relation is different in different forms of work. Next, the third hypothesis proposes that work motivation mediates the positive relationship between technology-optimized enriched work design and work engagement, while the fourth hypothesis assumes that forms of work moderate this mediation.

The findings of our study supported our proposition, and the suggested hypotheses. It was found that work motivation has a greater effect on job crafting than vice versa. This relationship was in fact the same in all three forms of work. However, findings suggest that job crafting has a greater effect on motivation when employees are working remotely or hybrid than on-site. Next, the study showed that the relationship between technology-optimized enriched work design and work engagement is mediated by work motivation and that the relationship is positive. Furthermore, the relationship between technology-optimized enriched work design and work engagement was moderated by forms of work, suggesting that the effects of technology-optimized enriched work design on work motivation and work engagement may vary by type of work.

3.3.5.1 Theoretical contributions

First, in support for construct validity of the tech-optimized enriched work design construct, we calculated reliability (internal consistency) indicators, then conducted measurement model analyses with CFA showing better fit of the tech-optimized version in comparison with the traditional one, and finally conducted predictive validity tests showing that tech-optimized version performs better in relation to work engagement, and the mediating effects of work motivation and job crafting, as well as the moderating effect of forms of work. This provides support for our Proposition 1, and provides a solid empirical basis on the existing theoretical foundations (Fonner & Roloff, 2010; Suh & Lee, 2017; B. Wang et al., 2020) for further research to capitalize on the tech-optimized version of the work design measure for digitally-mediated work.

We confirmed Hypothesis 1a, showing that work motivation is a stronger predictor of job crafting than the opposite. Our results suggest that employees who are highly motivated are more likely to engage in self-initiated job crafting. This is consistent with previous research suggesting that work motivation is a significant factor in job crafting (e.g., Bakker & Demerouti, 2007). Although it is possible that the relationship between work motivation and job crafting could be bidirectional, our study provides evidence that the causal direction is predominantly from work motivation to job crafting. This suggests that organizations should focus on improving the work motivation of their employees to promote job crafting and ultimately positive work outcomes such as job satisfaction and work engagement. Additionally, our results also showed that the effect was stronger when the work design included ICT characteristics (i.e., tech-optimized enriched work design). This underscores the importance of incorporating ICT characteristics into work design and considering employee preferences for using technology to enhance work engagement.

While the causal relationship of work motivation on job crafting was somewhat the same for all forms of work, our findings suggest that the relationship between job crafting and work motivation is stronger for employees who work remotely or in hybrid work environments, than only on-site. This is important due to its implications for several employee and organizational

outcomes. When organizations understand the role of work motivation and job crafting, they can implement targeted strategies to improve employee motivation, which in turn drives job crafting behavior. With the recognition that work motivation is a stronger predictor of job crafting, organizations can focus on strategies to improve employee motivation. This can be achieved through a variety of means, including offering meaningful work tasks, providing opportunities for skill development, recognizing and rewarding employee achievements, and fostering a positive and supportive work environment.

In addition, incorporating ICT characteristics into work design is critical to facilitating job crafting and maximizing its impact. Organizations should consider integrating technological tools and platforms that enable employees to personalize their work tasks, collaborate effectively, and access relevant information. By aligning work design with employee preferences for technology use, organizations can enhance work engagement and create a more conducive work environment. Furthermore, it is important to recognize the differences in the relationship between job crafting and work motivation across different forms of work is vital for tailoring interventions and support mechanisms accordingly. For employees in remote or hybrid work arrangements, organizations can provide guidance and resources to facilitate job crafting initiatives, promote autonomy, and empower employees to shape their tasks to match their motivations. This can include providing systems to support remote work, virtual collaboration tools, and fostering a culture of trust and autonomy.

Next, the results of our study support the idea that tech- optimized, enriched work design can positively influence work engagement through work motivation. The finding that tech-optimized enriched work design is positively associated with work motivation is consistent with previous research that has emphasized the importance of designing jobs that provide employees with the resources and demands necessary to perform their tasks effectively and be motivated at the same time. Our study extends previous research by highlighting the specific role of technology in improving work design and its impact on work motivation and consequently work engagement.

Finally, our study underscores the importance of considering forms of work as a moderator of the relationship between work design and work engagement. Specifically, we found that the positive relationship between work design and work engagement is stronger for employees who work remotely or in hybrid work arrangements rather than on-site. The results suggest that the effect of tech-optimized enriched work design on work engagement is strongest among remote workers, indicating that job design characteristics have a greater impact on remote workers' work motivation over time, and thus work engagement. This could be due to the greater autonomy and potential distractions associated with remote work, which can lead to greater fluctuations in work motivation and consequently work engagement. Therefore, it is important to maintain high levels of motivation among remote workers to sustain their engagement. Nevertheless, the tech-optimized enriched work design seems to be beneficial for all forms of work, while hybrid workers who can choose which day they want to work on-site and which day remotely, appear to profit the most.

3.3.5.2 Practical implications

Overall, our study provides valuable insights for organizations and managers seeking to improve employee engagement in the context of an increasingly technology-driven work environment. According to our findings, it is important not only to give employees the opportunity to job craft, but it is important to first actively motivate them in order to get the best results. The importance of interventions aimed at improving intrinsic motivation, as it can lead to higher levels of work engagement was already suggested by Zeng et al (2022). Similarly, Zahari and Kaliannan (2022) in their article propose to public administrators to focus on creating intervention programs that promote these values among their employees, as motivation is a dynamic feature that can be developed through various means such as training, mentoring programs, and social events. The authors recommend that public administrators should provide adequate intervention programs to foster positive behaviors and values among public employees, which can ultimately enhance their work engagement levels.

Furthermore, when thinking about work design, it is important to incorporate ICT characteristics as well and give workers the tools (resources) and enough challenges (demands) they need to optimize their work and increase their motivation and consequently work engagement. In addition, our findings show how important it is to take into account different forms of work, such as hybrid work and remote work and to adapt work design accordingly. As already suggested by Hajjami and Crocco (2023) training and development professionals must conduct digital and work-from-home needs assessments to understand the needs of employees who work remotely. Remote work requires targeted communication, so formal needs assessments are required in this context. Professionals should also consider employee perceptions of technology to increase engagement by assessing the perceived ease of use and usefulness of virtual tools. In traditional workplaces, there are often informal touch points, while more focused assessments are needed for remote work. Leaders should also show empathy, use positive reinforcement and appreciation, while avoiding coercive controls such as unrealistic deadlines and micromanagement, as these negative effects can be exacerbated in a remote context (Bradford & Ryan, 2020). Studies also showed that several leadership competencies are critical to ensuring that remote employees remain engaged. Effective communication is one of the most important competencies leaders should possess in a remote work setting, where regular feedback is essential not only to update work, but also to ensure employee well-being (Dirani et al., 2020).

From a management perspective, the introduction of a tech-optimized enriched work design can have a positive impact on employees' work motivation, and thus work engagement, regardless of their form of work. However, hybrid workers who have the flexibility to work both on-site and remotely may benefit the most from this type of work design. Therefore, managers should consider adopting tech-optimized enriched work design and offering hybrid work arrangements to promote work engagement and ultimately increase other beneficial work outcomes.

By implementing these practical implications, organizations can not only increase the motivation and engagement of their employees, but also ensure that their work is optimized and efficient. Companies should consider training and supporting their employees to improve their technology skills and create a work environment that is optimized for technology use. In doing so, they can foster better work design and employee engagement, which ultimately leads to better work performance and business results.

3.3.5.3 Limitations and future research directions

We acknowledge some limitations of this study. One is that the sample was predominantly composed of on-site workers, which may have led to an unequal representation of the experiences of remote and hybrid workers. Therefore, the generalizability of the findings to hybrid or fully remote work settings may be limited. Additionally, the study was conducted exclusively in the Slovenian context, which may limit the generalizability of the findings to other cultural contexts. Last but not least, the sample included a variety of occupations, which may be considered an advantage or disadvantage, but the results would be more interpretable if the occupation was the same for all workers. In this way, the results would more clearly show the effects of different forms of work. Future research should therefore aim to include more diverse samples and contexts to increase the generalizability of the findings, while considering focusing on one occupation or at least similar occupations. Moreover, further research on our proposed tech-optimized work design is needed to confirm its significance.

4 CHAPTER 4: GENERAL DISCUSSION

This chapter serves as an overview of the main findings, contributions to the existing literature and practical implications. The dissertation connects conversations about human resource management practices and work organization, more specifically about the best effective work design practices, and conversations about the new forms of work and future of work.

4.1 Integration of findings

A summary of the chapter numbers, titles, research question(s)/supported hypothesis, methodology and key findings can be seen in the Table 32 below, while the overview of the constructs used in each chapter can be seen in Table 33.

The dissertation begins by tracing the theoretical development of distributed work, originally rooted in information systems and gradually enriched by insights from organisational psychology, management, IT and human resource management. This interdisciplinary approach has significantly broadened our understanding of distributed work, moving beyond the initial focus on individual work locations and cost savings to emphasise the role of information and communication technology and interpersonal relationships in the workplace. An important contribution of this research is the clarification of terminology in the field of distributed work. The study addresses the frequent misuse and overlap of terms and emphasises the need for precise definitions that differentiate concepts according to their use of ICT, location of work and geographical distribution. This endeavour for terminological clarity helps to promote a more nuanced understanding of the field. The research also highlights current trends in distributed work, with a particular focus on cultural diversity, work-family conflict, trust and conflict in distributed teams, and communication in virtual teams. This shift from a micro to a macro perspective in the research is notable as it broadens the focus from individual level aspects to strategic, industrial economic and competitive perspectives. One of the limitations highlighted in the research is the inadequacy of existing work organisation models such as JCM, WDQ and JDR in fully explaining the nuances of distributed work. In response, this dissertation presents an integrative framework for the design of distributed work that represents an important theoretical contribution.

The first chapter therefore lays the foundation for subsequent research by synthesizing the findings from a comprehensive bibliometric analysis into a coherent framework for the study of distributed work design. This foundational chapter served as a guide for the selection of variables and as a basis for the conceptualization of distributed work design and thus as a central reference point for understanding the dynamics of work design in a digital and distributed work environment. Therefore, this approach ensured that the following empirical studies were based on a solid theoretical foundation and reflected the current state and future directions of work design research.

The second chapter, discussing configurations, argues for a human-centred approach to work design in the digital age. It begins by introducing and exploring (new) work design configurations, specifically enriched, orderly, knotty, complicated, fragmented, autonomous and collaborative work design. The study showed that experts largely disagree on the importance of contextual work characteristics in the modern work environment for knowledge workers. This suggests that traditional contextual factors may no longer have the same importance in today's digitally driven work environments. Instead, the study points to the need to incorporate new characteristics of ICT into work design models.

In subsequent studies, the research extended to empirically test the integrative framework for work design configurations developed from the initial bibliometric analysis, focusing on identifying optimal configurations for task performance and work-life balance. The task performance study utilized traditional WDQ dimensions, while the work-life balance investigation incorporated ICT characteristics identified as potentially influential from the bibliometric analysis. These two studies showed the importance of different job characteristics across on-site, remote and hybrid forms of work. For task performance, it emphasized task identity, variety, information processing and social support as crucial, although these are weighted differently in the various forms of work. For work-life balance, it emphasized the increased WLB in hybrid work environments, highlighting the need for skill variety in all forms, while also emphasized the specific needs for task variety, social support in on-site and remote work, and IT presenteeism and information processing in hybrid work.

Reflecting on our findings, one might ask, "Why do similar job characteristics yield different outcomes across different forms of work?" This question leads to the realization that context significantly shapes how job characteristics are perceived and their effects on outcomes. For instance, why does task variety motivate on-site workers more than remote workers? It suggests that the physical co-presence and immediacy of feedback in on-site settings amplify the benefits of varied tasks. Conversely, in remote settings, where isolation can dampen motivation, the critical role of information processing and social support indicates that maintaining connection and clarity in communication is paramount.

Could hybrid work's need for high feedback levels indicate a bridging requirement, where employees seek clarity amidst the flexibility? These reflections underscore the importance of designing work environments that are not only tailored to the job characteristics but also to the unique demands and opportunities of the work context. Given the dynamic nature of modern work environments, we might ponder, "How do evolving technologies and digital platforms impact the necessity and effectiveness of job characteristics?" This question acknowledges the rapid pace of digital transformation and its influence on work design. As technologies advance, characteristics like IT presenteeism and technology overload become more prominent, potentially altering traditional perceptions of what constitutes effective work design. By questioning and exploring these aspects, we deepen our understanding of how to create work environments that not only meet today's challenges but are also resilient and adaptable for the future.

The studies revealed that enriched work design significantly enhances outcomes across all forms of work and proves to be the most beneficial for both task performance and work-life balance. Enriched work design, characterized by a high degree of job characteristics, as well as the integration of meaningful ICT features, represents a comprehensive approach to modern work environments. It is in line with the evolving world of work, where flexibility, digital literacy and the merging of work and personal life require a more dynamic and supportive work design framework.

The third chapter investigates enriched work design's effects, incorporating identified boundary conditions from bibliographic analysis. First study within this chapter focuses on the positive correlation between enriched work design and WLB, highlighting a notable moderation effect when formalization is combined with proactive personality traits on the relationship between enriched work design and WLB. It underscores the benefit of enriched work design and emphasizes the strategic integration of personality traits and organizational structures to optimize work design outcomes.

The second study explores the effects of technology use and flexible working arrangements on employee wellbeing. In particular, it emphasizes that high levels of technology use in the workplace can exacerbate employee burnout due to constant connectivity and potential overload, while flexible work arrangements have a mitigating effect by enabling a better work-life balance and reducing stress. This delineation highlights the critical balance required between using technology to increase efficiency and ensuring that it does not adversely impact employee health and job satisfaction.

The thesis concludes by emphasizing the pivotal role of work motivation in enhancing job crafting behaviours, especially in remote or hybrid work environments. It reveals that technology-optimized, enriched work designs significantly increase work engagement through the mediation of work motivation. This finding confirms the critical interplay between motivational aspects of work design and the effective use of technology and highlights the importance of fostering a work environment that supports employee work engagement in different work environments.

The dissertation sequentially builds upon the findings of each chapter, with subsequent studies picking up on and expanding the insights gained. Building on the findings of one study to the next allows for a deeper, more comprehensive understanding of work design and its effects on various outcomes. This approach allowed us to refine theoretical models based on empirical evidence and ensured that recommendations for practice are based on solid data. By sequentially examining different aspects of work design, including the impact of ICT characteristics and the influence of individual characteristics, the research progressively reveals how complex interactions between job characteristics, ICT and employee characteristics influence employees’ outcomes. This cumulative knowledge is critical for developing more effective work design strategies that can adapt to the changing nature of work, particularly in the context of increasing digitalization and distributed work arrangements.

Table 32: Summary of chapters

CHAPTER	TITLE	CONSTRUCTS USED	RESEARCH QUESTION(S)/ SUPPORTED HYPOTHESIS	METHODOLOGY	FINDINGS
1.2	A multi-technique bibliometric analysis of the field of distributed work: Where it all began, where it is now and where it is going	Distributed work (forms of work)	(1) What is the intellectual structure of the field of distributed work, and how have its theoretical foundations developed and transformed over time? (2) What are the research areas associated with a distributed work? (3) What is the intellectual structure of recent/emerging literature on the field of distributed work?	SAMPLE: 12,034 articles (published up to 2020) ANALYSIS: co-citation analysis, co-word analysis, bibliographic coupling	(1) The theoretical foundations of distributed work lie in the field of IS, with later influxes from fields of OP, and management and IT, eventually leading to more applied areas of OP and HRM. Emerging concepts related to distributed work first focused mainly on the location of the individual's work and cost savings in gas/time consumption, while later in the field development, the concepts focused more on the use of ICT and the relationships between coworkers, and supervisors and employees. (2) Distributed work and related concepts overlap and are often misused; these terms are related but not synonymous, and should be used according to their precise definitions. Concepts denoting distributed work differ in terms of the use of ICT, the location of the work and the geographical distribution. See Figure 9. (3) Some of the current hot research areas related to distibuted work are the following: (cultural) diversity, work-family conflict, trust and conflict in distributed teams, or knowledge sharing and communication in virtual teams.
1.3	Towards an integrative framework of distributed work design: A multi-technique bibliometric review	Distributed work (forms of work), Work design	(1) What is the intellectual structure of the field of distributed work and work design, and how have its theoretical foundations developed and transformed over time? (2) What are main (mostly studied) topics associated with distributed work and work design? (3) Which topics are recently emerging at the intersection of distributed work and work design research domains?	SAMPLE: 93 articles (published up to 2020) + 115 articles (post covid-19) ANALYSIS: co-citation analysis, co-word analysis, bibliographic coupling, topic modelling	(1) While this research niche was initially stemming from the OB/OP field, it has later been built by embraced theoretical insights from the fields of management, HRM, and information systems and technologies. Firstly it focused more or less on the micro (individual in their work context) level, we can derive from the identified theories that the next (second examined) period also focused on the macro level, putting forth the strategic, industrial economics and firm competitiveness perspective. (2) The present research showed that distributed work is not adequately explained by existing work design models (i.e., JCM, WDQ, and JDR). Therefore, by juxtaposing two mostly unrelated research domains of distributed work and work design, we developed an integrative framework of distributed work design (see Figure 18). (3) The initial research front reveals the importance of relationship-oriented leadership and individualized consideration, that is, more based on individual characteristics and preferences. The additional (post-covid) research front reveals that newer research also considers some socioeconomic factors, such as age and gender, and highlights the importance of boundary management and well-being.
2.1	Exploring work design configuration: Unveiling the complexity of humanizing the digital work	Distributed work (forms of work), Work design	(1) What are the levels of individual work design characteristics in each configuration?	SAMPLE: 13 distinguished work design experts ANALYSIS: Qualitative analysis of the experts' feedback, combined with a literature review	(1) The findings of the expert panel highlight the differentiated considerations underlying the various work design configurations. The differences between the configurations highlight the intricate balance required to align work, tasks, knowledge and social characteristics with overarching organisational goals and the evolving nature of work. The divergences from initially proposed characteristics of some work design configurations, such as Enriched and Orderly Work Design, could possibly be attributed to the experts' collective experiences and deeper understanding of the practical implications of these configurations in real work settings.

To be continued

Table 32: Summary of chapters (cont).

CHAPTER	TITLE	CONSTRUCTS USED	RESEARCH QUESTION(S)/ SUPPORTED HYPOTHESIS	METHODOLOGY	FINDINGS
2.2	Beyond the office walls: Work design configurations for task performance across forms of work	Distributed work (forms of work), Work design, Task performance	(1) Which work design configurations are most beneficial for employees' task performance in different forms of work?	SAMPLE: 1215 diverse working personnel (with supervisors, who evaluated employee performance) in Montenegro ANALYSIS: comprehensive fuzzy set qualitative comparative analysis (fsqca)	(1) The results of our research show that task identity is the most important (necessary) job characteristics for all forms of work. • For on-site work, a high level of task variety is also crucial as it provides employees with a range of different tasks and challenges that keep their work interesting and engaging. • In a hybrid setting, employees need a combination of all identified necessary job characteristics for on-site and remote work, plus additionally high levels of feedback from the job. • For remote work, a high level of information processing and high social support are critical to enable employees to effectively process information and make decisions.
2.3	The work design puzzle: Untangling its relationship with work-life balance across different forms of work	Distributed work (forms of work), Work design, Work-life balance	(1) Which work design configurations most benefit employees' work-life balance across different forms of work?	SAMPLE: 605 representative respondents in France collected via agency ANALYSIS: comprehensive fuzzy set qualitative comparative analysis (fsqca)	(1)The analysis of variance showed that workers who work in hybrid work environments generally have the highest WLB, followed by remote employees and onsite workers. Further, the fsQCA analysis suggests that work design is important for WLB across all work forms, but it appears to be most salient for on-site work, followed by hybrid and then remote work. In addition, a necessity analysis reveals common work design requirements for all work forms, highlighting the gravity of information processing, skill variety, and social support. Additionally: • For on-site work: Task variety • For hybrid work: IT presenteeism • For remote work: Task variety
3.1	Is the key to work–life balance (enriched) work design? Three-way interaction effects with formalization and adaptive personality characteristics	Enriched work design, Formalization, Proactive personality, Resilience Work-life balance	H1: Enriched work design is positively related to higher levels of work–life balance. H3b: There is a three-way interaction effect among enriched work design, work–life balance, and proactive personality; The positive relationship between enriched work design and work–life balance is stronger for people who have more proactive personalities compared to those with less proactive personalities.	SAMPLE: 436 working professionals in Montenegro ANALYSIS: Confirmatory Factory analysis, Independent T-test PROCESS macro version 3 (model 1 and model 3) supplemental analysis	(1) Enriched work design (i.e., high skill variety, autonomy, task identity, task significance, and social support) is positively related to WLB (i.e., individuals who had higher levels of enriched work design also reported higher levels of WLB). (2) We then examined the joint moderation of formalization and personality traits on the relationship between enriched work design and WLB. We found a significant moderation of formalization and proactive personality (but not resilience) on the relationship between enriched work design and WLB. (3) Interestingly, we found that WLB was highest in conditions with low enriched work design when there was high proactivity and high formalization. Moreover, there was high proactivity in conditions with high enriched work design, whereas formalization did not play as important of a role.

To be continued

Table 32: Summary of chapters (cont).

CHAPTER	TITLE	CONSTRUCTS USED	RESEARCH QUESTION(S)/ SUPPORTED HYPOTHESIS	METHODOLOGY	FINDINGS
3.2	Digitally-mediated knowledge work: The roles of task enriched-work design, technology use, and flexible work in navigating burnout and engagement paradox	Task enriched work design, Technology use at work, Flexible work arrangements, Work engagement, Burnout	H1: Task enriched work design is related positively to employees' technology use at work. H2b: Technology use at work is related positively to employee work engagement. H3a: Flexible work arrangements moderate the relationship between task enriched work design and burnout, mediated by technology use at work, making it less positive. H3b: Flexible work arrangements moderate the relationship between task enriched work design and work engagement, mediated by technology use at work, making it less positive.	SAMPLE: 3,647 knowledge workers nested in 127 German firms ANALYSIS: hierarchical linear modeling (random coefficient modeling) to test our multilevel model using MLmed (Beta 2), an SPSS (v25) macro for fitting multilevel models	(1,2) Results indicate that greater task variety, autonomy in decision making, work methods, and work schedules (task enriched work designs) allow workers to use more technology, and that such use of technology use at work is related positively to employee work engagement. (3ab) When enriched work designs were linked to employee outcomes via technology use at work and flexible work arrangements, these contextual factors changed the direction of predicting employee burnout and work engagement.The respective factors managed to decrease individual burnout but at the same time they made employees less engaged in their work. Nonetheless, regardless of the degree of flexible work, high-level technology use at work elicits more burnout than low-level technology use at work. We conclude that both technology use at work and flexible work arrangements can be a "mixed blessing," eliciting both benefits (work engagement) and burdens (burnout) under specific conditions. Technology use at work is more suitable for engaging employees, whereas flexible work arrangements are more important in reducing burnout.
3.3	Fostering work engagement with enriched tech-optimized work design in different forms of work: The role of self-initiated modification mechanisms	Enriched work design, Forms of work, Work motivation, Job crafting, Work engagement	H1a: Work motivation is a stronger predictor of job crafting than the opposite. H2: The causality of constructs constituting self-initiated modification mechanisms (i.e., work motivation and job crafting) is different for different forms of work. H3: Work motivation mediates the relationship between tech enriched WD and work engagement. H 4: Form of work moderates the relationship between tech enriched WD and work engagement, mediated by work motivation.	SAMPLE: 242 working professionals in Slovenia, representative workforce on three time points, resulting in 726 observation units ANALYSIS: Confirmatory factor analysis (CFA) using AMOS software Longitudinal multilevel regression analysis using MLmed calculation macro for SPSS	(1) It was found that work motivation has a greater effect on job crafting than vice versa. This relationship was in fact the same in all three forms of work. (2) Findings suggest that job crafting has a greater effect on motivation when employees are working remotely or hybrid than on-site. (3) The study showed that the relationship between technology-optimized enriched work design and work engagement is mediated by work motivation and that the relationship is positive. (4) The relationship between technology-optimized enriched work design and work engagement was moderated by forms of work, suggesting that the effects of technology-optimized enriched work design on work motivation and work engagement may vary by type of work.

Source: Own source.

Table 33: Overview of the constructs used in each chapter

	INDEPENDENT VARIABLE	MODERATOR	INDIVIDUAL CHARACTERISTICS (MODERATORS)		WORK CONTEXT (MEDIATOR AND MODERATOR)		SELF INITIATED WORK MODIFICATION MECHANISMS (MEDIATORS)		OUTCOMES (DEPENDENT VARIABLES)			
	(Enriched) Work design	Distributed work/Forms of work	Proactive personality	Resilience	Technology use at work	Formalization	Job crafting	Work motivation	Task performance	Work-life balance	Work engagement	Burnout
1.2		■										
1.3	■	■										
2.1	■	■							■			
2.3	■	■								■		
3.1		■	■	■		■						
3.2	■	■			■		■				■	■
3.3	■	■					■	■			■	

Source: Own source.

4.2 Theoretical contributions

The dissertation makes five main contributions to theory: First, it provides an up-to-date overview of the field of distributed work field and the overlap between the fields of distributed work and work design. It provides evolutionary patterns of dynamic change in the field(s) and a classification of concepts of distributed work that differ by location of work, geographic distribution, and use of ICT. It shows the exponential growth of research in the field of distributed work and its connection to the field of information systems.

Second, it corroborates JD-R by examining how different work design dimensions/configurations contribute to outcomes in specific forms of work. This was done by identifying and comparing groups of people with different forms of work, as most research to date has examined these separately. The limitation of job demand resources theory, which assumes a stable work environment, becomes particularly relevant in this thesis as it focuses on dynamic work environments such as hybrid and remote work. We address this issue by incorporating a flexible framework that recognizes the fluidity of modern work environments. Through qualitative analysis and an expert survey, we adapt the JD-R model to better capture changing work demands and resources. This ensures that our findings remain applicable and insightful in understanding employee performance, wellbeing and adaptation in changing work environments.

Third, the overarching goal of this dissertation was to provide a comprehensive and integrative framework for understanding and designing distributed work environments in today's world. At its core, the dissertation argues for a paradigm shift in the way we conceptualize and implement work design. Traditional models, which often focus on individual aspects such as task design or the physical location of work, are no longer sufficient to do justice to the multifaceted nature of work today. Therefore, the dissertation advances traditional work design models by a) taking a holistic approach to work design configurations and b) investigating it in the ICT domain related to forms of work. This was done by providing work design configurations, based on different forms of work, for desired outcomes, and not researching only individual job design characteristics and outcome, as other research.

This research therefore brings together insights from a range of disciplines to develop a more holistic and flexible approach to work design. This holistic approach is important for a number of reasons. Firstly, it recognizes the interaction between different elements of work design and allows for a more subtle understanding of how these elements interact and influence each other in a distributed work environment. Secondly, this approach recognizes the changing nature of work, where the traditional boundaries between work and private life, physical and virtual spaces, and individual and collaborative tasks are becoming increasingly blurred. This approach is critical for organizations that want to succeed in an increasingly complex, dynamic and distributed work landscape. It requires a shift in perspective — from

viewing work design as a static, one-dimensional construct to understanding it as a multi-layered and evolving process that requires continuous adaptation and holistic consideration. The findings of the dissertation also underline the importance of adaptability and individualization in work design. Different work configurations — such as enriched, autonomous and collaborative work — have unique characteristics and requirements. Understanding these differences is key to designing work environments that are not only effective but also meet the needs and preferences of different workforces. Therefore, the dissertation provides an integrative framework for designing distributed work, advancing traditional and non-traditional work design models such as WDQ and JD-R. The holistic configuration approach reveals the differences in work design between different forms of work and different outcomes showing the need for a contextual work design approach.

Fourth, by juxtaposing and simultaneously observing different outcomes that are fundamentally different (e.g. task performance vs. work-life balance) and uncovering the most beneficial working conditions that support one or the other (or both simultaneously). The dissertation examines how job demands and resources manifest differently in different forms of work, taking into account the context dependency of these factors. By examining on-site, hybrid and remote work, differences in configurations for both, different forms of work and different outcomes are identified. For example, task identity was crucial for task performance in all forms of work, with task variety being especially important in on-site work and information processing and social support being critical in remote work. In terms of work-life balance, all forms of work benefited from a high level of information processing, skill variety and social support, with hybrid work emphasizing the role of IT presenteeism. These findings suggest that while certain job characteristics generally support employee outcomes, their optimal levels and combinations vary, emphasizing the need for context-sensitive work design. This subtle understanding prompts future research to investigate these dynamics further.

Last but not least, by including boundary conditions based on JD-R. This was achieved by examining the moderating effects of individual characteristics, such as employee proactivity, and work context characteristics, such as formalization, and additionally including the temporal context (establishing causality). We have shown how important it is to consider these characteristics together with job characteristics in the design of work, taking into account their interaction. For example, proactive employees tend to take better advantage of enriched work design and therefore have better WLB. Considering individual and work context characteristics, we also contributed to the literature on the downsides of IT by showing how flexible working arrangements can be beneficial and reduce burnout among employees who work a lot with technology, but could also have negative effects on work engagement.

Overall, this dissertation makes an important contribution to the field by providing a comprehensive and holistic view of distributed work. It not only enriches the academic discourse but also provides practical insights for organisations grappling with the

complexities of modern work environments. The collective findings of this dissertation, when considered holistically, offer a subtle and comprehensive understanding of distributed work and its multiple dimensions. Theoretically, this approach bridges the gap between different disciplines and integrates insights from information systems, and human resource management. This interdisciplinary synthesis is crucial as it moves beyond the limitations of viewing distributed work through a singular lens, be it technological, psychological or managerial.

4.3 Practical implications

Since the primary motivation was to solve the practical problem of work design in the evolving landscape of new forms of work, the dissertation also offers actionable insights. It looks at how technological advances and changing employee expectations are challenging traditional work design theories and practices.

What we have found is that understanding the context in which an organization operates is critical for managers in choosing the right work design configurations. Different environments— whether dynamic and innovative or stable and predictable — require different approaches to work design in order to maximize outcomes for employees and the organization. Managers should carefully consider their organizational needs, employee capabilities and overall strategic goals to select configurations that support a conducive work environment, promote employee well-being and drive business success. Tailoring the work design to this context ensures that the chosen configurations align with and support the organization's unique characteristics and goals.

Each configuration offers unique benefits and faces particular challenges, which is why it is important to tailor them to the specific needs of the organization and employees. For example, an enriched work design increases satisfaction and creativity but also requires a culture of support and continuous learning, while an orderly configuration on the other hand, offers predictability but may inhibit innovation. It is clear that different characteristics play different role depending on the form of work and the desired outcome. This comprehensive view is critical for organizations seeking to adapt to the changing work landscape, as it ensures that their strategies are based on a deep understanding of the complex interplay of factors that define modern work.

As already pointed out, it is therefore important to take a holistic approach to work design. Managers should consider all aspects of work design, not only task-related, social and contextual characteristics, but also ICT characteristics, and boundary conditions, such as individual characteristics of employees (e.g., proactive personality) and work context characteristics (e.g., formalization). This will ensure that the work design promotes employee outcomes, regardless of whether they are working onsite, remotely or hybrid. Furthermore, aligning work design with organizational goals helps to create a cohesive and purposeful work environment that drives the organisation towards its objectives. Our study

highlights the strategic role of work design in enhancing task performance and work-life balance, showing its varying impact across on-site, hybrid, and remote work forms. It emphasizes striking a balance between job demands and resources to optimize WLB, with enriched work design being particularly effective across all work forms. Interestingly (or maybe not) is that the findings show that work design has greater impact on task performance, than on WLB. These implications are vital for improving employee engagement, burnout, task performance and work-life balance in the changing work landscape. Key findings, potentially important for managers, can be seen in Table 34.

While Table 34 points out some key empirical findings, managers should also consider the following findings taken from conceptual parts of the dissertation, such as the following. Dissertation emphasises the importance of flexibility and adaptability in work design. Managers should be open to adapting work environments and tasks to the different needs of their employees. This includes taking into account different working styles, personal characteristics and preferences.

The thoughtful integration of technology is another important aspect. In an age where technology is an integral part of work, managers need to integrate technological tools thoughtfully. This means choosing technology that enhances, rather than hinders, workflow and communication, and training employees to use these tools effectively. Furthermore, focusing on communication and collaboration is critical, especially in remote and hybrid work environments. Managers need to prioritise effective communication and collaboration. This includes not only the use of technology, but also fostering a culture of open communication and teamwork that ensures all team members feel connected and engaged. Companies should consider training and supporting their employees to improve their technology skills and create a work environment that is optimized for technology use.

Moreover, the results show that employee wellbeing takes centre stage. Managers need to prioritise initiatives to promote mental and physical health, such as flexible working hours, ergonomic workspaces, and stress management resources. Next, developing leadership skills for distributed teams is necessary. Leading distributed teams requires different leadership skills than leading on-site team. Managers should therefore focus on developing skills in relationship building, virtual team management and cross-cultural communication.

It was also shown that encouraging continuous learning and adaptation is important as the nature of work is constantly evolving. Managers consequently ought to encourage a culture of continuous learning and adaptation. This includes keeping up to date with new trends in work design, technology and employee expectations, while also being prepared to adapt their strategies when necessary. Furthermore, promoting inclusivity and diversity is not only ethically important, but also beneficial to organizational outcomes. Finally, managers must regularly measure and evaluate the effectiveness of their work design strategies. This includes gathering feedback from employees, assessing different individual and organizational outcomes, and making data-driven adjustments to work design practises.

Table 34: Summary of key findings in support of achieving desirable outcomes and preventing undersirable ones

WORK ENGAGEMENT	BURNOUT	TASK PERFORMANCE			WORK-LIFE BALANCE		
		On-site	Hybrid	Remote	On-site	Hybrid	Remote
• Task enriched work design (greater task variety, autonomy in decision making, work methods, and work schedules) allow workers to use more technology, and that such use of technology use at work is related positively to employee work engagement. • Task enriched work design via technology use at work and flexible work arrangements lower work engagement.	• Task enriched work design via technology use at work and flexible work arrangements lower burnout.	• task identity • task variety	• task identity • task variety • information processing • feedback from the job	• task identity • information processing • high social support	• information processing • skill variety • social support task variety	• information processing • skill variety • social support IT presenteeism	• information processing • skill variety • social support • task variety
• Job crafting has a greater effect on motivation when employees are working remotely or hybrid than on-site. • The relationship between technology-optimized enriched work design and work engagement is mediated by work motivation and that the relationship is positive. • The relationship between technology-optimized enriched work design and work engagement was moderated by forms of work, suggesting that the effects of technology-optimized enriched work design on work motivation and work engagement may vary by type of work.		• Enriched work design (i.e., job autonomy, task variety, task significance, task identity, feedback from job, job complexity, information processing, problem-solving, skill variety, specialization, social support, interdependence, interaction outside the organization, feedback from others) is positively related to task performance in all forms of work.			• Enriched work design (i.e., high skill variety, autonomy, task identity, task significance, and social support) is positively related to WLB. • Formalization and proactive personality positively moderate the relationship between enriched work design and WLB.		

4.4 Limitations and future research directions

There are several limitations in the dissertation that guide future research directions. In the first chapter our studies acknowledge limitations such as the focus on a limited number of keywords and the subjective nature of the bibliometric analysis. Future research should explore underexplored areas such as diversity and trust in virtual teams and adapt to rapid changes such as the impact of the COVID-19 pandemic on work. Further research into the role of ICT in distributed work and the intersection of distributed work with other areas such as work design and leadership communication is recommended to improve our understanding of modern work environments. It suggests future research directions, including exploring previously under-researched areas such as diversity in distributed teams, investigating the impact of COVID-19 on distributed work, and examining the integration of ICT in work design. We propose to conduct further research in conceptually similar subdomains and suggest using theoretical frameworks such as socio-technical systems theory for a deeper understanding. We also call for research into the synergy between job characteristics in different forms of work and emphasize the need for empirical evidence to refine work design models for distributed work environments.

The studies also acknowledge the subjective nature of the bibliometric analysis. Given the subjective nature of bibliometric analyzes, future research should involve a diverse panel of experts to review and interpret the clusters identified in such studies. This approach would improve the validity and scope of the findings and provide a more validated understanding of the field. The inclusion of experts from different backgrounds could also bring new perspectives and insights to light, further enriching the analysis and contributing to a more holistic view of the research area.

Next, the study on work configurations suggests broadening the scope to include ICT characteristics and specific forms of work and to focus on the direct effects on employee outcomes. Methodological limitations are the choice of a panel study instead of the Delphi technique and the focus on extreme levels of job characteristics. To improve future research based on the limitations identified, a more detailed approach could be taken, examining work configurations separately for each work form and focusing on specific outcomes rather than general outcomes. This would allow a deeper understanding of how different configurations affect different aspects of work and workers' wellbeing. In addition, the inclusion of ICT characteristics in the study of work configurations could provide insights into the demands of the modern work environment. Using a Delphi technique rather than a panel study could provide a more comprehensive expert consensus on work design configurations. Examining the direct impact of these configurations on employee outcomes could provide actionable insights for organizational practice. By addressing these limitations, future research can provide more detailed guidance on optimizing work design in the digital age, tailoring configurations to specific forms of work and linking them directly to employee outcomes.

The subsequent studies in the dissertation, which focus on the empirical testing of work design configurations for task performance and work-life balance, reveal several limitations. These include not incorporating work context characteristics that might affect the results, the focus on a single country in data collection, and interpreting low R^2, potentially limiting generalizability due to cultural and situational specificities. In one study the focus was primarily on task performance and did not include the study of negative effects such as stress.

Furthermore, in examining the complex conditions that favor work-life balance and task performance, we initially focused on configurations that actively contribute to these outcomes, but did not explore the configurations that inhibit these outcomes. Investigating the configurations that prevent desirable outcomes may provide a better understanding of the causal mechanisms involved and offer a balanced perspective that aims not only to replicate successes but also to avoid failures. Therefore, we suggest that future research also performs asymmetry analysis, since this dual focus promises to enrich the theoretical and practical implications of our findings.

Moreover, future research should comprehensively assess all job characteristics, including ICT aspects, and consider the balance between optimizing performance and maintaining employee well-being. Extending research to different contexts and considering individual differences, such as age and digital literacy, are recommended to deepen the understanding of work design in digital environments and its impact on different forms of work.

Third chapter begins with a study acknowledges that its limitations such as including the focus on a single country (Montenegro) during the pandemic, and not including only knowledge workers, which may affect the generalizability of the findings. The brevity of the questionnaire used to measure job characteristics and observing all forms of work together also limits the depth of the analysis. For future research, it is suggested to conduct cross-cultural studies in the post-pandemic period, explore additional trainable individual traits such as self-efficacy and self-leadership, and investigate a broader range of job design characteristics, such as ICT characteristics, and their impact on WLB. It is also recommended to investigate the differences between the different forms of work to gain a more comprehensive understanding of WLB.

The next study points out limitations, such as the inclusion of the specific context (Germany, knowledge work) and the reliance on self-reported data on work engagement and burnout. Future research could examine the effects of different digital technologies on work outcomes in a global context, using data with different assessments and differentiating intentions of technology use. In addition, examining the impact of digital work and flexible arrangements on employee and organizational performance across different subgroups of workers, taking into account factors such as commute times, could provide deeper insights into the role of digitally mediated work in human resource management and information systems.

Limitations of the last study done include the bias of the sample towards on-site workers and the exclusively Slovenian context, which may limit the generalizability of the results to other work environments and cultures. The different occupations in the sample also pose a challenge for the interpretation of the effects of variations in the form of work. Future research should target broader and more culturally diverse samples and possibly focus on specific occupations to improve the applicability of the findings. In addition, further investigation of the proposed technology-optimized work design model is suggested to validate its effectiveness in different forms of work.

Overall, while the diversity of the sample is a strength, it also makes general applicability difficult. Most of the studies within the dissertation do not only include knowledge workers. Furthermore, on-site, hybrid and remote workers are generally not equally represented. Employees also do not work in the same industry. Looking specifically at knowledge workers within a particular industry and ensuring equal representation of remote, hybrid and on-site workers could provide more subtle insights. In addition, most studies did not control for personal circumstances (e.g., caregiving responsibilities, pet ownership) and did not examine individual factors (e.g. digital literacy, age) in relation to work outcomes. Future studies should consider some control variables to better understand their role in shaping the work outcomes of employees in different work environments.

Furthermore, while we have categorized forms of work as usually done in practice and academia, specifically into on-site, hybrid and remote, this broad distinction ignores the complexity of different distributed forms of work (as noted in the literature review). Future studies should investigate the distinctions between different distributed forms of work, such as virtual teams and different hybrid models (i.e., the ones where employees choose when to work on-site and when remotely, and the ones where employees rotate or the ones where employees work on-site but collaborate only virtually), to better understand their unique challenges and benefits.

Moreover, although some R^2 values in our analysis are indeed low, they still provide valuable insights into the relationships we examined. Low R^2 values can highlight the complexity of the phenomena under investigation and suggest that the results may be influenced by multiple, interrelated factors beyond those we modeled. Interpreting these statistically significant but low values in the context of the broader research helps us to identify areas for further investigation and refine our understanding of the topic. This is crucial for the advancement of the field as it prompts us to look beyond the obvious relationships and explore deeper influences that may have been overlooked.

The research opens up new avenues for future study, particularly exploring the intricacies of how work environments evolve in the face of technological advancement and global integration. One area that lends itself to exploration is the impact of new technologies such as artificial intelligence and automation on distributed work environments. This research

could uncover how these technologies are reshaping job roles, task allocation and employee engagement, offering insights into the future of work.

Another interesting direction is the study of cross-cultural differences in distributed work. As work becomes increasingly global, it is critical to understand how cultural differences influence the effectiveness of different work design configurations. This research could shed light on how cultural norms and values influence collaboration, communication style and leadership in distributed teams. The long-term psychological and organizational effects of distributed work should also be thoroughly investigated. This includes examining the impact of prolonged remote working on employee well-being, organizational culture and team dynamics. Understanding these effects can lead to the development of more effective work design strategies that focus on mental health and organizational cohesion.

Another promising area of research is exploring the relationship between distributed work and sustainability. This could examine how decentralized and hybrid working models contribute to corporate sustainability goals, including reducing carbon footprints and using resources more efficiently. Finally, the role of leadership in distributed work environments is also an important area of investigation. Future research could focus on identifying the leadership styles and strategies that are most effective in distributed and hybrid work environments and contribute to better team performance and employee satisfaction.

CONCLUSION

Incorporating the insights from Tal Ben-Shahar's (2021) "Happiness Studies: An Introduction", the dissertation takes on an even more profound meaning. Ben-Shahar's emphasis on the importance of a holistic understanding resonates deeply with the approach taken in this research. He argues that understanding only parts of a whole can lead us down the wrong path, as partial truth is not truth. This perspective is crucial in the context of distributed work and work design, as a fragmented understanding can lead to inappropriate or even harmful organisational strategies and actions. Ben-Shahar uses the metaphor of the blind men and the elephant to illustrate the dangers of a partial perspective. In the story, each blind man touches a different part of the elephant, so everyone thinks the elephant is something completely different — a wall, a rope, a tree, etc.

This metaphor can be aptly applied to the study of distributed labour. If we focus only on individual aspects such as the use of technology or the location of work, without considering the broader context of organisational culture, leadership and employee wellbeing, we run the risk of misunderstanding the true nature of effective work design. The idea that 'to heal is to make well' is particularly relevant. In the context of work design, healing or improving an organisation's work environment requires a comprehensive understanding of all elements and their interactions. This holistic approach is not only about combining different

perspectives, but also about understanding their interdependencies and the characteristics resulting from these interactions.

Furthermore, Ben-Shahar's discussion of the importance of inter- and intradisciplinary holism in academic institutions emphasises the need for a comprehensive approach to research. Fragmentation within and between disciplines often leads to an incomplete understanding of complex phenomena such as distributed work. By integrating insights from information systems and human resources, this dissertation attempts to bridge these divides and paint a more complete picture of the distributed work landscape.

The importance of a holistic view is emphasized by the multi-layered nature of distributed work itself. In a landscape where technological advancement, cultural change and evolving work practices intersect, a narrow focus on individual aspects of work design would be insufficient, if not misleading. By taking a broad perspective and gradually integrating individual components — such as task design, work location, communication technology and socio-economic factors — the research constructs a multi-layered and interconnected understanding of the work environment.

The findings of the thesis therefore as a whole provide a theoretical framework that captures the complexity and dynamics of distributed work. The holistic approach taken here is not just a methodological choice, but a necessary response to the complicated realities of the modern work. It underlines the need for comprehensive, adaptable and people-centered work design strategies that can meet the challenges of a constantly evolving work landscape. The overarching implication is that in the search for effective work design, especially in a rapidly evolving work landscape, a holistic perspective is not only beneficial but essential.

REFERENCE LIST

1. Abarca, V. M. G., Palos-Sanchez, P. R., & Rus-Arias, E. (2020). Working in Virtual Teams: A Systematic Literature Review and a Bibliometric Analysis. In *IEEE Access* (Vol. 8, pp. 168923–168940). https://doi.org/10.1109/access.2020.3023546

2. Abdel-Basset, M., Chang, V., & Nabeeh, N. A. (2021). An intelligent framework using disruptive technologies for COVID-19 analysis. *Technological Forecasting and Social Change*, *163*. https://doi.org/10.1016/J.TECHFORE.2020.120431

3. AbuAlRub, R. F. (2004). Job Stress, Job Performance, and Social Support Among Hospital Nurses. *Journal of Nursing Scholarship*, *36*(1), 73–78. https://doi.org/10.1111/J.1547-5069.2004.04016.X

4. Adams, E. F., Laker, D. R., & Hulin, C. L. (1977). An investigation of the influence of job level and functional specialty on job attitudes and perceptions. *Journal of Applied Psychology*, *62*(3), 335–343. https://doi.org/10.1037/0021-9010.62.3.335

5. Addas, S., & Pinsonneault, A. (2018). E-mail interruptions and individual performance: Is there a silver lining? *MIS Quarterly: Management Information Systems*, *42*(2), 381–405. https://doi.org/10.25300/MISQ/2018/13157

6. Adler, P. S., & Borys, B. (1996). Two types of bureaucracy: Enabling and coercive. *Administrative Science Quarterly*, *41*(1), 61–89. https://doi.org/10.2307/2393986

7. Adler, P. S., & Heckscher, C. (2018). Collaboration as an organization design for shared purpose. *Research in the Sociology of Organizations*, *57*, 81–111. https://doi.org/10.1108/S0733-558X20180000057004/FULL/XML

8. Aguinis, H., & Glavas, A. (2019). On Corporate Social Responsibility, Sensemaking, and the Search for Meaningfulness Through Work. *Journal of Management*, *45*(3), 1057–1086. https://doi.org/10.1177/0149206317691575

9. Ahrne, G. (1994). *Social organizations : interaction inside, outside and between organizations*. SAGE Publications Ltd. https://www.perlego.com/book/861827/social-organizations-interaction-inside-outside-and-between-organizations-pdf

10. Ahuja, M., Chudoba, K., Kacmar, C., McKnight, H., & George, J. (2007). IT Road Warriors: Balancing Work-Family Conflict, Job Autonomy and Work Overload to Mitigate Turnover Intentions. *MIS Quarterly*, *31*(1). https://digitalcommons.usu.edu/mis_facpubs/2

11. Ahuja, M. K., & Thatcher, J. B. (2005). Moving beyond intentions and toward the theory of trying: Effects of work environment and gender on post-adoption information technology use. *MIS Quarterly: Management Information Systems*, *29*(3), 427–459. https://doi.org/10.2307/25148691

12. Akgün, A. E., Lynn, G. S., & Byrne, J. C. (2006). Antecedents and Consequences of Unlearning in New Product Development Teams. *Journal of Product Innovation Management*, *23*(1), 73–88. https://doi.org/10.1111/J.1540-5885.2005.00182.X

13. Akkani, A., & Oduaran, C. (2017). Work-life balance among academics : do gender and personality traits really matter? *Gender and Behaviour*, *15*(4).

14. Aldag, R. J., Barr, S. H., & Brief, A. P. (1981). Measurement of perceived task characteristics. *Psychological Bulletin*, *90*(3), 415–431. https://doi.org/10.1037/0033-2909.90.3.415

15. Aleksić, D., Černe, M., & Batistič, S. (2023). Understanding meaningful work in the context of technostress, COVID-19, frustration, and corporate social responsibility. *Human Relations*. https://doi.org/10.1177/00187267221139776/ASSET/IMAGES/LARGE/10.1177_00187267221139776-FIG1.JPEG

16. Alexander, A., De Smet, A., Langstaf, M., & Ravid, D. (2021). *What Employees Are Saying About The Future Of Remote Work*.

17. Alexander, A., De Smet, A., & Mysore, M. (2020). Reimagining the postpandemic workforce Pandemic-style working from home may not translate easily to a "next normal" mix of on-site and remote working. *McKinsey Quarterly*.

18. Alexander, J. W., & Randolph, W. A. (1985). The fit between technology and structure as a predictor of performance in nursing subunits. *Academy of Management Journal*, *28*(4), 844–859. https://doi.org/10.2307/256240

19. Ali, M., Usman Ghani, M., & Raza, B. (2019). Linking Human Resource Practice with Work Happiness Through Employee Resilience: Evidence from Pakistan. *Global Regional Review*, *4*(3), 82–91. https://doi.org/10.31703/grr.2019(IV-III).10

20. Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological Science in the Public Interest*, *16*(2), 40–68. https://doi.org/10.1177/1529100615593273

21. Allen, T. D., Herst, D. E., Bruck, C. S., & Sutton, M. (2000). Consequences associated with work-to-family conflict: a review and agenda for future research.

Journal of Occupational Health Psychology, *5*(2), 278–308. https://doi.org/10.1037/1076-8998.5.2.278

22. Alshwayat, D., MacVaugh, J., & Akbar, H. (2021). A Multi-level Perspective on Trust, Collaboration and Knowledge Sharing Cultures in a Highly Formalized Organization. *Journal of Knowledge Management*.

23. Althammer, S. E., Reis, D., Beek, S. van der, Beck, L., & Michel, A. (2021). A mindfulness intervention promoting work–life balance: How segmentation preference affects changes in detachment, well-being, and work–life balance. *Journal of Occupational and Organizational Psychology*, *94*(2), 282–308. https://doi.org/10.1111/JOOP.12346

24. Amankwah-Amoah, J., Khan, Z., Wood, G., & Knight, G. (2021). COVID-19 and digitalization: The great acceleration. *Journal of Business Research*, *136*, 602–611. https://doi.org/10.1016/J.JBUSRES.2021.08.011

25. Ameri, M., & Kurtzberg, T. R. (2022). Leveling the Playing Field Through Remote Work. *MIT Sloan Management Review*, *63*(3), 1–3. https://sloanreview.mit.edu/article/leveling-the-playing-field-through-remote-work/

26. American Psychological Association. (2012). *Building your resilience*. https://www.apa.org/topics/resilience

27. Arbuckle, J. L. (1997). *AMOS Users' Guide* (Version 3.6). Smallwaters Corporation.

28. Arcy, J. D. ', Gupta, A., Tarafdar, M., & Turel, O. (2014). Reflecting on the "Dark Side" of Information Technology Use. *Communications of the Association for Information Systems*, *35*(1). https://doi.org/10.17705/1CAIS.03505

29. Arora, P., & Suri, D. (2020). Redefining, relooking, redesigning, and reincorporating HRD in the post Covid 19 context and thereafter. *Human Resource Development International*, *23*(4), 438–451. https://doi.org/10.1080/13678868.2020.1780077

30. Arthur, J. B. (1994). Effects of Human Resource Systems on Manufacturing Performance and Turnover. *Academy of Management Journal*, *37*(3), 670–687. https://doi.org/10.2307/256705

31. Asl, I. M., Nazari, A., & Raadabadi, M. (2015). Examining the relationship between job enrichment and performance: A case study of nurses. *Asian Social Science*, *11*(18), 108–115. https://doi.org/10.5539/ASS.V11N18P108

32. Ayyagari, R., Grover, V., & Purvis, R. (2011). Technostress: Technological Antecedents and Implications. *MIS Quarterly*, *35*(4), 831–858. https://misq.umn.edu/technostress-technological-antecedents-and-implications.html

33. Azar, S., Khan, A., & Van Eerde, W. (2018). Modelling linkages between flexible work arrangements' use and organizational outcomes. *Journal of Business Research*, *91*, 134–143. https://doi.org/10.1016/J.JBUSRES.2018.06.004

34. Baiyere, A., Berente, N., & Avital, M. (2023). On digital theorizing, clickbait research, and the cumulative tradition. *Journa of Information Technology*, *38*(1), 67–73. https://doi.org/10.1177/02683962231153940

35. Bakker, A. B., & Albrecht, S. (2018). Work engagement: current trends. *Career Development International*, *23*(1), 4–11. https://doi.org/10.1108/CDI-11-2017-0207/FULL/PDF

36. Bakker, A. B., & Sanz-Vergel, A. I. (2013). Weekly work engagement and flourishing: The role of hindrance and challenge job demands. *Journal of Vocational Behavior*, *83*(3), 397–409. https://doi.org/10.1016/J.JVB.2013.06.008

37. Bakker, A. B., Breevaart, K., Scharp, Y. S., & Vries, J. D. de. (2021). Daily Self-Leadership and Playful Work Design: Proactive Approaches of Work in Times of Crisis. *The Journal of Applied Behavioral Science*, 002188632110604. https://doi.org/10.1177/00218863211060453

38. Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309–328. https://doi.org/10.1108/02683940710733115

39. Bakker, A. B., & Demerouti, E. (2014). Job Demands-Resources Theory. In P. Y. Chen & C. L. Cooper (Eds.), *Work and Wellbeing: Wellbeing: A Complete Reference Guide* (Vol. 3). John Wiley & Sons. https://doi.org/10.1002/9781118539415.wbwell019

40. Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*(3), 273–285. https://doi.org/10.1037/OCP0000056

41. Bakker, A. B., & Demerouti, E. (2018). Multiple Levels in Job Demands-Resources Theory: Implications for Employee Well-being and Performance. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being*. Noba Scholar.

42. Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology*, *10*(2), 170–180. https://doi.org/10.1037/1076-8998.10.2.170

43. Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. (2023). Annual Review of Organizational Psychology and Organizational Behavior Job Demands-Resources Theory: Ten Years Later. *Annual Review of Organizational Psychology and*

Organizational Behavior, *10*, 25–53. https://doi.org/10.1146/annurev-orgpsych-120920

44. Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. I. (2014). Burnout and Work Engagement: The JD–R Approach. *Annual Review of Organizational Psychology and Organizational Behavior*, *1*, 389–411. https://doi.org/10.1146/ANNUREV-ORGPSYCH-031413-091235

45. Bakker, A. B., van Veldhoven, M., & Xanthopoulou, D. (2010). Beyond the Demand-Control Model: Thriving on High Job Demands and Resources. *Journal of Personnel Psychology*, *9*(1), 3–16. https://doi.org/10.1027/1866-5888/A000006

46. Baltes, B., Briggs, T. E., Huff, joseph W., Wright, J. A., & Neuman, G. A. (1999). Flexible and Compressed Workweek Schedules: A Meta-Analysis of Their Effects on Work-Related Criteria . *Article in Journal of Applied Psychology*, *84*(4), 496–513. https://doi.org/10.1037/0021-9010.84.4.496

47. Baptista, J., Stein, M. K., Klein, S., Watson-Manheim, M. B., & Lee, J. (2020). Digital work and organisational transformation: Emergent Digital/Human work configurations in modern organisations. *The Journal of Strategic Information Systems*, *29*(2), 101618. https://doi.org/10.1016/J.JSIS.2020.101618

48. Bardoel, E. A., Pettit, T. M., De Cieri, H., & Mcmillan, L. (2014). Employee resilience: An emerging challenge for HRM. *Asia Pacific Journal of Human Resources*, *52*(3), 279–297. https://doi.org/10.1111/1744-7941.12033

49. Barker Scott, B. A., & Manning, M. R. (2022). Designing the Collaborative Organization: A Framework for how Collaborative Work, Relationships, and Behaviors Generate Collaborative Capacity. *Journal of Applied Behavioral Science*. https://doi.org/10.1177/00218863221106245/ASSET/IMAGES/LARGE/10.1177_00218863221106245-FIG5.JPEG

50. Barley, S. R., Bechky, B. A., & Milliken, F. J. (2017). The Changing Nature of Work: Careers, Identities, and Work Lives in the 21st Century. *Https://Doi.Org/10.5465/Amd.2017.0034*, *3*(2), 111–115. https://doi.org/10.5465/AMD.2017.0034

51. Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

52. Barrick, M. R., & Mount, M. K. (1991). the Big Five Personality Dimensions and Job Performance: a Meta-Analysis. *Personnel Psychology*, *44*(1), 1–26. https://doi.org/10.1111/j.1744-6570.1991.tb00688.x

53. Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M., & Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *Proceedings of the National Academy of Sciences of the United States of America*, *117*(30), 17656–17666. https://doi.org/10.1073/PNAS.2006991117/SUPPL_FILE/PNAS.2006991117.SAPP.PDF

54. Baruch, Y., & Nicholson, N. (1997). Home, Sweet Work: Requirements for Effective Home Working. *Journal of General Management*, *23*(2), 15–30.

55. Bateman, T. S., & Crant, J. M. (1993). The proactive component of organizational behavior: A measure and correlates. *Journal of Organizational Behavior*, *14*(2), 103–118. https://doi.org/10.1002/JOB.4030140202

56. Bateman, T. S., & Crant, J. M. (1999). Proactive behavior: Meaning, impact, recommendations. *Business Horizons*, *42*(3), 63–70. https://doi.org/10.1016/S0007-6813(99)80023-8

57. Bathe, K. -J, & Bolourchi, S. (1979). Large displacement analysis of three-dimensional beam structures. *International Journal for Numerical Methods in Engineering*, *14*(7), 961–986. https://doi.org/10.1002/nme.1620140703

58. Batistič, S., Černe, M., & Vogel, B. (2017). Just how multi-level is leadership research? A document co-citation analysis 1980–2013 on leadership constructs and outcomes. *Leadership Quarterly*, *28*(1), 86–103. https://doi.org/10.1016/J.LEAQUA.2016.10.007

59. Batt, R., & Valcour, P. M. (2003). Human Resources Practices as Predictors of Work-Family Outcomes and Employee Turnover. *Industrial Relations: A Journal of Economy and Society*, *42*(2), 189–220. https://doi.org/10.1111/1468-232X.00287

60. Battilana, J., Sengul, M., Pache, A.-C., & Model, J. (2014). Harnessing Productive Tensions in Hybrid Organizations: The Case of Work Integration Social Enterprises. *Academy of Management Journal*, *58*(6), 1658–1685. https://doi.org/10.5465/AMJ.2013.0903

61. Beaudry, A., Bagayogo, F., Vaghefi, I., & Lapointe, L. (2020). Impact of IT User Behavior: Observations through a New Lens. *Communications of the Association for Information Systems*, *46*(1), 15. https://doi.org/10.17705/1CAIS.04615

62. Beauregard, T. A., & Henry, L. C. (2009). Making the link between work-life balance practices and organizational performance. *Human Resource Management Review*, *19*(1), 9–22. https://doi.org/10.1016/J.HRMR.2008.09.001

63. Bedwell, W. L., Wildman, J. L., DiazGranados, D., Salazar, M., Kramer, W. S., & Salas, E. (2012). Collaboration at work: An integrative multilevel conceptualization. *Human Resource Management Review*, *22*(2), 128–145. https://doi.org/10.1016/J.HRMR.2011.11.007

64. Beer, L. T. D., Scholtz, S. E., & Rothmann, J. C. (2018). Job Demands-Resources, Person-Job Fit and the Impact on Turnover Intention: Similar Across Professional and Administrative Job-Types? In *Psychology of retention*. Springer, Cham.

65. Be'langer, F., & Collins, W. R. (1998). Distributed Work Arrangements: A Research Framework. *The Information Society*, *14*(2), 137–152. https://doi.org/10.1080/019722498128935

66. Bell, B. S., & Kozlowski, S. W. J. (2002). A typology of virtual teams: Implications for effective leadership. *Group and Organization Management*, *27*(1), 14–49. https://doi.org/10.1177/1059601102027001003

67. Bellmann, L., & Hübler, O. (2020a). *Job Satisfaction and Work-Life Balance: Differences between Homework and Work at the Workplace of the Company* (13504). https://papers.ssrn.com/abstract=3660250

68. Bellmann, L., & Hübler, O. (2020b). Working from home, job satisfaction and work–life balance – robust or heterogeneous links? *International Journal of Manpower*, *42*(3), 424–441. https://doi.org/10.1108/IJM-10-2019-0458/FULL/PDF

69. Bello, Z., & Tanko, G. I. (2020). Review of Work-Life Balance Theories. *GATR Global Journal of Business Social Sciences Review*, *8*(4), 217–227. https://doi.org/10.35609/gjbssr.2020.8.4(3)

70. Ben-Shahar, T. (2021). Happiness Studies: An Introduction. In *Happiness Studies: An Introduction*. Springer International Publishing. https://doi.org/10.1007/978-3-030-64869-5/COVER

71. Bentley, T. A., Teo, S. T. T., McLeod, L., Tan, F., Bosua, R., & Gloet, M. (2016). The role of organisational support in teleworker wellbeing: A socio-technical systems approach. *Applied Ergonomics*, *52*, 207–215. https://doi.org/10.1016/J.APERGO.2015.07.019

72. Berg-Beckhoff, G., Nielsen, G., & Ladekjær Larsen, E. (2017). Use of information communication technology and stress, burnout, and mental health in older, middle-aged, and younger workers - results from a systematic review. *International Journal of Occupational and Environmental Health*, *23*(2), 160–171. https://doi.org/10.1080/10773525.2018.1436015

73. Bergeron, D. M., Schroeder, T. D., & Martinez, H. A. (2014). Proactive Personality at Work: Seeing More to Do and Doing More? *Journal of Business and Psychology*, *29*(1), 71–86. https://doi.org/10.1007/S10869-013-9298-5

74. Berg-Schlosser, D., De Meur, G., Rihoux, B., & Ragin, C. (2009). Qualitative comparative analysis (QCA) as an approach. In *B. Rihoux, & C.C. Ragin, Configurational comparative methods: qualitative comparative analysis (QCA) and related techniques* (pp. 1–18). Sage.

75. Bhave, D. P., Halldórsson, F., Kim, E., & Lefter, A. M. (2019). The differential impact of interactions outside the organization on employee well-being. *Journal of Occupational and Organizational Psychology*, *92*(1), 1–29. https://doi.org/10.1111/JOOP.12232

76. Bilge, P., Can Alkan, A., & Ağanoğlu, R. (2020). Managing work-life balance during the Covid-19 crisis-A survey with 1500+ participants worldwide. In *AK Chancengleichheit der DPG*.

77. Bindl, U. K., & Parker, S. K. (2010). Proactive work behavior: Forward-thinking and change-oriented action in organizations. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology, Vol 2: Selecting and developing members for the organization.* (Vol. 2, pp. 567–598). American Psychological Association. https://doi.org/10.1037/12170-019

78. Blazovich, J. L., Taken Smith, K., & Smith, M. (2014). Employee-friendly companies and work-life balance: Is there an impact on financial performance and risk level? *Journal of Organizational Culture, Communications and Conflict*, *18*(2), 1–14.

79. Blei, D., Carin, L., & Dunson, D. (2010). Probabilistic topic models. *IEEE Signal Processing Magazine*, *27*(6), 55–65. https://doi.org/10.1109/MSP.2010.938079

80. Blei, D. M. (2012). Probabilistic topic models. *Communications of the ACM*, *55*(4), 77–84.

81. Blei, D. M., Ng, A. Y., & Jordan, M. I. (2003). Latent Dirichlet Allocation. *Journal of Machine Learning Research*, *3*, 993–1022.

82. Block, L. K., & Stokes, G. S. (1989). Performance and Satisfaction in Private versus Nonprivate Work Settings. *Environment and Behavior*, *21*(3), 277–297. https://doi.org/10.1177/0013916589213003

83. Bloom, N., Han, R., & Liang, J. (2022). How Hybrid Working From Home Works Out. In *NBER Working Paper Series* (30292).

84. Boccoli, G., Gastaldi, L., & Corso, M. (2023). The evolution of employee engagement: Towards a social and contextual construct for balancing individual performance and wellbeing dynamically. *International Journal of Management Reviews*, *25*(1), 75–98. https://doi.org/10.1111/IJMR.12304

85. Bogaerts, Y., De Cooman, R., & De Gieter, S. (2018). Getting the Work-Nonwork Interface You Are Looking for: The Relevance of Work-Nonwork Boundary Management Fit. *Frontiers in Psychology*, *9*, 1158. https://doi.org/10.3389/FPSYG.2018.01158

86. Bohlmann, C., & Zacher, H. (2021). Making Things Happen (Un)Expectedly: Interactive Effects of Age, Gender, and Motives on Evaluations of Proactive Behavior. *Journal of Business and Psychology*, *36*(4), 609–631. https://doi.org/10.1007/S10869-020-09691-7/FIGURES/5

87. Boon, C., den Hartog, D. N., Boselie, P., & Paauwe, J. (2011). The relationship between perceptions of HR practices and employee outcomes: Examining the role of person-organisation and person-job fit. *International Journal of Human Resource Management*, *22*(1), 138–162. https://doi.org/10.1080/09585192.2011.538978

88. Boskovic, A. (2021). EMPLOYEE AUTONOMY AND ENGAGEMENT IN THE DIGITAL AGE: THE MODERATING ROLE OF REMOTE WORKING. *Economic Horizons*, *23*(3), 231–246. https://doi.org/10.5937/EKONHOR2103241B

89. Bradford, A. M., & Ryan, R. M. (2020, October 2). *3 Ways to Motivate Your Team Through an Extended Crisis*. SHRM . https://www.shrm.org/resourcesandtools/hr-topics/employee-relations/pages/3-ways-to-motivate-your-team-through-an-extended-crisis.aspx

90. Bratianu, C., & Dincă, V. M. (2010). Knowledge Economy Dimensions. *Revista de Management Comparat Internațional*, *11*(2), 210–221.

91. Bregenzer, A., & Jimenez, P. (2021). Risk Factors and Leadership in a Digitalized Working World and Their Effects on Employees' Stress and Resources: Web-Based Questionnaire Study. *Journal of Medical Internet Research*, *23*(3). https://doi.org/10.2196/24906

92. Brodbeck, P. W. (2002). Complexity theory and organization procedure design. *Business Process Management Journal*, *8*(4), 377–402. https://doi.org/10.1108/14637150210435026

93. Broeck, A. Van den, & Parker, S. K. (2017). Job and Work Design. In *Oxford Research Encyclopedias, Psychology*. Oxford University Press. https://doi.org/10.1093/ACREFORE/9780190236557.013.15

94. Brotheridge, C. M., & Lee, R. T. (2002). Testing a conservation of resources model of the dynamics of emotional labor. *Journal of Occupational Health Psychology*, *7*(1), 57–67. https://doi.org/10.1037//1076-8998.7.1.57

95. Brugiavini, A., Buia, R. E., & Simonetti, I. (2022). Occupation and working outcomes during the Coronavirus Pandemic. *European Journal of Ageing*, *19*(4), 863–882. https://doi.org/10.1007/S10433-021-00651-5/FIGURES/10

96. Brummelhuis, L. L. ten, & Lippe, T. van der. (2010). Effective work-life balance support for various household structures. *Human Resource Management*, *49*(2), 173–193. https://doi.org/10.1002/HRM.20340

97. Bruning, P. F., & Campion, M. A. (2018). A Role–resource Approach–avoidance Model of Job Crafting: A Multimethod Integration and Extension of Job Crafting Theory. *Academy of Management Journal*, *61*(2), 499–522. https://doi.org/10.5465/AMJ.2015.0604

98. Brusoni, S., Laureiro-Martínez, D., Canessa, N., & Zollo, M. (2020). Exploring exploration: the role of affective states as forces that hinder change. *Industrial and Corporate Change*, *29*(1), 207–223. https://doi.org/10.1093/ICC/DTZ070

99. Bui, T., Higa, K., Sivakumar, V., & Yen, J. (1996). Beyond telecommuting: Organizational suitability of different modes of telework. *Proceedings of the Annual Hawaii International Conference on System Sciences*, *3*, 344–353. https://doi.org/10.1109/HICSS.1996.493230

100. Bunjak, A., Černe, M., Nagy, N., & Bruch, H. (2021). Job demands and burnout: The multilevel boundary conditions of collective trust and competitive pressure. *Human Relations*, 00187267211059826. https://doi.org/10.1177/00187267211059826

101. Bunjak, A., Černe, M., & Popovič, A. (2021). Absorbed in technology but digitally overloaded: Interplay effects on gig workers' burnout and creativity. *Information and Management*, *58*(8), 103533. https://doi.org/10.1016/J.IM.2021.103533

102. Burbach, M. E., & Day, F. C. (2014). Does Organization Sector Matter in Leading Teleworker Teams? A Comparative Case Study. *International Journal of Business Research and Development*, *3*(4), 8–21.

103. Burke, R. J., & Ng, E. (2006). The changing nature of work and organizations: Implications for human resource management. *Human Resource Management Review*, *16*(2), 86–94. https://doi.org/10.1016/J.HRMR.2006.03.006

104. Burton, R. M., Obel, B., & Håkonsson, D. D. (2015). Organizational Design. In *Organizational Design*. Cambridge University Press. https://doi.org/10.1017/CBO9781316160787

105. Byrne, D. (1999). Complexity Theory and the Social Sciences An Introduction. In *Complexity Theory and the Social Sciences, the state of the art* (Issue 2). Routledge. http://www.tandfebooks.com/isbn/9780203003916

106. Byrne, D., & Callaghan, G. (2023). *Complexity theory and the social sciences the state of the art*. Routledge. https://www.routledge.com/Complexity-Theory-and-the-Social-Sciences-The-State-of-the-Art/Byrne-Callaghan/p/book/9781032100869

107. Caesens, G., Stinglhamber, F., & Luypaert, G. (2014). The impact of work engagement and workaholism on well-being-the role of work-related social support. *Career Development International*, *19*(7), 813–835. https://doi.org/10.1108/CDI-09-2013-0114/FULL/PDF

108. Campbell, D. J. (1988). Task Complexity: A Review and Analysis. *Academy of Management Review*, *13*(1), 40–52. https://doi.org/10.5465/AMR.1988.4306775

109. Campbell, D. J., & Gingrich, K. F. (1986). The interactive effects of task complexity and participation on task performance: A field experiment. *Organizational Behavior and Human Decision Processes*, *38*(2), 162–180. https://doi.org/10.1016/0749-5978(86)90014-2

110. Canales, R. (2014). Weaving Straw into Gold: Managing Organizational Tensions Between Standardization and Flexibility in Microfinance. *Organization Science*, *25*(1), 1–28.

111. Cangialosi, N., Battistelli, A., & Odoardi, C. (2021). Designing innovative jobs: a fuzzy-set configurational analysis of job characteristics. *Personnel Review*, *52*(1), 382–399. https://doi.org/10.1108/PR-02-2021-0105/FULL/PDF

112. Cardy, R. L., & Leonard, B. (2011). Performance Management: Concepts, Skills, and Exercises. In *Performance Management: Concepts, Skills, and Exercises, Second Edition* (2nd ed.). Routledge. https://doi.org/10.4324/9781315701790/PERFORMANCE-MANAGEMENT-ROBERT-CARDY-BRIAN-LEONARD

113. Carless, S. A. (2005). Person–job fit versus person–organization fit as predictors of organizational attraction and job acceptance intentions: A longitudinal study. *Journal of Occupational and Organizational Psychology*, *78*(3), 411–429. https://doi.org/10.1348/096317905X25995

114. Carlson, D. S., Kacmar, K. M., Wayne, J. H., & Grzywacz, J. G. (2006). Measuring the positive side of the work–family interface: Development and validation of a work–family enrichment scale. *Journal of Vocational Behavior*, *68*(1), 131–164. https://doi.org/10.1016/J.JVB.2005.02.002

115. Carroll, N., & Conboy, K. (2020). Normalising the "new normal": Changing tech-driven work practices under pandemic time pressure. *International Journal of Information Management*, *55*, 102186. https://doi.org/10.1016/J.IJINFOMGT.2020.102186

116. Carvalho, V. S., Correia, I., & Chambel, M. J. (2022). Is it ok to be connected outside the office? The impact on well-being at work and the mediating role of the work and family relationship. *International Journal of Organizational Analysis*, *30*(6), 1856–1856. https://doi.org/10.1108/IJOA-01-2021-2577

117. Cascio, W. F. (2000). Managing a virtual workplace. *Academy of Management Executive*, *14*(3), 81–90. https://doi.org/10.5465/ame.2000.4468068

118. Cegarra-Leiva, D., Sánchez-Vidal, M. E., & Cegarra-Navarro, J. G. (2012). Work life balance and the retention of managers in Spanish SMEs. *The International Journal of Human Resource Management*, *23*(1), 91–108. https://doi.org/10.1080/09585192.2011.610955

119. Chadee, D., Ren, S., & Tang, G. (2021). Is digital technology the magic bullet for performing work at home? Lessons learned for post COVID-19 recovery in hospitality management. *International Journal of Hospitality Management*, *92*, 102718. https://doi.org/10.1016/J.IJHM.2020.102718

120. Chafi, M. B., Hultberg, A., & Bozic Yams, N. (2021). Post-Pandemic Office Work: Perceived Challenges and Opportunities for a Sustainable Work Environment. *Sustainability* , *14*(1), 294. https://doi.org/10.3390/SU14010294

121. Chan, X. W., Shang, S., Brough, P., Wilkinson, A., & Lu, C. qin. (2023). Work, life and COVID-19: a rapid review and practical recommendations for the post-pandemic workplace. *Asia Pacific Journal of Human Resources*, *61*(2), 257–276. https://doi.org/10.1111/1744-7941.12355

122. Chang, A., Mcdonald, P., & Burton, P. (2010). Methodological choices in work-life balance research 1987 to 2006: a critical review. *The International Journal of Human Resource Management* , *21*(13), 2381–2413. https://doi.org/10.1080/09585192.2010.516592

123. Charalampous, M., Grant, C. A., Tramontano, C., & Michailidis, E. (2019). Systematically reviewing remote e-workers' well-being at work: a multidimensional

approach. *European Journal of Work and Organizational Psychology*, *28*(1), 51–73. https://doi.org/10.1080/1359432X.2018.1541886

124. Chatterjee, S., Sarker, S., Lee, M. J., Xiao, X., & Elbanna, A. (2021). A possible conceptualization of the information systems (IS) artifact: A general systems theory perspective1. *Information Systems Journal*, *31*(4), 550–578. https://doi.org/10.1111/ISJ.12320

125. Chesley, N. (2010). TECHNOLOGY USE AND EMPLOYEE ASSESSMENTS OF WORK EFFECTIVENESS , WORKLOAD , AND PACE OF LIFE. *Information, Communication & Society*, *14*(4), 485–514. https://doi.org/10.1080/13691180903473806

126. Choudhary, S. (2016). Job enrichment: A tool for employee motivation. *International Journal of Apllied Research*, *2*(5), 1020–1024. www.allresearchjournal.com

127. Choudhury, P., Khanna, T., Makridis, C., & Schirmann, K. (2022). Is Hybrid Work the Best of Both Worlds? Evidence from a Field Experiment. In *SSRN Electronic Journal* (22–063). Elsevier BV. https://doi.org/10.2139/SSRN.4068741

128. Christian, M. S., Garza, A. S., & Slaughter, J. E. (2011). Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology*, *64*(1), 89–136. https://doi.org/10.1111/J.1744-6570.2010.01203.X

129. Chung, H. (2017). *Work autonomy, flexibility and work-life balance*.

130. CIPD. (2021). *Planning for hybrid working*.

131. Claggett, J. L., & Karahanna, E. (2018). Unpacking the structure of coordination mechanisms and the role of relational coordination in an era of digitally mediated work processes. *Academy of Management Review*, *43*(4), 704–722. https://doi.org/10.5465/AMR.2016.0325

132. Clarke, M. C., Koch, L. C., & Hill, E. J. (2004). The Work-Family Interface: Differentiating Balance and Fit. *Family and Consumer Sciences Research Journal*, *33*(2), 121–140. https://doi.org/10.1177/1077727X04269610

133. Clegg, C. W. (2000). Sociotechnical principles for system design. *Applied Ergonomics*, *31*(5), 463–477. https://doi.org/10.1016/S0003-6870(00)00009-0

134. Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study among

tools. *Journal of the American Society for Information Science and Technology*, *62*(7), 1382–1402. https://doi.org/10.1002/ASI.21525

135. Coenen, M., & Kok, R. A. W. (2014). Workplace flexibility and new product development performance : The role of telework and flexible work schedules. *European Management Journal*, *32*(4), 564–576. https://doi.org/10.1016/j.emj.2013.12.003

136. Connelly, C. E., Fieseler, C., Černe, M., Giessner, S. R., & Wong, S. I. (2021). Working in the digitized economy: HRM theory & practice. *Human Resource Management Review*, *31*(1), 100762. https://doi.org/10.1016/J.HRMR.2020.100762

137. Coovert, M. D., & Thompson, L. F. (2014). Toward a synergistic relationship between psychology and technology. In M. D. Coovert & L. F. Thompson (Eds.), *The psychology of workplace technology* (pp. 1–17). Routledge/Taylor & Francis Group. https://psycnet.apa.org/record/2013-07824-001

138. Costa, P. L., Handke, L., & O'Neill, T. A. (2021). Are All Lockdown Teams Created Equally? Work Characteristics and Team Perceived Virtuality. *Small Group Research*, *52*(5), 600–628. https://doi.org/10.1177/1046496421997897

139. Costa, P. L., Passos, A. M., & Bakker, A. B. (2015). Direct and Contextual Influence of Team Conflict on Team Resources, Team Work Engagement, and Team Performance. *Negotiation and Management Conflict Research*, *8*(4), 211–227. https://doi.org/10.1111/ncmr.12061

140. Costa, P. T., & McCrae, R. R. (1992). The five-factor model of personality and its relevance to personality disorders. *Journal of Personality Disorders*, *6*(4), 343–359. https://doi.org/10.1521/PEDI.1992.6.4.343

141. Cox, W. (2009, January). Executive Summary: Improving Quality of Life Through Telecommuting. *The Information Technology and Innovation Foundation*.

142. Cramton, C. D. (2001). The Mutual Knowledge Problem and Its Consequences for Dispersed Collaboration. *Organization Science*, *12*(3), 346–371. https://doi.org/10.1287/orsc.12.3.346.10098

143. Crant, J. M. (2000). Proactive Behavior in Organizations: *Journal of Management*, *26*(3), 435–462. https://doi.org/10.1177/014920630002600304

144. Crawford, E. R., & LePine, J. A. (2014). A Configural Theory of Team Processes: Accounting for the Structure of Taskwork and Teamwork. *Academy of Management Review*, *38*(1), 32–48. https://doi.org/10.5465/AMR.2011.0206

145. Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*(5), 834–848. https://doi.org/10.1037/A0019364

146. Crawford, J. (2022). Working from Home, Telework, and Psychological Wellbeing? A Systematic Review. *Sustainability*, *14*(19), 11874. https://doi.org/10.3390/SU141911874

147. Culpepper, S. A., & Aguinis, H. (2011). R is for Revolution: A Cutting-Edge, Free, Open Source Statistical Package. *Organizational Research Methods*, *14*(4), 735–740. https://doi.org/10.1177/1094428109355485

148. Cunningham, C. J. L., & De La Rosa, G. M. (2008). The Interactive Effects of Proactive Personality and Work-Family Interference on Well-Being. *Journal of Occupational Health Psychology*, *13*(3), 271–282. https://doi.org/10.1037/1076-8998.13.3.271

149. Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, *32*(5), 554–571. https://doi.org/10.1287/MNSC.32.5.554

150. Daniels, K., Lamond, D., & Standen, P. (2001). Teleworking: Frameworks for organizational research. *Journal of Management Studies*, *38*(8), 1151–1185. https://doi.org/10.1111/1467-6486.00276

151. Darlington, R. B., & Hayes, A. F. (2017). Regression analysis and linear models : concepts, applications, and implementation. In *ICB Research Reports* (Issue 9). Guilford Press. https://www.torontopubliclibrary.ca/detail.jsp?Entt=RDM3556429&R=3556429

152. Davies, A. (2021). COVID-19 and ICT-Supported Remote Working: Opportunities for Rural Economies. *World*, *2*(1), 139–152. https://doi.org/10.3390/WORLD2010010

153. Davis, L. E. (1966). The Design of Jobs. *Industrial Relations: A Journal of Economy and Society*, *6*(1), 21–45. https://doi.org/10.1111/J.1468-232X.1966.TB00833.X

154. Day, A., Scott, N., & Kelloway, E. K. (2010). Information and communication technology: Implications for job stress and employee well-being. In P. L. Perrewé & D. C. Ganster (Eds.), *New Developments in Theoretical and Conceptual Approaches to Job Stress* (Vol. 8, pp. 317–350). Emerald Group

Publishing Limited. https://doi.org/10.1108/S1479-3555(2010)0000008011/FULL/XML

155. de Bruin, G. P., & Taylor, N. (2005). Development of the Sources of Work Stress Inventory. *Development of the Sources of Work Stress Inventory*, *35*(4), 748–765. https://doi.org/10.1177/008124630503500408

156. De Clercq, D., Thongpapanl, N., & Dimov, D. (2011). A Closer Look at Cross-Functional Collaboration and Product Innovativeness: Contingency Effects of Structural and Relational Context. *Journal of Product Innovation Management*, *28*(5), 680–697. https://doi.org/10.1111/J.1540-5885.2011.00830.X

157. de Laat, K. (2023). Remote Work and Post-Bureaucracy: Unintended Consequences of Work Design for Gender Inequality. *ILR Review*, *76*(1), 135–159. https://doi.org/10.1177/00197939221076134/ASSET/IMAGES/LARGE/10.1177_00197939221076134-FIG3.JPEG

158. De', R., Pandey, N., & Pal, A. (2020). Impact of digital surge during Covid-19 pandemic: A viewpoint on research and practice. *International Journal of Information Management*, *55*(1). https://doi.org/10.1016/J.IJINFOMGT.2020.102171

159. de Solla Price, D. J. (1965). Networks of Scientific Papers. *Science*, *149*(3683), 510–515. https://doi.org/10.1126/SCIENCE.149.3683.510

160. De Treville, S., & Antonakis, J. (2006). Could lean production job design be intrinsically motivating? Contextual, configurational, and levels-of-analysis issues. *Journal of Operations Management*, *24*(2), 99–123. https://doi.org/10.1016/J.JOM.2005.04.001

161. Delanoeije, J., & Verbruggen, M. (2020). Between-person and within-person effects of telework: a quasi-field experiment. *European Journal of Work and Organizational Psychology*, *29*(6), 795–808. https://doi.org/10.1080/1359432X.2020.1774557

162. Delpechitre, D., Black, H. G., & Farrish, J. (2019). The dark side of technology: examining the impact of technology overload on salespeople. *Journal of Business and Industrial Marketing*, *34*(2), 317–337. https://doi.org/10.1108/JBIM-03-2017-0057/FULL/XML

163. Demerouti, E., & Bakker, A. B. (2023). Job demands-resources theory in times of crises: New propositions. *Organizational Psychology Review*, *13*(3), 209–236.

https://doi.org/10.1177/20413866221135022/ASSET/IMAGES/LARGE/10.1177_20413866221135022-FIG1.JPEG

164. Demerouti, E., Bakker, A., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. https://psycnet.apa.org/buy/2001-06715-012

165. Demerouti, E., & Cropanzano, R. (2010). From thought to action: Employee work engagement and job performance. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research*. https://www.researchgate.net/publication/261473443_From_thought_to_action_Employee_work_engagement_and_job_performance

166. Demerouti, E., Nachreiner, F., Bakker, A. B., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. https://doi.org/10.1037/0021-9010.86.3.499

167. den Broeck, A., De Cuyper, N., De Witte, H., & Vansteenkiste, M. (2010). Not all job demands are equal: Differentiating job hindrances and job challenges in the Job Demands–Resources model. *European Journal of Work and Organisational Psychology*, *19*(6), 735–759. https://doi.org/10.1080/13594320903223839

168. Deschênes, A. A. (2023). Professional isolation and pandemic teleworkers' satisfaction and commitment: The role of perceived organizational and supervisor support. *European Review of Applied Psychology*, *73*(2), 100823. https://doi.org/10.1016/J.ERAP.2022.100823

169. DeShon, R. P., & Gillespie, J. Z. (2005). A motivated action theory account of goal orientation. *Journal of Applied Psychology*, *90*(6), 1096–1127. https://doi.org/10.1037/0021-9010.90.6.1096

170. Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining "gamification." *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments, MindTrek 2011*, 9–15. https://doi.org/10.1145/2181037.2181040

171. Dettmers, J., & Bredehöft, F. (2020). The Ambivalence of Job Autonomy and the Role of Job Design Demands. *Scandinavian Journal of Work and Organizational Psychology*, *5*(1). https://doi.org/10.16993/SJWOP.81

172. Dettmers, J., & Plückhahn, W. (2022). Suddenly Working From Home! *Zeitschrift Für Arbeits- Und Organisationspsychologie A&O*, *66*(3), 113–128. https://doi.org/10.1026/0932-4089/A000374

173. Dewett, T. (2003). Understanding the Relationship Between Information Technology and Creativity in Organizations. Creativity Research Journal, 15(2–3), 167–182. https://doi.org/10.1080/10400419.2003.9651410

174. Dewett, T., & Jones, G. R. (2001). The role of information technology in the organization: A review, model, and assessment. *Journal of Management*, *27*(3), 313–346. https://doi.org/10.1016/S0149-2063(01)00094-0

175. Dirani, K. M., Abadi, M., Alizadeh, A., Barhate, B., Garza, R. C., Gunasekara, N., Ibrahim, G., & Majzun, Z. (2020). Leadership competencies and the essential role of human resource development in times of crisis: a response to Covid-19 pandemic. *Human Resource Development International*, *23*(4), 380–394. https://doi.org/10.1080/13678868.2020.1780078

176. Dittes, S., Richter, S., Richter, A., & Smolnik, S. (2019). Toward the workplace of the future: How organizations can facilitate digital work. *Business Horizons*, *62*(5), 649–661. https://doi.org/10.1016/j.bushor.2019.05.004

177. do Rosario Alves de Almeida, M. (2008). The New Process of Work. In G. Putin & M. M. Cunha (Eds.), *Encyclopedia of Networked and Virtual Organizations* (pp. 1080–1084). IGI Global. https://doi.org/10.4018/978-1-59904-885-7

178. Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296. https://doi.org/10.1016/J.JBUSRES.2021.04.070

179. Drucker, P. (1959). *The Landmarks of Tomorrow*. . Harper and Row. https://www.scirp.org/(S(czeh2tfqw2orz553k1w0r45))/reference/referencespapers.aspx?referenceid=2175809

180. Duan, S. X., Deng, H., & Wibowo, S. (2023). Exploring the impact of digital work on work–life balance and job performance: a technology affordance perspective. *Information Technology and People*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/ITP-01-2021-0013/FULL/XML

181. Dubbelt, L., Demerouti, E., & Rispens, S. (2019). The value of job crafting for work engagement, task performance, and career satisfaction: longitudinal and quasi-experimental evidence. *European Journal of Work and Organizational Psychology*, *28*(2), 1–15. https://doi.org/10.1080/1359432X.2019.1576632

182. Dul, J. (2016). Necessary Condition Analysis (NCA): Logic and Methodology of "Necessary but Not Sufficient" Causality. *Organizational Research Methods*, *19*(1), 10–52.

https://doi.org/10.1177/1094428115584005/ASSET/IMAGES/LARGE/10.1177_1094428115584005-FIG6.JPEG

183. Dulebohn, J. H., & Hoch, J. E. (2017). Virtual teams in organizations. *Human Resource Management Review*, *27*(4), 569–574. https://doi.org/10.1016/J.HRMR.2016.12.004

184. Duranova, L., & Ohly, S. (2016). *Persistent Work-related Technology Use, Recovery and Well-being Processes* (L. Duranova & S. Ohly, Eds.). Springer. https://books.google.hr/books?hl=sl&lr=&id=6i03CwAAQBAJ&oi=fnd&pg=PR5&dq=supplemental+work+norms&ots=COYVjgvpMv&sig=xwGeo81jpAYliTfcnBc9COQwGSg&redir_esc=y#v=onepage&q=supplemental%20work%20norms&f=false

185. Dust, S. B., & Tims, M. (2020). Job Crafting via Decreasing Hindrance Demands: The Motivating Role of Interdependence Misfit and the Facilitating Role of Autonomy. *Applied Psychology*, *69*(3), 881–912. https://doi.org/10.1111/apps.12212

186. Duxbury, L., & Halinski, M. (2014). When more is less: An examination of the relationship between hours in telework and role overload. *Work*, *48*(1), 91–103. https://doi.org/10.3233/WOR-141858

187. Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., Gupta, B., Lal, B., Misra, S., Prashant, P., Raman, R., Rana, N. P., Sharma, S. K., & Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management*, *55*, 102211. https://doi.org/10.1016/J.IJINFOMGT.2020.102211

188. Dysvik, A., & Kuvaas, B. (2010). Intrinsic motivation as a moderator on the relationship between perceived job autonomy and work performance. *European Journal of Work and Organizational Psychology*, *20*(3), 367–387. https://doi.org/10.1080/13594321003590630

189. Eby, L. T., Casper, W. J., Lockwood, A., Bordeaux, C., & Brinley, A. (2005). Work and family research in IO/OB: Content analysis and review of the literature (1980–2002). *Journal of Vocational Behavior*, *66*(1), 124–197. https://doi.org/10.1016/J.JVB.2003.11.003

190. Eck, N. J. van, & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, *84*(2), 523–538. https://doi.org/10.1007/S11192-009-0146-3

191. Eisch, E., Kuper, P., Lindert, L., & Choi, K. E. (2022). Working Conditions of Occupational Physicians—A Scoping Review. *International Journal of Environmental Research and Public Health 2022, Vol. 19, Page 6222*, *19*(10), 6222. https://doi.org/10.3390/IJERPH19106222

192. Elsbach, K. D., & Hargadon, A. B. (2006). Enhancing creativity through "mindless" work: A framework of workday design. *Organization Science*, *17*(4), 470–483. https://doi.org/10.1287/orsc.1060.0193

193. Erdwins, C. J., Buffardi, L. C., Casper, W. J., & O'Brien, A. S. (2001). The relationship of women's role strain to social support, role satisfaction, and self-efficacy. *Family Relations*, *50*(3), 230–238. https://doi.org/10.1111/J.1741-3729.2001.00230.X

194. European Commission. (2021). *Work context*. European Skills/Competences, Qualifications and Occupations. https://ec.europa.eu/esco/portal/escopedia/Work_context

195. Evans-Greenwood, P., Stockdale, R., & Patston, T. (2021). *The digital-ready workplace*. Deloitte Insights. https://www2.deloitte.com/us/en/insights/focus/technology-and-the-future-of-work/supercharging-teams-in-the-digital-workplace.html

196. Evelyne, N., Kilika, J., & Muathe, S. M. A. (2018). Job Characteristics and Employee Performance in Private Equity Firms in Kenya. *Journal of Business and Management*, *20*(1), 60–70. https://doi.org/10.9790/487X-2001026070

197. Faik, I., Thompson, M., & Walsham, G. (2019). Designing for ICT-Enabled Openness in Bureaucratic Organizations: Problematizing, Shifting, and Augmenting Boundary Work. *Journal of the Association for Information Systems*, *20*(6), 7. https://doi.org/10.17705/1.jais.00548

198. Fana, M., Tolan, S., Torrejón Pérez, S., Urzi Brancati, M. C., & Fernández-Macías, E. (2020). The COVID confinement measures and EU labour markets. In *JCR Technical Reports*. https://doi.org/10.2760/079230

199. Faraj, S., Pachidi, S., & Sayegh, K. (2018). Working and organizing in the age of the learning algorithm. *Information and Organization*, *28*(1), 62–70. https://doi.org/10.1016/J.INFOANDORG.2018.02.005

200. Farivar, F., Esmaeelinezhad, O., & Richardson, J. (2022). Digital intrusions or distraction at work and work-Life conflict. *New Technology, Work and Employment*, *37*(3), 363–380. https://doi.org/10.1111/NTWE.12235

201. Fay, D., & Frese, M. (2001). The Concept of Personal Initiative: An Overview of Validity Studies. *Human Performance*, *14*(1), 97–124. https://doi.org/10.1207/S15327043HUP1401_06

202. Felstead, A., & Henseke, G. (2017). Assessing the growth of remote working and its consequences for effort, well-being and work-life balance. *New Technology, Work and Employment*, *32*(3), 195–212. https://doi.org/10.1111/NTWE.12097

203. Ferris, G. R., Munyon, T. P., Basik, K., & Buckley, M. R. (2008). The performance evaluation context: Social, emotional, cognitive, political, and relationship components. *Human Resource Management Review*, *18*(3), 146–163. https://doi.org/10.1016/J.HRMR.2008.07.006

204. Field, J. C., & Chan, X. W. (2018). Contemporary knowledge workers and the boundaryless work-life interface: Implications for the human resource management of the knowledge workforce. *Frontiers in Psychology*, *9*(NOV), 416116. https://doi.org/10.3389/FPSYG.2018.02414/BIBTEX

205. Fish, S., & Hardy, M. (2015). Complex issues, complex solutions: applying complexity theory in social work practice. *Nordic Social Work Research*, *5*(sup1), 98–114. https://doi.org/10.1080/2156857X.2015.1065902

206. Fiss, P. (2007). A set-theoretic approach to organizational configurations. *Academy of Management Review*, *32*(4), 1180–1198.

207. Fiss, P. C. (2011). Building Better Causal Theories: A Fuzzy Set Approach to Typologies in Organization Research. *Academy of Management Journal*, *54*(2), 393–420. https://doi.org/10.5465/AMJ.2011.60263120

208. Fonner, K. L., & Roloff, M. E. (2010). Why teleworkers are more satisfied with their jobs than are office-based workers: When less contact is beneficial. *Journal of Applied Communication Research*, *38*(4), 336–361. https://doi.org/10.1080/00909882.2010.513998

209. Freeney, Y., & Fellenz, M. R. (2013). Work engagement, job design and the role of the social context at work: Exploring antecedents from a relational perspective. *Human Relations*, *66*(11), 1427–1445. https://doi.org/10.1177/0018726713478245

210. Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: a review and meta-analysis. *Personnel Psychology*, 287–322.

211. Fritz, M. B. W., Narasimhan, S., & Rhee, H. (1996). Adoption of remote work arrangements: An initial analysis. *Proceedings of the Annual Hawaii International*

Conference on System Sciences, *3*, 118–127. https://doi.org/10.1109/HICSS.1996.493183

212. Fu, J., Shang, R. A., Jeyaraj, A., Sun, Y., & Hu, F. (2020). Interaction between task characteristics and technology affordances: Task-technology fit and enterprise social media usage. *Journal of Enterprise Information Management*, *33*(1), 1–22. https://doi.org/10.1108/JEIM-04-2019-0105

213. Fuchs, C., & Sevignani, S. (2013). What is digital labour? What is digital work? What's their difference? And why do these questions matter for understanding social media? *Journal for a Global Sustainable Information Society*, *11*(2), 237–293. https://doi.org/10.16997/WPCC.917

214. Gagné, M., Forest, J., Gilbert, M. H., Aubé, C., Morin, E., & Malorni, A. (2010). The motivation at work scale: Validation evidence in two languages. *Educational and Psychological Measurement*, *70*(4), 628–646. https://doi.org/10.1177/0013164409355698

215. Gagné, M., Parker, S. K., Griffin, M. A., Dunlop, P. D., Knight, C., Klonek, F. E., & Parent-Rocheleau, X. (2022). Understanding and shaping the future of work with self-determination theory. *Nature Reviews Psychology*, *1*(7), 378–392. https://doi.org/10.1038/s44159-022-00056-w

216. Gajendran, R. S., & Harrison, D. A. (2007). The Good, the Bad, and the Unknown About Telecommuting: Meta-Analysis of Psychological Mediators and Individual Consequences. *Journal of Applied Psychology*, *92*(6), 1524–1541. https://doi.org/10.1037/0021-9010.92.6.1524

217. Gajendran, R. S., Harrison, D. A., & Delaney-Klinger, K. (2014). Are telecommuters remotely good citizens? Unpacking telecommuting's effects on perfomance via I-delas and job resources. *Personnel Psychology*, *00*, 1–41. https://doi.org/10.1111/peps.12082

218. Galanti, T., Guidetti, G., Mazzei, E., Zappalà, S., & Toscano, F. (2021). Work from home during the COVID-19 outbreak: The impact on employees' remote work productivity, engagement, and stress. *Journal of Occupational and Environmental Medicine*, *63*(7), E426–E432. https://doi.org/10.1097/JOM.0000000000002236

219. Gallagher, W. E., & Einhorn, H. J. (1976). Motivation Theory and Job Design on JSTOR. *The Journal of Business*, *49*(3), 358–373.

220. Ganter, A., & Hecker, A. (2014). Configurational paths to organizational innovation: Qualitative comparative analyses of antecedents and contingencies. *Journal of Business Research*, *67*(6), 1285–1292.

221. Garcia Carreño, I. D. V. (2020). e-Leadership: A Bibliometric Analysis. *International Journal of Advanced Corporate Learning (IJAC)*, *13*(1), 19. https://doi.org/10.3991/ijac.v13i1.12341

222. García-Izquierdo, M., Meseguer de Pedro, M., Ríos-Risquez, I. M., & Soler Sánchez, I. (2018). Resilience as a Moderator of Psychological Health in Situations of Chronic Stress (Burnout) in a Sample of Hospital Nurses. *Journal of Nursing Scholarshis*, *50*(2), 228–236. https://doi.org/10.1111/JNU.12367

223. Gardner, D. M., Lauricella, T., Ryan, A. M., Wadlington, P., & Elizondo, F. (2021). Managing boundaries between work and non-work domains: Personality and job characteristics and adopted style. *Journal of Occupational and Organizational Psychology*, *94*(1), 132–159. https://doi.org/10.1111/JOOP.12339

224. Garfin, D. R. (2020). Technology as a coping tool during the coronavirus disease 2019 (COVID-19) pandemic: Implications and recommendations. *Stress and Health*, *36*(4), 559. https://doi.org/10.1002/SMI.2975

225. Gascoigne, C. (2021). *Flexible working: lessons from the pandemic*.

226. Gawke, J. C., Gorgievski, M. J., & Bakker, A. B. (2017). Employee intrapreneurship and work engagement: A latent change score approach. *Journal of Vocational Behavior*, *100*(2017), 88–100. https://doi.org/10.1016/j.jvb.2017.03.002

227. Gerdenitsch, C., Kubicek, B., & Korunka, C. (2015). Control in flexible working arrangements: When freedom becomes duty. *Journal of Personnel Psychology*, *14*(2), 61–69. https://doi.org/10.1027/1866-5888/A000121

228. Ghani, J. A. (1992). Task uncertainty and the use of computer technology. *Information & Management*, *22*(2), 69–76. https://doi.org/10.1016/0378-7206(92)90062-K

229. Ghitulescu, B. E. (2012). Making Change Happen: The Impact of Work Context on Adaptive and Proactive Behaviors. *The Journal of Applied Behavioral Science*, *49*(2), 206–245. https://doi.org/10.1177/0021886312469254

230. Gibson, C. B., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal*, *47*(2), 209–226. https://doi.org/10.2307/20159573

231. Gibson, C. B., Dunlop, P. D., & Cordery, J. L. (2019). Managing formalization to increase global team effectiveness and meaningfulness of work in multinational organizations. *Journal of International Business Studies*, *50*(6), 1021–1052. https://doi.org/10.1057/S41267-019-00226-8

232. Gibson, C. B., & Gibbs, J. L. (2006). Unpacking the Concept of Virtuality: The Effects of Geographic Dispersion, Electronic Dependence, Dynamic Structure, and National Diversity on Team Innovation. *Administrative Science Quarterly*, *51*(3), 451–495. https://doi.org/10.2189/ASQU.51.3.451

233. Gibson, C. B., Gibbs, J. L., Stanko, T. L., Tesluk, P., & Cohen, S. G. (2011). Including the "I" in virtuality and modern job design: Extending the job characteristics model to include the moderating effect of individual experiences of electronic dependence and copresence. *Organization Science*, *22*(6), 1481–1499. https://doi.org/10.1287/orsc.1100.0586

234. Giebels, E., de Reuver, R. S. M., Rispens, S., & Ufkes, E. G. (2016). The Critical Roles of Task Conflict and Job Autonomy in the Relationship Between Proactive Personalities and Innovative Employee Behavior. *The Journal of Applied Behavioral Science*, *52*(3), 320–341. https://doi.org/10.1177/0021886316648774

235. Gittell, J. H., Weinberg, D. B., Bennett, A. L., & Miller, J. A. (2008). Is the doctor in? A relational approach to job design and the coordination of work. *Human Resource Management*, *47*(4), 729–755. https://doi.org/10.1002/HRM.20242

236. Glowacka, M. (2020). A little less autonomy? The future of working time flexibility and its limits. *European Labour Law Journal*, *12*(2), 113–133. https://doi.org/10.1177/2031952520922246

237. Golden, T. D. (2006). The role of relationships in understanding telecommuter satisfaction. *Journal of Organizational Behavior*, *27*(3), 319–340. https://doi.org/10.1002/JOB.369

238. Golden, T. D., & Gajendran, R. S. (2019). Unpacking the Role of a Telecommuter's Job in Their Performance: Examining Job Complexity, Problem Solving, Interdependence, and Social Support. *Journal of Business and Psychology*, *34*(1), 55–69. https://doi.org/10.1007/S10869-018-9530-4

239. Golden, T. D., & Veiga, J. F. (2008). The impact of superior–subordinate relationships on the commitment, job satisfaction, and performance of virtual workers. *The Leadership Quarterly*, *19*(1), 77–88. https://doi.org/10.1016/J.LEAQUA.2007.12.009

240. Goštautaite, B., & Bučiuniene, I. (2015). Work engagement during life-span: The role of interaction outside the organization and task significance. *Journal of Vocational Behavior*, *89*, 109–119. https://doi.org/10.1016/J.JVB.2015.05.001

241. Grant, A. M. (2008). The Significance of Task Significance: Job Performance Effects, Relational Mechanisms, and Boundary Conditions. *Journal of Applied Psychology*, *93*(1), 108–124. https://doi.org/10.1037/0021-9010.93.1.108

242. Grant, A. M. (2012). Leading with meaning: Beneficiary contact, prosocial impact, and the performance effects of transformational leadership. *Academy of Management Journal*, *55*(2), 458–476. https://doi.org/10.5465/AMJ.2010.0588

243. Grant, A. M., & Parker, S. K. (2009). 7 Redesigning Work Design Theories: The Rise of Relational and Proactive Perspectives. *The Academy of Management Annals*, *3*(1), 317–375. https://doi.org/10.1080/19416520903047327

244. Grant, C. A., Wallace, L. M., & Spurgeon, P. C. (2013). An exploration of the psychological factors affecting remote e-worker's job effectiveness, well-being and work-life balance. *Employee Relations*, *35*(5), 527–546. https://doi.org/10.1108/ER-08-2012-0059/FULL/PDF

245. Grant, R. M. (1996). Prospering in Dynamically-competitive Environments: Organizational Capability as Knowledge Integration. *Organization Science*, *7*(4), 375–387. https://doi.org/10.1287/orsc.7.4.375

246. Gratton, L. (2021). Four Principles to Ensure Hybrid Work Is Productive Work. *MIT Sloan Management Review*, *62*(2), 11A-16A. https://sloanreview.mit.edu/article/four-principles-to-ensure-hybrid-work-is-productive-work/

247. Greckhamer, T., Misangyi, V., & Fiss, P. (2013). The two QCAs: From a small-N to a large-N set theoretic approach. In *Configurational theory and methods in organizational research* (Vol. 38, pp. 49–75). Emerald Group Publishing Limited.

248. Greer, J. A., Buttros, T. E., & Schmelzie, G. (2002). Using telecommuting to improve the bottom line: the benefits definitely seem to outweigh the costs. (Cash Management). *Strategic Finance*, *10*(83), 46–50.

249. Greer, T. W., & Payne, S. C. (2014). Overcoming telework challenges: Outcomes of successful telework strategies. *Psychologist-Manager Journal*, *17*(2), 87–111. https://doi.org/10.1037/MGR0000014

250. Gregory, J. B., Beck, J. W., & Carr, A. E. (2011). Goals, feedback, and self-regulation: Control theory as a natural framework for executive coaching. *Consulting Psychology Journal*, *63*(1), 26–38. https://doi.org/10.1037/A0023398

251. Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy*

of Management Journal, *50*(2), 327–347. https://doi.org/10.5465/AMJ.2007.24634438

252. Griffin, R. W., & Chonko, L. B. (2017). Employee Preferences For Job Characteristics. *Academy of Management Annual Meeting Proceeding*, *1977*(1), 57–61. https://doi.org/10.5465/AMBPP.1977.4976801

253. Groen, B. A. C., Triest, S. P. Van, Coers, M., & Wtenweerde, N. (2018). Managing fl exible work arrangements : Teleworking and output controls. *European Management Journal*, *36*(6), 727–735. https://doi.org/10.1016/j.emj.2018.01.007

254. Gupta, M., Hassan, Y., Pandey, J., & Kushwaha, A. (2022). Decoding the dark shades of electronic human resource management. *International Journal of Manpower*, *43*(1), 12–31. https://doi.org/10.1108/IJM-11-2020-0512/FULL/XML

255. Haar, J., & Brougham, D. (2020). Work antecedents and consequences of work-life balance: A two sample study within New Zealand. *The International Journal of Human Resource Management*, *33*(4), 784–807. https://doi.org/10.1080/09585192.2020.1751238

256. Haar, J. M., Russo, M., Suñe, A., & Ollier-Malaterre, A. (2014). Outcomes of work–life balance on job satisfaction, life satisfaction and mental health: A study across seven cultures. *Journal of Vocational Behavior*, *85*(3), 361–373. https://doi.org/10.1016/J.JVB.2014.08.010

257. Hackman, J. R. (1980). Work redesign and motivation. *Professional Psychology: Research and Practice*, *11*(3), 445–455. https://doi.org/10.1037/0735-7028.11.3.445

258. Hackman, J. R., & Lawler, E. E. (1971). Employee reactions to job characteristics. *Journal of Applied Psychology*, *55*(3), 259–286. https://doi.org/10.1037/H0031152

259. Hackman, J. R., Oldham, G., Janson, R., & Purdy, K. (1975). A New Strategy for Job Enrichment. *California Management Review*, *17*(4), 57–71. https://doi.org/10.2307/41164610

260. Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: test of a theory. *Organizational Behavior and Human Performance*, *16*(2), 250–279. https://doi.org/10.1016/0030-5073(76)90016-7

261. Haddon, L., & Brynin, M. (2005). The character of telework and the characteristics of teleworkers. *New Technology, Work and Employment*, *20*(1), 34–46. https://doi.org/10.1111/j.1468-005X.2005.00142.x

262. Hajjami, O., & Crocco, O. S. (2023). Evolving approaches to employee engagement: comparing antecedents in remote work and traditional workplaces. *European Journal of Training and Development*, *ahead-of-print*. https://doi.org/10.1108/EJTD-10-2022-0103

263. Hakanen, J. J., Bakker, A. B., & Demerouti, E. (2005). How dentists cope with their job demands and stay engaged: the moderating role of job resources. *European Journal of Oral Sciences*, *113*(6), 479–487. https://doi.org/10.1111/J.1600-0722.2005.00250.X

264. Halbesleben, J. R. B. (2010). A meta-analysis of work engagement: Relationships with burnout, demands, resources, and consequences. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 102–117). Psychology Press. https://psycnet.apa.org/record/2010-06187-008

265. Halbesleben, J. R. B., & Wheeler, A. R. (2008). The relative roles of engagement and embeddedness in predicting job performance and intention to leave. *Work and Stress*, *22*(3), 242–256. https://doi.org/10.1080/02678370802383962

266. Halbesleben, J. R. B. (2006). Sources of social support and burnout: A meta-analytic test of the conservation of resources model. *Journal of Applied Psychology*, *91*(5), 1134–1145. https://doi.org/10.1037/0021-9010.91.5.1134

267. Halford, S. (2005). Hybrid workspace: re-spatialisations of work, organisation and management. *New Technology, Work and Employment*, *20*(1), 19–33. https://doi.org/10.1111/J.1468-005X.2005.00141.X

268. Halgin, D. S., Gopalakrishnan, G. M., & Borgatti, S. P. (2015). Structure and Agency in Networked, Distributed Work: The Role of Work Engagement. *American Behavioral Scientist*, *59*(4), 457–474. https://doi.org/10.1177/0002764214556807

269. Handke, L., Klonek, F. E., Parker, S. K., & Kauffeld, S. (2020). Interactive Effects of Team Virtuality and Work Design on Team Functioning. *Small Group Research*, *51*(1), 3–47. https://doi.org/10.1177/1046496419863490

270. Handke, L., Klonek, F., O'Neill, T. A., & Kerschreiter, R. (2022). Unpacking the Role of Feedback in Virtual Team Effectiveness. *Small Group Research*, *53*(1), 41–87. https://doi.org/10.1177/10464964211057116/ASSET/IMAGES/LARGE/10.1177_10464964211057116-FIG3.JPEG

271. Handy, C. (1995). Trust and the Virtual Organization. *Harvard Business Review*. https://hbr.org/1995/05/trust-and-the-virtual-organization

272. Hao, Q., Yang, W., & Shi, Y. (2019). Characterizing the relationship between conscientiousness and knowledge sharing behavior in virtual teams: An interactionist approach. *Computers in Human Behavior*, *91*, 42–51. https://doi.org/10.1016/j.chb.2018.09.035

273. Hayes, A. (2021). *The PROCESS macro for SPSS, SAS, and R*. http://processmacro.org/index.html

274. Hayes, A. F., & Rockwood, N. J. (2020). Conditional Process Analysis: Concepts, Computation, and Advances in the Modeling of the Contingencies of Mechanisms. *American Behavioral Scientist*, *64*(1), 19–54. https://doi.org/10.1177/0002764219859633/ASSET/IMAGES/LARGE/10.1177_0002764219859633-FIG2.JPEG

275. Hayman, J. R. (2009). Flexible work arrangements: exploring the linkages between perceived usability of flexible work schedules and work/life balance. *Community, Work & Family*, *12*(3), 327–338. https://doi.org/10.1080/13668800902966331

276. He, W., Zhang, Z. (Justin), & Li, W. (2021). Information technology solutions, challenges, and suggestions for tackling the COVID-19 pandemic. *International Journal of Information Management*, *57*, 102287. https://doi.org/10.1016/J.IJINFOMGT.2020.102287

277. Hempel, P. S., Zhang, Z. X., & Han, Y. (2012). Team Empowerment and the Organizational Context: Decentralization and the Contrasting Effects of Formalization. *Journal of Management*, *38*(2), 475–501. https://doi.org/10.1177/0149206309342891

278. Hernaus, T., & Mikulić, J. (2014). Work characteristics and work performance of knowledge workers. *EuroMed Journal of Business*, *9*(3), 268–292. https://doi.org/10.1108/EMJB-11-2013-0054/FULL/PDF

279. Hertel, G., Geister, S., & Konradt, U. (2005). Managing virtual teams: A review of current empirical research. *Human Resource Management Review*, *15*(1), 69–95. https://doi.org/10.1016/j.hrmr.2005.01.002

280. Herzberg, F. (1974). Motivation-hygiene profiles: Pinpointing what ails the organization. *Organizational Dynamics*, *3*(2), 18–29. https://doi.org/10.1016/0090-2616(74)90007-2

281. Hill, E., Hawkins, A., Märtinson, V., & Ferris, M. (2003). Studying "Working Fathers": Comparing Fathers' and Mothers' Work-Family Conflict, Fit, and Adaptive Strategies in a Global High-Tech Company. *Fathering: A Journal of*

Theory, Research, and Practice about Men as Fathers, *1*(3), 239–261. https://doi.org/10.3149/FTH.0103.239

282. Hinds, P., & Kiesler, S. (2002). Distributed Work. In P. Hinds & S. Kiesler (Eds.), *Distributed Work*. Boston Review. https://doi.org/10.7551/MITPRESS/2464.001.0001

283. Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource Loss, Resource Gain, and Emotional Outcomes Among Inner City Women. *Journal of Personality and Social Psychology*, *84*(3), 632–643. https://doi.org/10.1037/0022-3514.84.3.632

284. Hochwarter, W. A., Witt, L. A., Treadway, D. C., & Ferris, G. R. (2006). The interaction of social skill and organizational support on job performance. *Journal of Applied Psychology*, *91*(2), 482–489. https://doi.org/10.1037/0021-9010.91.2.482

285. Hodliffe, M. (2014). *The Development and Validation of the Employee Resilience Scale (EmpRes): The Conceptualisation of a New Model*. University of Catenrbury.

286. Hopkins, J., & Bardoel, A. (2023). The Future Is Hybrid: How Organisations Are Designing and Supporting Sustainable Hybrid Work Models in Post-Pandemic Australia. *Sustainability 2023, Vol. 15, Page 3086*, *15*(4), 3086. https://doi.org/10.3390/SU15043086

287. Hopp, C., Antons, D., Kaminski, J., & Oliver Salge, T. (2018). Disruptive Innovation: Conceptual Foundations, Empirical Evidence, and Research Opportunities in the Digital Age. *Journal of Product Innovation Management*, *35*(3), 446–457. https://doi.org/10.1111/JPIM.12448

288. Hornung, S., & Rousseau, D. M. (2007). Active on the Job-Proactive in Change How Autonomy at Work Contributes to Employee Support for Organizational Change. *The Journal of Applied Behavioral Science*, *43*(4), 401–426. https://doi.org/10.1177/0021886307307555

289. Hossen, Md. M., Begum, M., & Zhixia, C. (2018). Present Status of Organizational Work–Life Balance Practices in Bangladesh: Employees Expectation and Organizational Arrangements. *Journal of Eastern European and Central Asian Research (JEECAR)*, *5*(1), 16–16. https://doi.org/10.15549/JEECAR.V5I1.199

290. Howe, L. C., & Menges, J. I. (2021). Remote work mindsets predict emotions and productivity in home office: A longitudinal study of knowledge workers during the Covid-19 pandemic. *Human–Computer Interaction*. https://doi.org/10.1080/07370024.2021.1987238

291. Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 1–15). Sage Publications, Inc.

292. Hsieh, S. W., Jang, Y. R., Hwang, G. J., & Chen, N. S. (2011). Effects of teaching and learning styles on students' reflection levels for ubiquitous learning. *Computers and Education*, *57*(1), 1194–1201. https://doi.org/10.1016/J.COMPEDU.2011.01.004

293. Hu, T., Zhang, D., & Wang, J. (2015). A meta-analysis of the trait resilience and mental health. *Personality and Individual Differences*, *76*, 18–27. https://doi.org/10.1016/J.PAID.2014.11.039

294. Hu, X. J., Barber, L. K., Park, Y., & Day, A. (2021). Defrag and reboot? Consolidating information and communication technology research in I-O psychology. *Industrial and Organizational Psychology*, *14*(3), 371–396. https://doi.org/10.1017/IOP.2021.3

295. Huck-Fries, V., Prommegger, B., Wiesche, M., & Krcmar, H. (2019). The Role of Work Engagement in Agile Software Development: Investigating Job Demands and Job Resources. *Proceedings of the 52nd Hawaii International Conference on System Sciences*.

296. Hudomiet, P., Hurd, M. D., Parker, A. M., & Rohwedder, S. (2021). The effects of job characteristics on retirement. *Journal of Pension Economics & Finance*, *20*(3), 357–373. https://doi.org/10.1017/S1474747220000025

297. Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating Motivational, Social, and Contextual Work Design Features: A Meta-Analytic Summary and Theoretical Extension of the Work Design Literature. *Journal of Applied Psychology*, *92*(5), 1332–1356. https://doi.org/10.1037/0021-9010.92.5.1332

298. Huselid, M. A. (1995). The Impact Of Human Resource Management Practices On Turnover, Productivity, And Corporate Financial Performance. *Academy of Management Journal*, *38*(3), 635–672. https://doi.org/10.5465/256741

299. Hutagalung, I., Soelton, M., & Octaviani, A. (2020). The role of work life balance for organizational commitment. *Management Science Letters*, *10*(15), 3693–3700. https://doi.org/10.5267/J.MSL.2020.6.024

300. Huws, Ursula., Korte, W. B., & Robinson, S. (1990). *Telework : towards the elusive office*. John Wiley and Sons.

301. Hyman, J., & Summers, J. (2004). Lacking balance? Work-life employment practices in the modern economy. *Personnel Review*, *33*(4), 418–429. https://doi.org/10.1108/00483480410539498

302. Illegems, V., Verbeke, A., & S'Jegers, R. (2001). The organizational context of teleworking implementation. *Technological Forecasting and Social Change*, *68*(3), 275–291. https://doi.org/10.1016/S0040-1625(00)00105-0

303. Iqbal, K. M. J., Khalid, F., & Barykin, S. Y. (2021). Hybrid workplace: The future of work. In B. Khan, M. Kuofie, & S. Suma (Eds.), *Handbook of Research on Future Opportunities for Technology Management Education* (pp. 28–48). IGI Global. https://doi.org/10.4018/978-1-7998-8327-2.CH003

304. Ivanovic, T., Ivancevic, S., & Maricic, M. (2020). The Relationship between Recruiter Burnout, Work Engagement and Turnover Intention: Evidence from Serbia. *Engineering Economics* , *31*(2), 197–210. https://doi.org/10.5755/J01.EE.31.2.24100

305. Jabagi, N., Croteau, A. M., Audebrand, L. K., & Marsan, J. (2019). Gig-workers' motivation: thinking beyond carrots and sticks. *Journal of Managerial Psychology*, *34*(4), 192–213. https://doi.org/10.1108/JMP-06-2018-0255/FULL/XML

306. Jackson, L. T. B., & Fransman, E. I. (2018). Flexi work, financial well-being, work–life balance and their effects on subjective experiences of productivity and job satisfaction of females in an institution of higher learning. *South African Journal of Economic and Management Sciences*, *21*(1), 1–13. https://doi.org/10.4102/sajems.v21i1.1487

307. Jämsen, R., Sivunen, A., & Blomqvist, K. (2022). Employees' perceptions of relational communication in full-time remote work in the public sector. *Computers in Human Behavior*, *132*, 107240. https://doi.org/10.1016/J.CHB.2022.107240

308. Janys, L., Zimpelmann, C., Gaudecker, H. M. von, Siflinger, B., & Holler, R. (2021). Hours and income dynamics during the Covid-19 pandemic: The case of the Netherlands. *Labour Economics*, *73*, 102055. https://doi.org/10.1016/J.LABECO.2021.102055

309. Jarvenpaa, S. L., Knoll, K., & Leidner, D. E. (1997). Is anybody out there? Antecedents of trust in global virtual teams. *Journal of Management Information Systems*, *14*(4), 29–64. https://doi.org/10.1080/07421222.1998.11518185

310. Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization Science*, *10*(6), 791–815. https://doi.org/10.1111/j.1083-6101.1998.tb00080.x

311. Jawahar, I. M., & Liu, Y. (2016). Why Are Proactive People More Satisfied With Their Job, Career, and Life? An Examination of the Role of Work Engagement. *Journal of Career Development*, *44*(4), 344–358. https://doi.org/10.1177/0894845316656070

312. Jeske, D. (2022). Remote workers' experiences with electronic monitoring during Covid-19: implications and recommendations. *International Journal of Workplace Health Management*, *15*(3), 393–409. https://doi.org/10.1108/IJWHM-02-2021-0042/FULL/PDF

313. Jiang, Z., & Benbasat, I. (2007). The effects of presentation formats and task complexity on online consumers' product understanding. *MIS Quarterly*, *31*(3), 475–500. https://doi.org/10.2307/25148804

314. Jindal, A., Agarwal, S., Garg, P., & Rastogi, R. (2013). Role of Job Design for Achieving Work Life Balance. *Conference on Excellence in Research and Education (CERE-2013)*, 203–216.

315. Johari, J., Yean Tan, F., & Tjik Zulkarnain, Z. I. (2018). Autonomy, workload, work-life balance and job performance among teachers. *International Journal of Educational Management*, *32*(1), 107–120. https://doi.org/10.1108/IJEM-10-2016-0226

316. Johns, G. (2010). Some unintended consequences of job design. *Journal of Organizational Behavior*, *31*(2–3), 361–369. https://doi.org/10.1002/JOB.669

317. Johns, T., & Gratton, L. (2013). The Third Wave of Virtual Work. *Harvard Business Review*. https://hbr.org/2013/01/the-third-wave-of-virtual-work

318. Jolly, P. M., Kong, D. T., & Kim, K. Y. (2021). Social support at work: An integrative review. *Journal of Organizational Behavior*, *42*(2), 229–251. https://doi.org/10.1002/JOB.2485

319. Jones, W., Haslam, R., & Haslam, C. (2017). What is a "good" job? Modelling job quality for blue collar workers. *Ergonomics*, *60*(1), 138–149. https://doi.org/10.1080/00140139.2016.1165870

320. Juchnowicz, M., Kinowska, H., Paliszkiewicz, J., & Ratajczak, M. (2021). Employee Well-Being and Digital Work during the COVID-19 Pandemic. *Information*, *12*(8), 293. https://doi.org/10.3390/INFO12080293

321. Kaltiainen, J., & Hakanen, J. J. (2023). Why increase in telework may have affected employee well-being during the COVID-19 pandemic? The role of work and non-work life domains. *Current Psychology*, 1–19. https://doi.org/10.1007/S12144-023-04250-8/TABLES/2

322. Kane, G. C. (2017). The evolutionary implications of social media for organizational knowledge management. *Information and Organization*, *27*(1), 37–46. https://doi.org/10.1016/J.INFOANDORG.2017.01.001

323. Kane, G. C., Nanda, R., Phillips, A., & Copulsky, jonathan. (2021). Redesigning the Post-Pandemic Workplace . *MIT Sloan Management Review*, *62*(3), 12–14.

324. Kaplan, J. (2021, August 16). *Workers Want Work-Life Balance More Than Higher Pay*. Insider. https://www.businessinsider.com/workers-want-work-life-balance-more-than-higher-pay-2021-8

325. Karanasios, S. (2022). The pursuit of relevance and impact: A review of the immediate response of the information systems field to COVID-19. *Information Systems Journal*, *32*(4), 856–887. https://doi.org/10.1111/ISJ.12372

326. Karasek, R. A. (1979). Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign. *Administrative Science Quarterly*, *24*(2), 308. https://doi.org/10.2307/2392498

327. Karasek, R., & Theorell, T. (1990). *Healthy Work: Stress, Productivity and the Reconstruction of Working Life*. Basic. https://scholar.google.com/scholar_lookup?hl=en&publication_year=1990&pages=%00empty%00&author=R.+A.+Karasek&author=T.+Theorell&isbn=%00null%00&title=Healthy+work%3A+Stress%2C+productivity%2C+and+the+reconstruction+of+working+life.#d=gs_cit&t=1674769098333&u=%2Fscholar%3Fq%3Dinfo%3AQFVBDD9HFSEJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den

328. Karatepe, O. M. (2011). The Effects of Coworker and Perceived Organizational Support on Hotel Employee Outcomes: The Moderating Role of Job Embeddedness. *Journal of Hospitality & Tourism Research*, *36*(4), 495–516. https://doi.org/10.1177/1096348011413592

329. Karr-Wisniewski, P., & Lu, Y. (2010). When more is too much: Operationalizing technology overload and exploring its impact on knowledge worker productivity. *Computers in Human Behavior*, *26*(5), 1061–1072. https://doi.org/10.1016/J.CHB.2010.03.008

330. Katz, D., & Kahn, R. (1978). *The social psychology of organizations*. Wiley.

331. Kauffeld, S., Tartler, D., Gräfe, H., Windmann, A. K., & Sauer, N. C. (2022). What will mobile and virtual work look like in the future?—Results of a Delphi-based study. *Gruppe. Interaktion. Organisation. Zeitschrift Fur Angewandte Organisationspsychologie*, *53*(2), 189–214. https://doi.org/10.1007/S11612-022-00627-8/FIGURES/7

332. Kaur, K. (2013). Do Personality Factors Differentiate Between High Achievers And Low Achievers Among Engineering Students. *Psychology*.

333. Keep, E. (2016). *Improving skills utilisation in the UK - Some reflections on what, who and how? - ORA - Oxford University Research Archive*.

334. Kelly, E. L., Kossek, E. E., Hammer, L. B., Durham, M., Bray, J., Chermack, K., Murphy, L. A., & Kaskubar, D. (2008). 7 Getting There from Here: Research on the Effects of Work–Family Initiatives on Work–Family Conflict and Business Outcomes. *Academy of Management*, *2*(1), 305–349. https://doi.org/10.5465/19416520802211610

335. Kemboi, A., Biwott, G., Chenuos, N., & Augustine, R. (2013). Skill Variety, Feedback and Employee Performance: A Case of Moi Teaching and Referral Hospital Eldoret. *European Journal of Business and Management* , *5*(19), 151–155. www.iiste.org

336. Kent, M., & Davis, M. C. (2010). The emergence of capacity-building programs and models of resilience. In J. W. Reich & J. S. Zautra (Eds.), *Handbook of adult resilience* (pp. 427–449). The Guilford Press.

337. Kessler, M. M. (1963). Bibliographic coupling between scientific papers. *American Documentation*, *14*(1), 10–25. https://doi.org/10.1002/ASI.5090140103

338. Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L. T., Walters, E. E., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, *32*(6), 959–976. https://doi.org/10.1017/S0033291702006074

339. Khayat, O. M., & Gheitani, A. (2015). Study of the relation between job characteristics (task significance and task identity) and organizational learning. *RESEARCH JOURNAL OF FISHERIES AND HYDROBIOLOGY*, *10*(13), 88–94.

340. Khoshnaw, S., & Alavi, H. (2020). Examining the Interrelation Between Job Autonomy and Job Performance: A Critical Literature Review. *Multidisciplinary*

Aspects of Production Engineering, *Vol. 3, Iss. 1*(1), 606–616. https://doi.org/10.2478/MAPE-2020-0051

341. Kilduff, M., & Brass, D. J. (2010). Job design: A social network perspective. *Journal of Organizational Behavior*, *31*(2/3), 309–318. https://www.jstor.org/stable/41683908?casa_token=Upvh6zPOGFoAAAAA%3AMLI_Jdm5KAIi9AKyYPnwzK6b9RU2GPJ00DaYXj1Pz9mUXxv1zYEBZCpMb3xLPeflwvhQLtAu6y2EBNZOX7GnErGraxziOIBzgDJTNe6O06sLWLIAbLOK&seq=1

342. Kim, B. J., Rousseau, D. M., & Tomprou, M. (2019). Training and Diffusion of Change: The Impact of Training and Proactivity on Change-Related Advice Giving. *The Journal of Applied Behavioral Science*, *55*(4), 453–476. https://doi.org/10.1177/0021886319865323

343. Kim, M., & Windsor, C. (2015). Resilience and work-life balance in first-line nurse manager. *Asian Nursing Research*, *9*(1), 21–27. https://doi.org/10.1016/J.ANR.2014.09.003

344. Kirkman, B. L., & Mathieu, J. E. (2005). The dimensions and antecedents of team virtuality. *Journal of Management*, *31*(5), 700–718. https://doi.org/10.1177/0149206305279113

345. Klein, S., & Watson-Manheim, M. B. (2021). The (re-)configuration of digital work in the wake of profound technological innovation: Constellations and hidden work. *Information and Organization*, *31*(4), 100377. https://doi.org/10.1016/J.INFOANDORG.2021.100377

346. Klonek, F. E., Kanse, L., Wee, S., Runneboom, C., & Parker, S. K. (2022). Did the COVID-19 Lock-Down Make Us Better at Working in Virtual Teams? *Small Group Research*, *53*(2), 185–206. https://doi.org/10.1177/10464964211008991/ASSET/IMAGES/LARGE/10.1177_10464964211008991-FIG1.JPEG

347. Klonek, F., & Parker, S. K. (2021). Designing SMART teamwork: How work design can boost performance in virtual teams. *Organizational Dynamics*, *50*(1), 100841. https://doi.org/10.1016/J.ORGDYN.2021.100841

348. Kniffin, K. M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S. P., Bakker, A. B., Bamberger, P., Bapuji, H., Bhave, D. P., Choi, V. K., Creary, S. J., Demerouti, E., Flynn, F. J., Gelfand, M. J., Greer, L. L., Johns, G., Kesebir, S., Klein, P. G., Lee, S. Y., … Vugt, M. van. (2021). COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American Psychologist*, *76*(1), 63–77. https://doi.org/10.1037/AMP0000716

349. Knight, C., Keller, A. C., & Parker, S. K. (2022). Job demands, not resources, predict worsening psychological distress during the early phase of the COVID-19 pandemic. *Work & Stress*, *37*(1), 55–77. https://doi.org/10.1080/02678373.2022.2117879

350. Kocatepe, M., Kocatepe, V., & Yildirim, D. (2023). Work-life balance and burnout among emergency healthcare professionals during the COVID-19 pandemic: A cross-sectional study. *International Journal of Healthcare Management*. https://doi.org/10.1080/20479700.2023.2199546

351. Köffer, S. (2015). Designing the digital workplace of the future — what scholars recommend to practitioners. *International Conference on Information Systems (ICIS 2015)*. https://www.researchgate.net/publication/282755399_Designing_the_digital_workplace_of_the_future_-_what_scholars_recommend_to_practitioners

352. Koivisto, J., & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. *International Journal of Information Management, 45*, 191–210. https://doi.org/10.1016/J.IJINFOMGT.2018.10.013

353. Konrad, A. M., & Yang, Y. (2012). Is using work–life interface benefits a career-limiting move? An examination of women, men, lone parents, and parents with partners. *Journal of Organizational Behavior*, *33*(8), 1095–1119. https://doi.org/10.1002/JOB.1782

354. Koo, C., Wati, Y., & Jung, J. J. (2011). Examination of how social aspects moderate the relationship between task characteristics and usage of social communication technologies (SCTs) in organizations. *International Journal of Information Management*, *31*(5), 445–459. https://doi.org/10.1016/j.ijinfomgt.2011.01.003

355. Kooij, D. T. A. M., Tims, M., & Kanfer, R. (2015). Successful aging at work: The role of job crafting. *Aging Workers and the Employee-Employer Relationship*, 145–161. https://doi.org/10.1007/978-3-319-08007-9_9/COVER

356. Koopmans, L., Bernaards, C. M., Hildebrandt, V. H., De Vet, H. C. W., & Van Der Beek, A. J. (2014). Construct validity of the individual work performance questionnaire. *Journal of Occupational and Environmental Medicine*, *56*(3), 331–337. https://doi.org/10.1097/JOM.0000000000000113

357. Korjani, M. M., & Mendel, J. M. (2012). Fuzzy set Qualitative Comparative Analysis (fsQCA): Challenges and applications. *2012 Annual Meeting of the North American Fuzzy Information Processing Society, NAFIPS 2012*. https://doi.org/10.1109/NAFIPS.2012.6291026

358. Kossek, E. E., & Ozeki, C. (1998). Work-family conflict, policies, and the job-life satisfaction relationship: A review and directions for organizational behavior-human resources research. *Journal of Applied Psychology*, *83*(2), 139–149. https://doi.org/10.1037/0021-9010.83.2.139

359. Kossek, E. E., Valcour, M., & Lirio, P. (2014). The Sustainable Workforce. *Wellbeing*, 1–24. https://doi.org/10.1002/9781118539415.WBWELL030

360. Kraan, K. O., Dhondt, S., Houtman, I. L. D., Batenburg, R. S., & Kompier, M. A. J. (2014). Computers and types of control in relation to work stress and learning. *Information Technology*, *33*(10), 1013–1026. https://doi.org/10.1080/0144929X.2014.916351

361. Kubicek, B., Baumgartner, V., Prem, R., Sonnentag, S., & Korunka, C. (2022). Less Detachment but More Cognitive Flexibility? A Diary Study on Outcomes of Cognitive Demands of Flexible Work. *International Journal of Stress Management*, *29*(1), 75–87. https://doi.org/10.1037/STR0000239

362. Kuijpers, E., Kooij, D. T. A. M., & van Woerkom, M. (2020). Align your job with yourself: The relationship between a job crafting intervention and work engagement, and the role of workload. *Journal of Occupational Health Psychology*, *25*(1), 1–16. https://doi.org/10.1037/ocp0000175

363. Kundnani, N., & Mehta, P. (2014). Role of personality traits in balancing work-life. *International Journal of Management Research and Review*, *4*(7), 722–731. https://doi.org/10.13140/RG.2.2.32887.34722

364. Laansamann, S., & Klein, S. (2018). How Much Collaboration? Balancing the Needs for Collaborative and Uninterrupted Work. *Twenty-Sixth European Conference on Information Systems 2018*. https://www.researchgate.net/publication/326175176_How_Much_Collaboration_Balancing_the_Needs_for_Collaborative_and_Uninterrupted_Work

365. Laine, M. O. J. (2009). Virtual communities: A bibliometric analysis. *Proceedings of the 42nd Annual Hawaii International Conference on System Sciences, HICSS*, 1–10. https://doi.org/10.1109/HICSS.2009.500

366. Lambert, E. G., Hogan, N. L., Dial, K. C., Jiang, S., & Khondaker, M. I. (2011). Is the Job Burning Me Out? An Exploratory Test of the Job Characteristics Model on the Emotional Burnout of Prison Staff. *The Prison Journal*, *92*(1), 3–23. https://doi.org/10.1177/0032885511428794

367. Lamovšek, A., & Černe, M. (2023). Past, present and future: A systematic multitechnique bibliometric review of the field of distributed work. *Information and Organization*, 100446. https://doi.org/10.1016/J.INFOANDORG.2022.100446

368. Lamovšek, A., Černe, M., Radević, I., & Božič, K. (2022). The Key to Work–Life Balance is (Enriched) Job Design? Three-Way Interaction Effects with Formalization and Adaptive Personality Characteristics. *Applied Research in Quality of Life*, *18*(2), 647–676. https://doi.org/10.1007/S11482-022-10100-9

369. Lamovšek, A., Černe, M., Popovič, A., Trinchera, L., Salem Mohammed, S., & Radević, I. (2023). Towards an integrative framework of distributed work design: A multi-technique bibliometric review. *Working paper*.

370. Lange, M., & Kayser, I. (2022). The Role of Self-Efficacy, Work-Related Autonomy and Work-Family Conflict on Employee's Stress Level during Home-Based Remote Work in Germany. *International Journal of Environmental Research and Public Health*, *19*(9), 4955. https://doi.org/10.3390/IJERPH19094955

371. Langfred, C. W., & Moye, N. A. (2004). Effects of task autonomy on performance: An extended model considering motivational, informational, and structural mechanisms. *Journal of Applied Psychology*, *89*(6), 934–945. https://doi.org/10.1037/0021-9010.89.6.934

372. Lapointe, L., Boudreau-Pinsonneault, C., & Vaghefi, I. (2013). Is smartphone usage truly smart? A qualitative investigation of IT addictive behaviors. *Proceedings of the Annual Hawaii International Conference on System Sciences*, 1063–1072. https://doi.org/10.1109/HICSS.2013.367

373. Lazăr, I., Osoian, C., & Raţiu, P. (2010). The role of work-life balance practices in order to improve organizational performance. *European Research Studies Journal*, *13*(1), 201–213. https://doi.org/10.35808/ERSJ/267

374. Lazarus, R. S. (1966). *Psychological stress and the coping process*. McGraw-Hill.

375. Le Fevre, M., Matheny, J., & Kolt, G. S. (2003). *Eustress, distress, and interpretation in occupational stress* (Vol. 18, Issue 7). https://doi.org/10.1108/02683940310502412

376. Lee, S. H., Shin, Y., & Baek, S. I. (2017). Task Characteristics and Work Engagement: Exploring Effects of Role Ambiguity and ICT Presenteeism. *Sustainability* , *9*(10), 1855. https://doi.org/10.3390/SU9101855

377. Leka, S., & de Alwis, S. (2016). Work, Life and Personality: The Relationship Between the Big Five Personality Traits and Work-life Conflict. *South Asian Journal of Management*, *23*(4).

378. Leonardi, P. M. (2021). COVID-19 and the New Technologies of Organizing: Digital Exhaust, Digital Footprints, and Artificial Intelligence in the Wake of Remote Work. *Journal of Management Studies*, *58*(1), 249–253. https://doi.org/10.1111/JOMS.12648

379. Leonardi, P. M., Huysman, M., & Steinfield, C. (2013). Enterprise Social Media: Definition, History, and Prospects for the Study of Social Technologies in Organizations. *Journal of Computer-Mediated Communication*, *19*(1), 1–19. https://doi.org/10.1111/JCC4.12029

380. Leonardi, P. M., Treem, J. W., & Jackson, M. H. (2010). The Connectivity Paradox: Using Technology to Both Decrease and Increase Perceptions of Distance in Distributed Work Arrangements. *Journal of Applied Communication Research, 38(*1), 85–105. https://doi.org/10.1080/00909880903483599

381. Lewin, R., Parker, T., & Regine, B. (1998). Complexity theory and the organization: beyond the metaphor. *Complexity*, *3*(4), 36–40. https://doi.org/10.1002/(SICI)1099-0526(199803/04)3:4

382. Li, G. T. W. (2009). *The Moderating Roles of Demands and Resources in Work Engagement and Job Performance in Chinese Service Occupations*. The Chinese University of Hong Kong.

383. Li, Y., Tuckey, M. R., Bakker, A., Chen, P. Y., & Dollard, M. F. (2023). Linking objective and subjective job demands and resources in the JD-R model: A multilevel design. *Work & Stress*, *37*(1), 27–54. https://doi.org/10.1080/02678373.2022.2028319

384. Li, H., Wu, Y., Cao, D., & Wang, Y. (2021). Organizational mindfulness towards digital transformation as a prerequisite of information processing capability to achieve market agility. *Journal of Business Research*, *122*, 700–712. https://doi.org/10.1016/J.JBUSRES.2019.10.036

385. Li, J., & Burch, T. C. (2018). The Joint Impact of Job Complexity, Autonomy, and Personality Differences on Employee Job Stress. *The Academy of Management Annual Meeting Proceedings*, 644–648. https://doi.org/10.5465/AMBPP.2013.18

386. Li, N., Liang, J., & Crant, J. M. (2010). The Role of Proactive Personality in Job Satisfaction and Organizational Citizenship Behavior: A Relational Perspective. *Journal of Applied Psychology*, *95*(2), 395–404. https://doi.org/10.1037/A0018079

387. Li, P., Peeters, M. C. W., Taris, T. W., & Zhang, Y. (2021). In the Eye of the Beholder: Challenge and Hindrance Appraisals of Work Characteristics and Their Implications for Employee's Well-Being. *Frontiers in Psychology*, *12*, 708309. https://doi.org/10.3389/FPSYG.2021.708309/BIBTEX

388. Li, S., ten Berge, J., & Kristiansen, M. H. (2022). Burnout and Its Antecedents: Considering Both Work and Household Time Claims, and Flexibility in Relation to Burnout. *Frontiers in Public Health*, *10*, 863348. https://doi.org/10.3389/FPUBH.2022.863348/FULL

389. Liao, P.-Y. (2012). The Role of Self-Concept in the Mechanism Linking Proactive Personality to Employee Work Outcomes. *Applied Psychology*, *64*(2), 421–443. https://doi.org/10.1111/APPS.12003

390. Lin, X., & Germain, R. (2003). Organizational structure, context, customer orientation, and performance: lessons from Chinese state-owned enterprises. *Strategic Management Journal*, *24*(11), 1131–1151. https://doi.org/10.1002/SMJ.348

391. Linz, S., Helmreich, I., Kunzler, A., Chmitorz, A., Lieb, K., & Kubiak, T. (2019). Interventions To Promote Resilience In Adults - A narrative review. *Psychotherapie, Psychosomatik, Medizinische Psychologie*, *70*(1), 11–21. https://doi.org/10.1055/A-0830-4745

392. Liu, J. J. W., Reed, M., & Girard, T. A. (2017). Advancing resilience: An integrative, multi-system model of resilience. *Personality and Individual Differences*, *111*, 111–118. https://doi.org/10.1016/J.PAID.2017.02.007

393. Liu, Y., Deb Armstrong, D. J., & Riemenschneider, C. (2018). The Relationship between Information Systems (IS) Assets, Organizational Capabilities, and IS-enabled Absorptive Capacity in U.S. State Information Technology Departments. *Communications of the Association for Information Systems*, *42*(1), 6. https://doi.org/10.17705/1CAIS.04206

394. Liu, Y., Mezei, J., Kostakos, V., & Li, H. (2017). Applying configurational analysis to IS behavioural research: a methodological alternative for modelling combinatorial complexities. *Information Systems Journal*, *27*(1), 59–89.

395. Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. (1981). Goal setting and task performance. *Psychological Bulletin*, *90*(1), 125–152. https://doi.org/10.1037/0033-2909.90.1.125

396. Loher, B. T., Noe, R. A., Moeller, N. L., & Fitzgerald, M. P. (1985). A Meta-Analysis of the Relation of Job Characteristics to Job Satisfaction. *Journal of Applied Psychology*, *70*(2), 280–289. https://doi.org/10.1037/0021-9010.70.2.280

397. Lopes, A. S., & Carreira, P. (2022). COVID-19 impact on job losses in Portugal: who are the hardest-hit? *International Journal of Manpower*, *43*(5), 1265–1282. https://doi.org/10.1108/IJM-06-2021-0384/FULL/XML

398. Lund, E. M., Forber-Pratt, A. J., Wilson, C., & Mona, L. R. (2020). The COVID-19 pandemic, stress, and trauma in the disability community: A call to action. *Rehabilitation Psychology*, *65*(4), 313–322. https://doi.org/10.1037/REP0000368

399. Lunenburg, F. C. (2011). Motivating by Enriching Jobs to Make Them More Interesting and Challenging. *International Journal of Management, Business, and Administration*, *15*(1).

400. Luoma, R., Penttinen, E., & Rinta-Kahila, T. (2020). Synteza i aktywność biologiczna nowych analogów tiosemikarbazonowych chelatorów żelaza. *Proceedings of the 53rd Hawaii International Conference on System Sciences*, *7*(1), 6123–6132. https://doi.org/10.2/JQUERY.MIN.JS

401. Lyons, S. T., Ng, E. S., & Schweitzer, L. (2012). Generational career shift: Millennials and the changing nature of careers in Canada. In *Managing the New Workforce: International Perspectives on the Millennial Generation* (pp. 64–85). Edward Elgar Publishing Ltd. https://doi.org/10.4337/9780857933010.00009

402. Lyytinen, K., Nickerson, J. V., & King, J. L. (2020). Metahuman systems = humans + machines that learn. *Journal of Information Technology*, *36*(4), 427–445. https://doi.org/10.1177/0268396220915917

403. Ma, J., Ollier-Malaterre, A., & Lu, C. qin. (2021). The impact of techno-stressors on work–life balance: The moderation of job self-efficacy and the mediation of emotional exhaustion. *Computers in Human Behavior*, *122*, 106811. https://doi.org/10.1016/J.CHB.2021.106811

404. Mäkikangas, A., Juutinen, S., Mäkiniemi, J. P., Sjöblom, K., & Oksanen, A. (2022). Work engagement and its antecedents in remote work: A person-centered view. *Work & Stress*, *36*(4), 392–416. https://doi.org/10.1080/02678373.2022.2080777

405. Malhotra, A. (2021). The Postpandemic Future of Work. *Journal of Management*, *47*(5), 1091–1102. https://doi.org/10.1177/01492063211000435

406. Mander, R., Hellert, U., & Antoni, C. H. (2021). Self-leadership strategies for coping with flexibility requirements of digital work with a high degree of latitude for time, place and scope for action—a qualitative study. *Gruppe. Interaktion. Organisation. Zeitschrift Fur Angewandte Organisationspsychologie*, *52*(1), 163–171. https://doi.org/10.1007/S11612-021-00560-2/TABLES/1

407. Marino, L., & Capone, V. (2021). Smart Working and Well-Being before and during the COVID-19 Pandemic: A Scoping Review. *European Journal of Investigation in Health, Psychology and Education*, *11*(4), 1516–1536. https://doi.org/10.3390/EJIHPE11040108

408. Marsh, E. (2018). Understanding the Effect of Digital Literacy on Employees' Digital Workplace Continuance Intentions and Individual Performance. *International Journal of Digital Literacy and Digital Competence (IJDLDC)*, *9*(2). https://doi.org/10.4018/IJDLDC.2018040102

409. Marsh, E., Vallejos, E. P., & Spence, A. (2022). The digital workplace and its dark side: An integrative review. *Computers in Human Behavior*, *128*, 107118. https://doi.org/10.1016/J.CHB.2021.107118

410. Martin, B. H., & MacDonnell, R. (2012). Is telework effective for organizations?: A meta-analysis of empirical research on perceptions of telework and organizational outcomes. *Management Research Review*, *35*(7), 602–616. https://doi.org/10.1108/01409171211238820

411. Martineau, É., & Trottier, M. (2022). How does work design influence work-life boundary enactment and work-life conflict? *Community, Work & Family*. https://doi.org/10.1080/13668803.2022.2107487

412. Martínez Sánchez, A., Pérez Pérez, M., De Luis Carnicer, P., & Vela Jiménez, M. J. (2007). Teleworking and workplace flexibility: A study of impact on firm performance. *Personnel Review*, *36*(1), 42–64. https://doi.org/10.1108/00483480710716713

413. Martínez-Sánchez, A., Pérez-Pérez, M., de-Luis-Carnicer, P., & Vela-Jiménez, M. J. (2007). Telework, human resource flexibility and firm performance. *New Technology, Work and Employment*, *22*(3), 208–223. https://doi.org/10.1111/j.1468-005X.2007.00195.x

414. Martín-Martín, F. G., Díaz-Fúnez, P. A., Durniat, K., Salvador-Ferrer, C. M., Llopis-Marín, J. M., Limbert, C., & Mañas-Rodríguez, M. Á. (2022). Can High Levels of Hindrance Demands Increase the Worker's Intellectual Response? *Sustainability*, *14*(5), 3107. https://doi.org/10.3390/SU14053107

415. Martins, L. L., Gilson, L. L., & Maynard, M. T. (2004). Virtual teams: What do we know and where do we go from here? *Journal of Management*, *30*(6), 805–835. https://doi.org/10.1016/j.jm.2004.05.002

416. Maruping, L. M., & Magni, M. (2014). Task characteristics, team processes and individual use of collaboration technology: Test of a cross-level mediation model. *Proceedings of the Annual Hawaii International Conference on System Sciences*, 500–509. https://doi.org/10.1109/HICSS.2014.70

417. Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99–113. https://doi.org/10.1002/JOB.4030020205

418. Maslach, C., Jackson, S. E., & Leiter, M. (1997). The Maslach Burnout Inventory Manual. In C. P. Zalaquett & R. J. Wood (Eds.), *Evaluating Stress: A Book of Resources*. https://www.researchgate.net/publication/277816643_The_Maslach_Burnout_Inventory_Manual

419. Maslach, C., & Leiter, M. P. (2008). Early Predictors of Job Burnout and Engagement. *Journal of Applied Psychology*, *93*(3), 498–512. https://doi.org/10.1037/0021-9010.93.3.498

420. Matsui, T., Kakuyama, T., & Onglatco, M. L. U. (1987). Effects of Goals and Feedback on Performance in Groups. *Journal of Applied Psychology*, *72*(3), 407–415. https://doi.org/10.1037/0021-9010.72.3.407

421. Mattke, J., Maier, C., Weitzel, T., Gerow, J. E., & Thatcher, J. B. (2022). Qualitative comparative analysis (QCA) in information systems research: status quo, guidelines, and future directions. *Communications of the Association for Information Systems*, *50*(1), 8.

422. Mayer, C., Sivatheerthan, T., Mütze-Niewöhner, S., & Nitsch, V. (2023). Sharing leadership behaviors in virtual teams: effects of shared leadership behaviors on team member satisfaction and productivity. *Team Performance Management*, *29*(1–2), 90–112. https://doi.org/10.1108/TPM-07-2022-0054/FULL/PDF

423. Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model of Organizational Trust. *The Academy of Management Review*, *20*(3), 734. https://doi.org/10.2307/258792

424. Maznevski, M. L., & Chudoba, K. M. (2000). Bridging Space over Time: Global Virtual Team Dynamics and Effectiveness. *Organization Science*, *11*(5), 473–492. https://doi.org/10.1287/orsc.11.5.473.15200

425. McKinsey & Company. (2020). *The future of remote work: An analysis of 2,000 tasks, 800 jobs, and 9 countries*.

426. Mendel, J., & Korjani, M. (2013). Theoretical aspects of fuzzy set qualitative comparative analysis (fsQCA). *Information Sciences*, *237*, 137–161.

427. Mendel, J. M., & Korjani, M. M. (2013). Theoretical aspects of fuzzy set qualitative comparative analysis (fsQCA). *Information Sciences*, *237*, 137–161.

428. Meyer, A. D., Tsui, A. S., & Hinings, C. R. (1993). Configurational approaches to organizational analysis. *Academy of Management Journal*, *36*(6), 1175–1195. https://doi.org/10.2307/256809

429. Meyer, S. C., & Hünefeld, L. (2018). Challenging Cognitive Demands at Work, Related Working Conditions, and Employee Well-Being. *International Journal of Environmental Research and Public Health 2018, Vol. 15, Page 2911*, *15*(12), 2911. https://doi.org/10.3390/IJERPH15122911

430. Mikalef, P., Conboy, K., Lundström, J. E., & Popovič, A. (2022). Thinking responsibly about responsible AI and 'the dark side' of AI. *European Journal of Information Systems*, *31*(3), 257–268. https://doi.org/10.1080/0960085X.2022.2026621

431. Milczarek, M., Schneider, E., & Rial Gonzales, E. (2009). *OSH in figures : work-related musculoskeletal disorders in the EU : facts and figures*. EUR-OP.

432. Minkus, L., Groepler, N., & Drobnič, S. (2022). The significance of occupations, family responsibilities, and gender for working from home: Lessons from COVID-19. *Plos one*, *17*(6), e0266393. https://doi.org/10.1371/JOURNAL.PONE.0266393

433. Misangyi, V. F., Greckhamer, T., Furnari, S., Fiss, P. C., Crilly, D., & Aguilera, R. (2017). Embracing causal complexity: The emergence of a neo-configurational perspective. *Journal of Management*, *43*(1), 255–282.

434. Mishima-Santos, V., Sticca, M. G., & Pérez-Nebra, A. R. (2021). Wellbeing and Work Design in Brazilian Teleworkers. *Frontiers in Psychology*, *12*, 733640. https://doi.org/10.3389/FPSYG.2021.733640/BIBTEX

435. Mitzner, T. L., Savla, J., Boot, W. R., Sharit, J., Charness, N., Czaja, S. J., & Rogers, W. A. (2019). Technology Adoption by Older Adults: Findings from the PRISM Trial. *Gerontologist*, *59*(1), 34–44. https://doi.org/10.1093/GERONT/GNY113

436. Mohr, J. W., & Bogdanov, P. (2013). Introduction-Topic models: What they are and why they matter. *Poetics*, *41*(6), 545–569. https://doi.org/10.1016/j.poetic.2013.10.001

437. Mojtahedzadeh, N., Rohwer, E., Lengen, J., Harth, V., & Mache, S. (2021). Health-promoting work design for telework in the context of the COVID-19 pandemic. *Zentralblatt Fur Arbeitsmedizin, Arbeitsschutz Und Ergonomie*, *71*(2), 69–74. https://doi.org/10.1007/S40664-020-00419-1/TABLES/1

438. Mokhtarian, P. L. (1991a). Defining Telecommuting. In *Transportation Research Record 1305*.

439. Mokhtarian, P. L. (1991b). Telecommuting and Travel: State of the Practice, State of the Art. *Transportation*, *18*(4).

440. Mokhtarian, P. L., & Salomon, I. (1997). Modeling the desire to telecommute: The importance of attitudinal factors in behavioral models. *Transportation Research Part A: Policy and Practice*, *31*(1), 35–50. https://doi.org/10.1016/S0965-8564(96)00010-9

441. Molino, M., Ingusci, E., Signore, F., Manuti, A., Giancaspro, M. L., Russo, V., Zito, M., & Cortese, C. G. (2020). Wellbeing Costs of Technology Use during Covid-19 Remote Working: An Investigation Using the Italian Translation of the Technostress Creators Scale. *Sustainability* , *12*(15), 5911. https://doi.org/10.3390/SU12155911

442. Moore, F. (2007). Work-life balance: Contrasting managers and workers in an MNC. *Employee Relations*, *29*(4), 385–399. https://doi.org/10.1108/01425450710759217

443. Morgan, I. (2021, August 3). *Employees Want Wellbeing From Their Job, and They'll Leave to Find It*. Gallup: Workplace. https://www.gallup.com/workplace/352952/employees-wellbeing-job-leave-find.aspx

444. Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology*, *91*(6), 1321–1339. https://doi.org/10.1037/0021-9010.91.6.1321

445. Motamarri, S., Akter, S., Hossain, M. A., & Dwivedi, Y. K. (2022). How does remote analytics empowerment capability payoff in the emerging industrial revolution? *Journal of Business Research*, *144*, 1163–1174. https://doi.org/10.1016/J.JBUSRES.2022.02.064

446. Muecke, S., & Iseke, A. (2019). How does job autonomy influence job performance? A meta-analytic test of theoretical mechanisms. *79th Annual Meeting of the Academy of Management 2019: Understanding the Inclusive Organization, AoM 2019*, 14632. https://doi.org/10.5465/AMBPP.2019.145

447. Mumford, E. (2006). The story of socio-technical design: reflections on its successes, failures and potential. *Information Systems Journal*, *16*(4), 317–342. https://doi.org/10.1111/J.1365-2575.2006.00221.X

448. Mustak, M., Salminen, J., Plé, L., & Wirtz, J. (2021). Artificial intelligence in marketing: Topic modeling, scientometric analysis, and research agenda. *Journal of Business Research*, *124*, 389–404. https://doi.org/10.1016/J.JBUSRES.2020.10.044

449. Nalla, M. K., & Cobbina, J. E. (2017). Environmental factors and job satisfaction: The case of private security guards. *Security Journal*, *30*(1), 215–226. https://doi.org/10.1057/SJ.2016.12

450. Nam, T. (2013). Technology Use and Work-Life Balance. *Applied Research in Quality of Life 2013 9:4*, *9*(4), 1017–1040. https://doi.org/10.1007/S11482-013-9283-1

451. Nardi, B. (2015). Virtuality. *Annual Review of Anthropology*, *44*(1), 15–31. https://doi.org/10.1146/ANNUREV-ANTHRO-102214-014226

452. Nash, C., Jarrahi, M. H., & Sutherland, W. (2021). Nomadic work and location independence: The role of space in shaping the work of digital nomads. *Human Behavior and Emerging Technologies*, *3*(2), 271–282. https://doi.org/10.1002/HBE2.234

453. Neirotti, P., Raguseo, E., & Gastaldi, L. (2019). Designing flexible work practices for job satisfaction: the relation between job characteristics and work disaggregation in different types of work arrangements. *New Technology, Work and Employment*, *34*(2), 116–138. https://doi.org/10.1111/NTWE.12141

454. Nerur, S. P., Rasheed, A. A., & Natarajan, V. (2008). The intellectual structure of the strategic management field: An author co-citation analysis. *Strategic Management Journal*, *29*(3), 319–336. https://doi.org/10.1002/SMJ.659

455. Nguyen, K., & Broekhuizen, T. (2022). Employee and Team Digital Readiness: How to Get Employees and Teams Ready for Digital Transformation? In *Digital Transformation: A Guide for Managers* (pp. 49–67). Groningen Digital Business Centre (GDBC). https://research.rug.nl/en/publications/employee-and-team-digital-readiness-how-to-get-employees-and-team

456. Nielsen, K., Randall, R., Holten, A. L., & González, E. R. (2010). Conducting organizational-level occupational health interventions: What works? *Work & Stress, 24*(3), 234–259. https://doi.org/10.1080/02678373.2010.515393

457. Nilles, J. M. (1988). Traffic reduction by telecommuting: A status review and selected bibliography. *Transportation Research Part A: General*, *22A*(4), 301–317. https://doi.org/10.1016/0191-2607(88)90008-8

458. Nnadozie, E. E. L., Iorfa, S. K., & Agonsi, U. A. (2015). View of Contributions of psychological detachment from work and perceived organizational support in work-life balance among health workers. *Nigerian Journal of Psychological Research*, *11*, 9–16.

459. Nof, S. Y. (2003). Design of effective e-Work: review of models, tools, and emerging challenges. *The Management of Operations*, *14*(8), 681–703. https://doi.org/10.1080/09537280310001647832

460. Nurmi, N., & Hinds, P. J. (2016). Job complexity and learning opportunities: A silver lining in the design of global virtual work. *Journal of International Business Studies*, *47*, 631–654. https://doi.org/10.1057/jibs.2016.11

461. O'brien, G. E. (1983). Skill-utilization, skill-variety and the job characteristics model. *Australian Journal of Psychology*, *35*(3), 461–468. https://doi.org/10.1080/00049538308258757

462. OECD. (2021, September 21). *Teleworking in the COVID-19 pandemic: Trends and prospects*. OECD Policy Responses to Coronavirus (COVID-19). https://www.oecd.org/coronavirus/policy-responses/teleworking-in-the-covid-19-pandemic-trends-and-prospects-72a416b6/

463. Oeij, P., Dhondt, S., & Wiezer, N. (2006). Conditions for Low Stress-risk Jobs: Europe's Case. *The European Journal of Social Quality*, *6*, 81–108. https://doi.org/10.3167/ejsq.2006.060205

464. Oeij, P. R. A., Preenen, P. T. Y., van der Torre, W., van der Meer, L., & van den Eerenbeemt, J. (2019). Technological Choice and Workplace Innovation: Towards Efficient and Humanised Work. *European Public and Social Innovation Review*, *4*(1), 15–26. https://doi.org/10.31637/EPSIR.19-1.2

465. Ofei-Dodoo, S., Long, M. C., Bretches, M., Kruse, B. J., Haynes, C., & Bachman, C. (2020). Work engagement, job satisfaction, and turnover intentions among family medicine residency program managers. *International Journal of Medical Education*, *11*, 53. https://doi.org/10.5116/IJME.5E3E.7F16

466. O'Hara-Devereaux, M., & Johansen, R. (1994). *GlobalWork: Bridging Distance, Culture and Time*. Jossey-Bass.

467. Ohly, S., & Fritz, C. (2010). Work characteristics, challenge appraisal, creativity, and proactive behavior: A multi-level study. *Journal of Organizational Behavior*, *31*(4), 543–565. https://doi.org/10.1002/JOB.633

468. Okolo, D., Kamarudin, S., & Ahmad, U. N. U. (2018). An Exploration of the Relationship between Technostress, Employee Engagement and Job Design from the Nigerian Banking Employeeâ€™s Perspective. *Management Dynamics in the Knowledge Economy*, *6*(4), 511–530. https://ideas.repec.org/a/nup/jrmdke/v6y2018i4511-530.html

469. Oldham, G. R., & Fried, Y. (2016). Job design research and theory: Past, present and future. *Organizational Behavior and Human Decision Processes*, *136*, 20–35. https://doi.org/10.1016/J.OBHDP.2016.05.002

470. Oldham, G. R., & Richard Hackman, J. (2010). Not what it was and not what it will be: The future of job design research. *Journal of Organizational Behavior*, *31*(2–3), 463–479. https://doi.org/10.1002/JOB.678

471. Oldham, G. R., & Rotchford, N. L. (1983). Relationships Between Office Characteristics and Employee Reactions: A Study of the Physical Environment. *Administrative Science Quarterly*, *28*(4), 542–556. https://doi.org/10.2307/2393008

472. Ollier-Malaterre, A. (2009). Contributions of work—life and resilience initiatives to the individual/organization relationship. *Human Relations*, *63*(1), 41–62. https://doi.org/10.1177/0018726709342458

473. Ollier-Malaterre, A., Rothbard, N. P., & Berg, J. M. (2013). When Worlds Collide in Cyberspace: How Boundary Work in Online Social Networks Impacts Professional Relationships. *Academy of Management Review*, *38*(4), 645–669. https://doi.org/10.5465/AMR.2011.0235

474. Olson, M. H., & Primps, S. B. (1984). Working at Home with Computers: Work and Nonwork Issues. *Journal of Social Issues*, *40*(3), 97–112. https://doi.org/10.1111/J.1540-4560.1984.TB00194.X

475. Oludayo, O., & Ojo Omonijo, D. (2020). Academic Integrity View project A comparative study of entrepreneurial intentions and academic motivation among STEM and Non-STEM Majors of a private university in Ota View project. *Academy of Strategic Management Journal*, *19*(3). https://www.researchgate.net/publication/342466392

476. Omar, M. K., & Zakaria, A. (2016). Work-Life Balance and Job Satisfaction among Malaysian Healthcare Employees. *Environment-Behaviour Proceedings Journal*, *1*(4), 271–278. https://doi.org/10.21834/E-BPJ.V1I4.177

477. O'Neill, T. A., Hambley, L. A., Greidanus, N. S., Macdonnell, R., & Kline, T. J. B. (2009). Predicting teleworker success: An exploration of personality, motivational, situational, and job characteristics. *New Technology, Work and Employment*, *24*(2), 144–162. https://doi.org/10.1111/j.1468-005X.2009.00225.x

478. Organ, D. W., & Greene, C. N. (1981). The Effects of Formalization on Professional Involvement: A Compensatory Process Approach. *Administrative Science Quarterly*, *26*(2), 237–252. https://doi.org/10.2307/2392471

479. Orpen, C. (1979). The Effects of Job Enrichment on Employee Satisfaction, Motivation, Involvement, and Performance: A Field Experiment: *Human Relations*, *32*(3), 189–217. https://doi.org/10.1177/001872677903200301

480. Orpen, C. (2016). The Effects of Job Enrichment on Employee Satisfaction, Motivation, Involvement, and Performance: A Field Experiment. *Human Relations*, *32*(3), 189–217. https://doi.org/10.1177/001872677903200301

481. Osterman, P. (1995). Work/Family Programs and the Employment Relationship. *Administrative Science Quarterly*, *40*(4), 700. https://doi.org/10.2307/2393758

482. O'Sullivan, G. (2011). The Relationship Between Hope, Eustress, Self-Efficacy, and Life Satisfaction Among Undergraduates. *Social Indicators Research*, *101*(1), 155–172. https://doi.org/10.1007/S11205-010-9662-Z/TABLES/8

483. Palumbo, R. (2020). Let me go to the office! An investigation into the side effects of working from home on work-life balance. *International Journal of Public Sector Management*, *33*(6–7), 771–790. https://doi.org/10.1108/IJPSM-06-2020-0150/FULL/XML

484. Pandey, V., Shukla, T., & Nanda, A. (2018). A Study on Impact of Personality Traits on Work Life Balance. *National Conference Perspectives and Approaches for Developing Employable Skills in New India*.

485. Pansini, M., Buonomo, I., Vincenzi, C. De, Ferrara, B., & Benevene, P. (2023). Positioning Technostress in the JD-R Model Perspective: A Systematic Literature Review. *Healthcare*, *11*(3), 446. https://doi.org/10.3390/HEALTHCARE11030446

486. Panteli, N., Yalabik, Z. Y., & Rapti, A. (2019). Fostering work engagement in geographically-dispersed and asynchronous virtual teams. *Information*

Technology and People, *32*(1), 2–17. https://doi.org/10.1108/ITP-04-2017-0133/FULL/PDF

487. Pappas, I., Kourouthanassis, P., Giannakos, M., & Lekakos, G. (2017). The interplay of online shopping motivations and experiential factors on personalized e-commerce: A complexity theory approach. *Telematics and Informatics*, *34*(5), 730–742.

488. Pappas, I. O., & Woodside, A. G. (2021). Fuzzy-set Qualitative Comparative Analysis (fsQCA): Guidelines for research practice in Information Systems and marketing. *International Journal of Information Management*, *58*, 102310. https://doi.org/10.1016/J.IJINFOMGT.2021.102310

489. Park, Y. K., & Mithas, S. (2020). Organized complexity of digital business strategy: A configurational perspective. *MIS Quarterly: Management Information Systems*, *44*(1), 85–127. https://doi.org/10.25300/MISQ/2020/14477

490. Park, Y. A., Fritz, C., & Jex, S. M. (2011). Relationships Between Work-Home Segmentation and Psychological Detachment From Work: The Role of Communication Technology Use at Home. *Journal of Occupational Health Psychology*, *16*(4), 457–467. https://doi.org/10.1037/A0023594

491. Parker, S. K. (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology*, *83*(6), 835–852. https://doi.org/10.1037/0021-9010.83.6.835

492. Parker, S. K. (2014a). Beyond Motivation: Job and Work Design for Development, Health, Ambidexterity, and More. *Annual Review of Psychology*, *65*, 1–31. https://doi.org/10.1146/annurev-psych-010213-115208

493. Parker, S. K. (2014b). *Does the evidence and theory support the good work design principles?* Safe Work Austraila.

494. Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making Things Happen: A Model of Proactive Motivation. *Journal of Management*, *36*(4), 827–856. https://doi.org/10.1177/0149206310363732

495. Parker, S. K., & Grote, G. (2020). Automation, Algorithms, and Beyond: Why Work Design Matters More Than Ever in a Digital World. *Applied Psychology*, *0*(0), 1–45. https://doi.org/10.1111/APPS.12241

496. Parker, S. K., & Grote, G. (2022). More than 'more than ever': Revisiting a work design and sociotechnical perspective on digital technologies. *Applied Psychology*, *71*(4), 1215–1223. https://doi.org/10.1111/APPS.12425

497. Parker, S. K., & Jorritsma, K. (2020). Good work design for all: Multiple pathways to making a difference. *European Journal of Work and Organizational Psycholgy*, *30*(3), 456–468. https://doi.org/10.1080/1359432X.2020.1860121

498. Parker, S. K., & Knight, C. (2023). The SMART model of work design: A higher order structure to help see the wood from the trees. *Human Resource Management.* https://doi.org/10.1002/HRM.22200

499. Parker, S. K., Knight, C., & Keller, A. (2020, July 30). *Remote Managers Are Having Trust Issues*. Harvard Business Review. https://hbr.org/2020/07/remote-managers-are-having-trust-issues

500. Parker, S. K., Morgeson, F. P., & Johns, G. (2017). One hundred years of work design research: Looking back and looking forward. *Journal of Applied Psychology*, *102*(3), 403–420. https://doi.org/10.1037/apl0000106

501. Parker, S. K., Wall, T. D., & Cordery, J. L. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of Occupational and Organizational Psychology*, *74*(4), 413–440. https://doi.org/10.1348/096317901167460

502. Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive behavior at work. *Journal of Applied Psychology*, *91*(3), 636–652. https://doi.org/10.1037/0021-9010.91.3.636

503. Parker, S. L., Jimmieson, N. L., Walsh, A. J., & Loakes, J. L. (2015). Trait Resilience Fosters Adaptive Coping When Control Opportunities are High: Implications for the Motivating Potential of Active Work. *Journal of Business and Psychology*, *30*(3), 583–604. https://doi.org/10.1007/S10869-014-9383-4/TABLES/12

504. Paruchuri, S., Perry-Smith, J. E., Chattopadhyay, P., & Shaw, J. D. (2018). New Ways of Seeing: Pitfalls and Opportunities in Multilevel Research. *Academy of Management Journal*, *61*(3), 797–801. https://doi.org/10.5465/AMJ.2018.4003

505. Pasadeos, Y., Phelps, J., & Kim, B. H. (1998). Disciplinary Impact of Advertising Scholars: Temporal Comparisons of Influential Authors, Works and Research Networks. *Journal of Advertising*, *27*(4), 53–70. https://doi.org/10.1080/00913367.1998.10673569

506. Pasamar, S. (2015). Availability and use of work-life benefits: what's in between? *Personnel Review*, *44*(6), 949–969. https://doi.org/10.1108/PR-03-2014-0054

507. Pasko, R., Maellaro, R., & Stodnick, M. (2021). A study of millennials' preferred work-related attributes and retention. *Employee Relations*, *43*(3), 774–787. https://doi.org/10.1108/ER-05-2020-0224

508. Patel, H., Pettitt, M., & Wilson, J. R. (2012). Factors of collaborative working: A framework for a collaboration model. *Applied Ergonomics*, *43*(1), 1–26. https://doi.org/10.1016/J.APERGO.2011.04.009

509. Peifer, C., Pollak, A., Flak, O., Pyszka, A., Nisar, M. A., Irshad, M. T., Grzegorzek, M., Kordyaka, B., & Kożusznik, B. (2021). The Symphony of Team Flow in Virtual Teams. Using Artificial Intelligence for Its Recognition and Promotion. *Frontiers in Psychology*, *12*, 697093. https://doi.org/10.3389/FPSYG.2021.697093/BIBTEX

510. Peiró, J. M., Bayona, J. A., Caballer, A., & Di Fabio, A. (2020). Importance of work characteristics affects job performance: The mediating role of individual dispositions on the work design-performance relationships. *Personality and Individual Differences*, *157*, 109808. https://doi.org/10.1016/J.PAID.2019.109808

511. Peng, A. C., Ilies, R., & Dimotakis, N. (2011). Work-family balance, role integration and employee well-being. In S. Kaiser, M. Ringlstetter, D. Eikhof, & M. Pina e Cunha (Eds.), *Creating Balance?: International Perspectives on the Work-Life Integration of Professionals* (pp. 121–140). Springer . https://doi.org/10.1007/978-3-642-16199-5_7/COVER

512. Pérez Pérez, M., Martínez Sánchez, A., De Luis Carnicer, P., & Vela Jiménez, M. J. (2005). The differences of firm resources and the adoption of teleworking. *Technovation*, *25*(12), 1476–1483. https://doi.org/10.1016/j.technovation.2005.04.002

513. Perrigino, M. B., Dunford, B. B., & Wilson, K. S. (2018). Work–Family Backlash: The "Dark Side" of Work–Life Balance (WLB) Policies. *Academy of Management Annals*, *12*(2), 600–630. https://doi.org/10.5465/ANNALS.2016.0077

514. Perry, S. J., Rubino, C., & Hunter, E. M. (2018). Stress in remote work: two studies testing the Demand-Control-Person model. *European Journal of Work and Organizational Psychology*, *27*(5), 577–593. https://doi.org/10.1080/1359432X.2018.1487402

515. Peters, P., den Dulk, L., & van der Lippe, T. (2009). The effects of time-spatial flexibility and new working conditions on employees' work–life balance: the Dutch case. *Community, Work & Family*, *12*(3), 279–297. https://doi.org/10.1080/13668800902968907

516. Petrakaki, D., & Kornelakis, A. (2016). 'We can only request what's in our protocol': technology and work autonomy in healthcare. *New Technology, Work and Employment*, *31*(3), 223–237. https://doi.org/10.1111/NTWE.12072

517. Petrou Paraskevas, Demerouti Evangelia, Peeters Maria C. W., Schaufeli Wilmar B., & Hetland Jørn. (2012). Crafting a job on a daily basis: Contextual correlates and the link to work engagement. *Journal of Organizational Behavior*, *33*(8), 1120–1141. https://onlinelibrary.wiley.com/doi/full/10.1002/job.1783?casa_token=4FtxifPcfCwAAAAA%3AqhwGp_bOyqjXVpkb9Ctx-gXNhBIiELjE6YQITrZMZ3kIHpiZKWnZDwUvdJmsTV5h373pf1vu-FfV

518. Piccolo, R. F., & Colquitt, J. A. (2006). Transformational Leadership and Job Behaviors: The Mediating Role of Core Job Characteristics. *Academy of Management Journal*, *49*(2), 327–340. https://doi.org/10.5465/AMJ.2006.20786079

519. Pichault, F., & McKeown, T. (2019). Autonomy at work in the gig economy: analysing work status, work content and working conditions of independent professionals. *New Technology, Work and Employment*, *34*(1), 59–72. https://doi.org/10.1111/NTWE.12132

520. Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, *88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

521. Polat, Ş., & Özdemir, M. (2020). An Examination of Relationship between Job Characteristics and Work-Life Balance According to the Teachers' Opinions. *Education and Science*, *Early release*, 1–13. https://doi.org/10.15390/EB.2020.7944

522. Pooja, S., & Kanupriya, M. B. (2019). Understanding triangulated collaboration of work-life balance, personality traits and eudaimonic well-being. *Problems and Perspectives in Management*, *17*(2), 63–82. https://doi.org/10.21511/ppm.17(2).2019.05

523. Popaitoon, P. (2023). Integrative work design for telework practices: lessons learned from the COVID-19 pandemic in Thailand. *Journal of Asia Business Studies*, *17*(3), 504–523. https://doi.org/10.1108/JABS-08-2021-0327/FULL/XML

524. Potter, E. E. (2003). Telecommuting: The future of work, corporate culture, and American society. *Journal of Labor Research*, *24*(1), 73–84. https://doi.org/10.1007/S12122-003-1030-1

525. Pruett, M. (2020). *Remote Work Trends: How Coronavirus is Changing the Way We Work Forever*. Criteo. https://www.criteo.com/blog/coronavirus-remote-work-trends/

526. Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. (1969). The Context of Organization Structures. *Administrative Science Quarterly*, *14*(1), 115. https://doi.org/10.2307/2391366

527. PwC. (2021). *Changing Places: How hybrid working is rewriting the rule book*.

528. Pyöriä, P. (2005). The concept of knowledge work revisited. *Journal of Knowledge Management*, *9*(3), 116–127. https://doi.org/10.1108/13673270510602818/FULL/XML

529. Qu, J., Lab, S. A., Yan, C. 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. *Asia Pacific Journal of Human Resources*, *61*(1), 196–231. https://doi.org/10.1111/1744-7941.12353

530. Raghuram, S., Hill, N. S., Gibbs, J. L., & Maruping, L. M. (2019). Virtual work: Bridging research clusters. *Academy of Management Annals*, *13*(1), 308–341. https://doi.org/10.5465/annals.2017.0020

531. Ragin, C. (1999). Using qualitative comparative analysis to study causal complexity. *Health Services Research*, *34*(5), 1225–1239.

532. Ragin, C. (2006). Set Relations in Social Research: Evaluating Their Consistency and Coverage. *Political Analysis*, *14*(3), 291–310.

533. Ragin, C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*. University of Chicago Press.

534. Ragin, C. C. (1987). *The comparative method: Moving beyond qualitative and quantitative strategies*. University of California Press.

535. Ragin, C. C. (2000). *Fuzzy-set social science*. University of Chicago Press.

536. Ragin, C. C., & Davey, S. (2016). *Fuzzy-Set/Qualitative Comparative Analysis 3.0*. Department of Sociology, University of California.

537. Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., & Tu, Q. (2008). The Consequences of Technostress for End Users in Organizations: Conceptual Development and Empirical Validation. *Information Systems Research*, *19*(4), 417–433. https://doi.org/10.1287/ISRE.1070.0165

538. Rai, A., & Maheshwari, S. (2021). Exploring the mediating role of work engagement between the linkages of job characteristics with organizational engagement and job satisfaction. *Management Research Review*, *44*(1), 133–157. https://doi.org/10.1108/MRR-10-2019-0442/FULL/XML

539. Raiborn, C., & Butler, J. B. (2009). A new look at telecommuting and teleworking. *Journal of Corporate Accounting & Finance*, *20*(5), 31–39. https://doi.org/10.1002/JCAF.20511

540. Rainer, T. S., & Rainer, J. W. (2011). *The millennials : connecting to America's largest generation*. B & H Pub. Group.

541. Rakas, M., & Hain, D. S. (2019). The state of innovation system research: What happens beneath the surface? *Research Policy*, *48*(9), 103787. https://doi.org/10.1016/J.RESPOL.2019.04.011

542. Ramus, T., Vaccaro, A., & Brusoni, S. (2016). Institutional Complexity in Turbulent Times: Formalization, Collaboration, and the Emergence of Blended Logics. *Academy of Management Journal*, *60*(4), 1253–1284. https://doi.org/10.5465/AMJ.2015.0394

543. Rand, J., & Torm, N. (2012). The Benefits of Formalization: Evidence from Vietnamese Manufacturing SMEs. *World Development*, *40*(5), 983–998. https://doi.org/10.1016/J.WORLDDEV.2011.09.004

544. Ratten, V., & Thaichon, P. (2021). COVID-19, Technology and Marketing. In V. Ratten & P. Thaichon (Eds.), *COVID-19, Technology and Marketing* (pp. 1–20). Palgrave Macmillan. https://doi.org/10.1007/978-981-16-1442-2_1

545. Rau, B. L., & Hyland, M. A. M. (2002). Role conflict and flexible work arrangements: The effects on applicant attraction. *Personnel Psychology*, *55*(1), 111–136. https://doi.org/10.1111/J.1744-6570.2002.TB00105.X

546. Raza, B., Ali, M., Naseem, K., Moeed, A., Ahmed, J., & Hamid, M. (2018). Impact of trait mindfulness on job satisfaction and turnover intentions: Mediating role of work–family balance and moderating role of work–family conflict. *Cogent Business & Management*, *5*(1), 1–20. https://doi.org/10.1080/23311975.2018.1542943

547. Reeves, M., & Deimler, M. (2011). Adaptability : The New Competitive Advantage. *Harvard Business Review*, 135–141.

548. Reiche, B. S. (2023). Between interdependence and autonomy: Toward a typology of work design modes in the new world of work. *Human Resource Management Journal*, 1–17. https://doi.org/10.1111/1748-8583.12495

549. Richter, S., & Richter, A. (2020). Digital Nomads. *Business and Information Systems Engineering*, *62*(1), 77–81. https://doi.org/10.1007/s12599-019-00615-1

550. Rihoux, B., & Ragin, C. (2009). *Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques*. Thousand Oaks, CA: Sage Publications.

551. Rincy, M. V., & Panchanatham, N. (2014). Work life balance: a short review of the theoretical and contemporary concepts. *Continental J. Social Sciences*, *7*(1), 124. https://doi.org/10.35609/GJBSSR.2020.8.4(3)

552. Ro, C. (2020, August 31). *Why the future of work might be 'hybrid'* . BBC Worklife. https://www.bbc.com/worklife/article/20200824-why-the-future-of-work-might-be-hybrid

553. Robbins, S. P. (1990). *Organization Theory Structure, Designs and Applications* (3rd ed.). Prentice Hall. https://www.scirp.org/%28S%28vtj3fa45qm1ean45vvffcz55%29%29/reference/referencespapers.aspx?referenceid=2537055

554. Robbins, S. P., Coulter, M. A., & De Cenzo, D. A. (2020). Organizational structure and design. In S. P. Robbins, M. A. Coulter, & D. A. De Cenzo (Eds.), *Fundamentals of Management* (11th ed.). Pearson.

555. Roberts, H. E., & Foti, R. J. (1998). Evaluating the Interaction Between Self-Leadership and Work Structure in Predicting Job Satisfaction. *Journal of Business and Psychology*, *12*(3), 257–267. https://doi.org/10.1023/A:1025067128193

556. Roberts, K. H., & Glick, W. (1981). The job characteristics approach to task design: A critical review. *Journal of Applied Psychology*, *66*(2), 193–217. https://doi.org/10.1037/0021-9010.66.2.193

557. Rockmann, K. W., & Pratt, M. G. (2015). Contagious Offsite Work and the Lonely Office: The Unintended Consequences of Distributed Work. *Academy of Management Discoveries*, *1*(2), 150–164. https://doi.org/10.5465/AMD.2014.0016

558. Rodríguez-Modroño, P. (2022). Working Conditions and Work Engagement by Gender and Digital Work Intensity. *Information 2022*, *13*(6), 277. https://doi.org/10.3390/INFO13060277

559. Rodríguez-Modroño, P., & López-Igual, P. (2021). Job Quality and Work—Life Balance of Teleworkers. *International Journal of Environmental Research and Public Health 2021, Vol. 18, Page 3239*, *18*(6), 3239. https://doi.org/10.3390/IJERPH18063239

560. Rosales, R. M. (2016). Energizing Social Interactions at Work: An Exploration of Relationships that Generate Employee and Organizational Thriving. *Open Journal of Social Sciences*, *4*(9), 29–33. https://doi.org/10.4236/JSS.2016.49004

561. Roth, C. (2019, December 11). *2019: When We Exceeded 1 Billion Knowledge Workers*. Gartner. https://muckrack.com/craig-roth-1/articles

562. Russo, G. (2017). Skill utilization at work: Opportunity and motivation. *IZA World of Labor*. https://doi.org/10.15185/IZAWOL.409

563. Rymaniak, J., Lis, K., Davidavičienė, V., Pérez-Pérez, M., & Martínez-Sánchez, Á. (2021). From Stationary to Remote: Employee Risks at Pandemic Migration of Workplaces. *Sustainability*, *13*(13), 7180. https://doi.org/10.3390/SU13137180

564. Salanova, M., Peiró, J. M., & Schaufeli, W. B. (2002). Self-efficacy specificity and burnout among information technology workers: An extension of the job demand-control model. *European Journal of Work and Organizational Psychology*, *11*(1), 1–25. https://doi.org/10.1080/13594320143000735

565. Saleem, A., & Abbasi, A. S. (2015). Impact of life and job domain characteristics on work life balance of textile employees in Pakistan. *Science International (Lahore)*, *27*(3), 2409–2416.

566. Salomon, I., & Salomon, M. (1984). Telecommuting : The Employee ' s Perspective *. *Technological Forecasting & Social Change*, *25*, 15–28.

567. Sandoval-Reyes, J., Acosta-Prado, J. C., & Sanchís-Pedregosa, C. (2019). Relationship Amongst Technology Use, Work Overload, and Psychological Detachment from Work. *International Journal of Environmental Research and Public Health*, *16*(23). https://doi.org/10.3390/IJERPH16234602

568. Santana, M., & Cobo, M. J. (2020). What is the future of work? A science mapping analysis. *European Management Journal*, *38*(6), 846–862. https://doi.org/10.1016/j.emj.2020.04.010

569. Santhanam, N., & Srinivas, S. (2020). Modeling the impact of employee engagement and happiness on burnout and turnover intention among blue-collar workers at a manufacturing company. *Benchmarking: An International Journal*, *27*(2), 499–516. https://doi.org/10.1108/BIJ-01-2019-0007/FULL/XML

570. Saragih, S. (2015). The Effects of Job Autonomy on Work Outcomes: Self Efficacy As An Intervening Variable. *International Research Journal of Business Studies*, *4*(3), 203–215. https://doi.org/10.21632/IRJBS.4.3.89

571. Saragih, S., Margaretha, M., & Situmorang, A. P. (2020). Analyzing Antecedents and Consequence of Job Crafting. *International Journal of Management, Economics and Social Sciences*, *9*(2), 76–89. https://doi.org/10.32327/IJMESS.9.2.2020.5

572. Sardeshmukh, S. R., Sharma, D., & Golden, T. D. (2012). Impact of telework on exhaustion and job engagement: a job demands and job resources model. *New Technology, Work and Employment*, *27*(3), 193–207. https://doi.org/10.1111/J.1468-005X.2012.00284.X

573. Sarker, S., Ahuj, M., & Sarker, S. (2018). Work–Life Conflict of Globally Distributed Software Development Personnel: An Empirical Investigation Using Border Theory. *Information Systems Research*, *29*(1), 103–126. https://doi.org/10.1287/ISRE.2017.0734

574. Sawyer, J. E. (1988). Measuring attitudes across job levels: When are scale scores truly comparable? *Organizational Behavior and Human Decision Processes*, *42*(3), 324–342. https://doi.org/10.1016/0749-5978(88)90004-0

575. Schaffer, B. S., & Riordan, C. M. (2003). A Review of cross-cultural methodologies for organizational research: A best-practices approach. *Organizational Research Methods*, *6*(2), 169–215. https://doi.org/10.1177/1094428103251542

576. Schaufeli, W. B. (2017). Applying the Job Demands-Resources model: A 'how to' guide to measuring and tackling work engagement and burnout. *Organizational Dynamics*, *46*(2), 120–132. https://doi.org/10.1016/J.ORGDYN.2017.04.008

577. Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*(3), 293–315. https://doi.org/10.1002/JOB.248

578. Schaufeli, W. B., & Bakker, A. B. (2010). Defining and measuring work engagement: Bringing clarity to the concept. In A. B. Bakker & M. P. Leiter (Eds.), *Work Engagement: A Handbook of Essential Theory and Research* (pp. 10–24). Psychology Press. https://doi.org/10.4324/9780203853047

579. Schaufeli, W. B., Salanova, M., González-romá, V., & Bakker, A. B. (2002). The Measurement of Engagement and Burnout: A Two Sample Confirmatory Factor Analytic Approach. *Journal of Happiness Studies*, *3*(1), 71–92. https://doi.org/10.1023/A:1015630930326

580. Schaufeli, W. B., Shimazu, A., Hakanen, J., Salanova, M., & De Witte, H. (2019). An Ultra-Short Measure for Work Engagement The UWES-3 Validation Across Five Countries. *European Journal of Psychological Assessment*, *35*(4), 577–591. https://doi.org/10.1027/1015-5759/a000430

581. Schieman, S. (2013). Job-related resources and the pressures of working life. *Social Science Research*, *42*(2), 271–282. https://doi.org/10.1016/J.SSRESEARCH.2012.10.003

582. Schiff, F. W. (1983). Flexiplace: An idea whose time has come. *IEEE Transactions on Engineering Management*, *EM-30*(1), 26–30. https://doi.org/10.1109/TEM.1983.6448641

583. Schmiedel, T., Müller, O., & vom Brocke, J. (2019). Topic Modeling as a Strategy of Inquiry in Organizational Research: A Tutorial With an Application Example on Organizational Culture. *Organizational Research Methods*, *22*(4), 941–968. https://doi.org/10.1177/1094428118773858

584. Schminke, M., Ambrose, M. L., & Cropanzano, R. S. (2000). The effect of organizational structure on perceptions of procedural fairness. *Journal of Applied Psychology*, *85*(2), 294–304. https://doi.org/10.1037/0021-9010.85.2.294

585. Schmitt, J. B., Breuer, J., & Wulf, T. (2021). From cognitive overload to digital detox: Psychological implications of telework during the COVID-19 pandemic. *Computers in Human Behavior*, *124*, 106899. https://doi.org/10.1016/J.CHB.2021.106899

586. Schneider, A., Hornung, S., Weigl, M., Glaser, J., & Angerer, P. (2017). Does it matter in the long run? Longitudinal effects and interactions in the differentiated job demands–resources model. *European Journal of Work and Organizational Psychology*, *26*(5), 741–754. https://doi.org/10.1080/1359432X.2017.1347561

587. Schneider, C. Q., & Wagemann, C. (2010). Standards of Good Practice in Qualitative Comparative Analysis (QCA) and Fuzzy-Sets. *Comparative Sociology*, *9*(3), 397–418. https://doi.org/10.1163/156913210X12493538729793

588. Schneider, C. Q., & Wagemann, C. (2012). Set-Theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis. In *Set-Theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis*. Cambridge University Press. https://doi.org/10.1017/CBO9781139004244

589. Schöllbauer, J., Hartner-Tiefenthaler, M., & Kelliher, C. (2021). ICT-Enabled Work Extension and Its Consequences: A Paradoxical Situation Between High Performance and Low Wellbeing. In C. Korunka (Ed.), *Flexible Working Practices*

and Approaches (pp. 149–165). Springer. https://doi.org/10.1007/978-3-030-74128-0_8

590. Schwarzmüller, T., Brosi, P., Duman, D., & Welpe, I. M. (2018). How does the digital transformation affect organizations? Key themes of change in work design and leadership. *Management Revue*, *29*(2), 114–138. https://doi.org/10.5771/0935-9915-2018-2-114

591. Segars, A. H., Grover, V., & Teng, J. T. C. (1998). Strategic information systems planning: Planning system dimensons, internal. *Decision Sciences*, *29*(2), 303–345.

592. Seibert, S. E., Kraimer, M. L., & Crant, J. M. (2001). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology*, *54*(4), 845–874. https://doi.org/10.1111/J.1744-6570.2001.TB00234.X

593. Selim, I., & Kee, D. M. H. (2023). Using Job Demands-Resources Theory to Predict Work-Life Balance among Academicians in Private Universities in Egypt during the COVID-19 Pandemic. *Information*, *14*(1), 12. https://doi.org/10.3390/INFO14010012

594. Selye, H. (1956). *The Stress of Life* (Revised ed.). McGraw-Hill Education.

595. Selye, H. (1983). The Stress Concept Past, Present and Future. In *Stress Research Issues for the Eighties* (pp. 1–20). John Wiley & Sons. https://www.scirp.org/(S(351jmbntvnsjt1aadkposzje))/reference/ReferencesPapers.aspx?ReferenceID=1827323

596. Shalley, C., Gilson, L., & Blum, T. (2009). Interactive effects of growth need strength, work context, and job complexity on self-reported creative performance. *Academy of Management Journal*, *52*(3), 489–505. https://doi.org/10.5465/AMJ.2009.41330806/ASSET/IMAGES/LARGE/41330806-F01.JPEG

597. Shamsi, M., Iakovleva, T., Olsen, E., & Bagozzi, R. P. (2021). Employees' Work-Related Well-Being during COVID-19 Pandemic: An Integrated Perspective of Technology Acceptance Model and JD-R Theory. *International Journal of Environmental Research and Public Health 2021, Vol. 18, Page 11888*, *18*(22), 11888. https://doi.org/10.3390/IJERPH182211888

598. Shellenback, K., & Polovina, S. (2020). *The design of work post COVID-19*.

599. Shibata, I. (2021). The distributional impact of recessions: The global financial crisis and the COVID-19 pandemic recession. *Journal of Economics and Business*, *115*, 105971. https://doi.org/10.1016/J.JECONBUS.2020.105971

600. Shifrin, N. V., & Michel, J. S. (2022). Flexible work arrangements and employee health: A meta-analytic review. *Work and Stress*, *36*(1), 60–85. https://doi.org/10.1080/02678373.2021.1936287

601. Shin, B., Liu Sheng, O. R., & Higa, K. (2000). Telework: Existing research and future directions. *Journal of Organizational Computing and Electronic Commerce*, *10*(2), 85–101. https://doi.org/10.1207/S15327744JOCE1002_2

602. Shin, B., Sawy, O. A. El, Sheng, O. R. L., & Higa, K. (2000). Telework: Existing Research and Future Directions. *Journal of Organizational Computing and Electronic Commerce*, *10*(2), 85–101. https://doi.org/10.1207/S15327744JOCE1002_2

603. Shirmohammadi, M., Au, W. C., & Beigi, M. (2022). Remote work and work-life balance: Lessons learned from the covid-19 pandemic and suggestions for HRD practitioners. *Human Resource Development International*, *25*(2), 163–181. https://doi.org/10.1080/13678868.2022.2047380

604. Simon, H. A. (1973). Applying Information Technology to Organization Design. *Public Administration Review*, *33*(3), 268. https://doi.org/10.2307/974804

605. Sirgy, M. J., & Lee, D.-J. (2018). Work-Life Balance: an Integrative Review. *Applied Research in Quality of Life*, *13*(1), 229–254. https://doi.org/10.1007/S11482-017-9509-8

606. Small, H. (1973). Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for Information Science*, *24*(4), 265–269. https://doi.org/10.1002/ASI.4630240406

607. Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International Journal of Behavioral Medicine*, *15*(3), 194–200. https://doi.org/10.1080/10705500802222972

608. Smither, R. (2004). Job Analysis, Design, and Evaluation. In *Encyclopedia of Applied Psychology* (pp. 449–456). Elsevier. https://doi.org/10.1016/B0-12-657410-3/00292-0

609. Snyder, K. (2012). Enhancing Telework: A Guide to Virtual Leadership. *The Public Manger*, *41*(1), 11–14.

610. Soga, L. R., Bolade-Ogunfodun, Y., Mariani, M., Nasr, R., & Laker, B. (2022). Unmasking the other face of flexible working practices: A systematic literature review. *Journal of Business Research*, *142*, 648–662. https://doi.org/10.1016/J.JBUSRES.2022.01.024

611. Sonnentag, S. (2017). A task-level perspective on work engagement: A new approach that helps to differentiate the concepts of engagement and burnout. *Burnout Research*, *5*, 12–20. https://doi.org/10.1016/J.BURN.2017.04.001

612. Sonnentag, S., & Fritz, C. (2007). The Recovery Experience Questionnaire: Development and Validation of a Measure for Assessing Recuperation and Unwinding From Work. *Journal of Occupational Health Psychology*, *12*(3), 204–221. https://doi.org/10.1037/1076-8998.12.3.204

613. Sonnentag, S., Mojza, E. J., Binnewies, C., & Scholl, A. (2008). Being engaged at work and detached at home: A week-level study on work engagement, psychological detachment, and affect. *Work and Stress*, *22*(3), 257–276. https://doi.org/10.1080/02678370802379440

614. Sonnentag, S., & Schiffner, C. (2019). Psychological Detachment from Work during Nonwork Time and Employee Well-Being: The Role of Leader's Detachment. *The Spanish Journal of Psychology*, *22*(e3), 1–9. https://doi.org/10.1017/sjp.2019.2

615. Spector, P. E. (1985). Higher-order need strength as a moderator of the job scope-employee outcome relationship: A meta-analysis. *Journal of Occupational Psychology*, *58*(2), 119–127. https://doi.org/10.1111/J.2044-8325.1985.TB00187.X

616. Srivastava, S. C., Chandra, S., & Shirish, A. (2015). Technostress creators and job outcomes: theorising the moderating influence of personality traits. *Information Systems Journal*, *25*(4), 355–401. https://doi.org/10.1111/ISJ.12067

617. Staats, B. R., & Gino, F. (2012). Specialization and variety in repetitive tasks: Evidence from a Japanese bank. *Management Science*, *58*(6), 1141–1159. https://doi.org/10.1287/mnsc.1110.1482

618. Stamov Roßnagel, C., & Biemann, T. (2012). Ageing and work motivation: A task-level perspective. *Journal of Managerial Psychology*, *27*(5), 459–478. https://doi.org/10.1108/02683941211235382

619. Staniulienė, S., & Jurova, J. (2021). Remote job design possibilities to work in lithuanian companies from distant locations. *Research for rural development* , *36*, 194–201. https://doi.org/10.22616/rrd.27.2021.028

620. Stansfeld, S., & Candy, B. (2006). Psychosocial work environment and mental health - A meta-analytic review. *Scandinavian Journal of Work, Environment and Health*, *32*(6), 443–462. https://doi.org/10.5271/SJWEH.1050

621. Staples, D. S., Hulland, J. S., & Higgins, C. A. (1999). A Self-Efficacy Theory Explanation for the Management of Remote Workers in Virtual Organizations. *Organization Science*, *10*(6), 758–776. https://doi.org/10.1287/orsc.10.6.758

622. Steers, R. M., & Mowday, R. T. (1977). The Motivational Properties of Tasks1. *Academy of Management Review*, *2*(4), 645–658. https://doi.org/10.5465/AMR.1977.4406744

623. Stempel, C. R., & Siestrup, K. (2022). Suddenly Telework: Job Crafting as a Way to Promote Employee Well-Being? *Frontiers in Psychology*, *12*, 790862. https://doi.org/10.3389/FPSYG.2021.790862/BIBTEX

624. Stevens, M. J., & Campion, M. A. (1994). The knowledge, skill, and ability requirements for teamwork: Implications for human resource management. *Journal of Management*, *20*(2), 503–530. https://doi.org/10.1016/0149-2063(94)90025-6

625. Strauss, K., & Parker, S. K. (2015). Intervening to Enhance Proactivity in Organizations: Improving the Present or Changing the Future. *Journal of Management*, *44*(3), 1250–1278. https://doi.org/10.1177/0149206315602531

626. Suh, A., & Lee, J. (2017). Understanding teleworkers' technostress and its influence on job satisfaction ",. *Internet Research*, *27*(1), 140–159.

627. Sullivan, C. (2003). What's in a name? Definitions and conceptualisations of teleworking and homeworking. *New Technology, Work and Employment*, *18*(3), 158–165. https://doi.org/10.1111/1468-005X.00118

628. Sullivan, C. (2012). Remote Working and Work-Life Balance. In N. Reilly, M. Sirgy, & C. Gorman (Eds.), *Work and Quality of Life. International Handbooks of Quality-of-Life.* (pp. 275–290). Springer. https://doi.org/10.1007/978-94-007-4059-4_15

629. Sun, X., Rong, N., Sun, M., & Zhu, F. (2023). Combining Structural and Sequential Ambidexterity: A Configurational Approach Using fsQCA. *Management and Organization Review*, 1–35. https://doi.org/10.1017/MOR.2022.41

630. Sungkit, F. N., & Meiyanto, Ijk. S. (2015). Pengaruh Job Enrichment terhadap Employee Engagement melalui Psychological Meaningfulness sebagai Mediator. *Gadjah Mada Journal of Psychology*, *1*(1), 61–73. https://doi.org/10.22146/GAMAJOP.7354

631. Sushil, S. (2014). Role of Job Enrichment and Job Enlargement in Work Life Balance. *Global Journal of Finance and Management*, *6*(3), 239–244.

632. Sutcliffe, K. M., & Vogus, T. J. (2003). Organizing for Resilience. In K. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive Organizational Scholarship.* (pp. 94–110). Berrett-Koehler.

633. Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, *12*(2), 257–285. https://doi.org/10.1016/0364-0213(88)90023-7

634. Tabrizi, B., Lam, E., Girard, K., & Irvin, V. (2019, March 13). *Digital Transformation Is Not About Technology*. Harvard Business Review. https://hbr.org/2019/03/digital-transformation-is-not-about-technology

635. Tadić, M., Bakker, A. B., & Oerlemans, W. G. M. (2015). Challenge versus hindrance job demands and well-being: A diary study on the moderating role of job resources. *Journal of Occupational and Organizational Psychology*, *88*(4), 702–725. https://doi.org/10.1111/JOOP.12094

636. Tan, F. Z., & Olaore, G. O. (2021). Effect of organizational learning and effectiveness on the operations, employees productivity and management performance. *Vilakshan - XIMB Journal of Management*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/XJM-09-2020-0122

637. Tanner, E. C., Epler, R., & Tanner, J. F. (2022). Masking the Role or Masking the Toll? The Effects of Career Fit on Salesperson Burnout. *Journal of Business-to-Business Marketing*. https://doi.org/10.1080/1051712X.2022.2121510

638. Tarafdar, M., D'arcy, J., Turel, O., & Gupta, A. (2015). The Dark Side of Information Technology. *MITSloan Management Review*, *56*(2), 61–70. http://mitsmr.com/1wD3N7E

639. Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., & Ragu-Nathan, T. S. (2007). The Impact of Technostress on Role Stress and Productivity. *Journal of Management Information Systems*, *24*(1), 301–328. https://doi.org/10.2753/MIS0742-1222240109

640. Tarafdar, M., Gupta, A., & Turel, O. (2015). Editorial. *Information Systems Journal*, *25*(3), 161–170. https://doi.org/10.1111/ISJ.12070

641. Tata, J., & Prasad, S. (2004). Team Self-management, Organizational Structure, and Judgments of Team Effectiveness. *Journal of Managerial Issues*, *16*(2), 248–265. https://www.jstor.org/stable/40604457?seq=1#metadata_info_tab_contents

642. Taylor, J. C. (1975). The Human Side of Work: The Socio-Technical Approach to Work System Designa. *Personnel Review*, *4*(3), 17–22. https://doi.org/10.1108/EB055286/FULL/XML

643. Templer, A., Armstrong-Stassen, M., Devine, K., & Solomon, N. (1999). Telework and Teleworkers. In I. U. Zeytinoglu (Ed.), *Changing Work Relationships in Industrialized Economies* (pp. 77–98). John Benjamins publishing company.

644. Tennakoon, W. D. N. S. M., & Senarathne, R. B. C. P. (2020). Investigating the Determinants of Work-life Balance (WLB): Insights from Generation Y Employees in Sri Lanka. *South Asian Journal of Social Studies and Economics*, 142–154. https://doi.org/10.9734/SAJSSE/2020/V8I430226

645. Ter Hoeven, C. L., van Zoonen, W., & Fonner, K. L. (2016). The practical paradox of technology: The influence of communication technology use on employee burnout and engagement. *Communication Monographs*, *83*(2), 239–263. https://doi.org/10.1080/03637751.2015.1133920

646. Terhoeven, J., Tegtmeier, P., & Wischniewski, S. (2022). Human-centred work design in times of digital change – work conditions, level of digitization and recent trends for object-related tasks. *Procedia CIRP*, *107*, 302–307. https://doi.org/10.1016/J.PROCIR.2022.04.049

647. The European Commission's science and knowledge service. (2020). Telework in the EU before and after the COVID-19 : where we were , where we head to. In *Science for Policy Briefs*.

648. Theorell, T., Hammarström, A., Aronsson, G., Träskman Bendz, L., Grape, T., Hogstedt, C., Marteinsdottir, I., Skoog, I., & Hall, C. (2015). A systematic review including meta-analysis of work environment and depressive symptoms. *BMC Public Health*, *15*(1). https://doi.org/10.1186/S12889-015-1954-4

649. Thomas Hendricks, K., & Albright, D. (2018). The theory and practice of training resilience. In K. Thomas Hendricks & D. Albright (Eds.), *Bulletproofing the Psyche: Preventing Mental Health Problems in Our Military and Veterans* (pp. 69–75). ABC-CLIO.

650. Thomas, J. P., Whitman, D. S., & Viswesvaran, C. (2010). Employee proactivity in organizations: A comparative meta-analysis of emergent proactive constructs. *Journal of Occupational and Organizational Psychology*, *83*(2), 275–300. https://doi.org/10.1348/096317910X502359

651. Thompson, C. A., Beauvais, L. L., & Lyness, K. S. (1999). When Work-Family Benefits Are Not Enough: The Influence of Work-Family Culture on Benefit

Utilization, Organizational Attachment, and Work-Family Conflict. *Journal of Vocational Behavior*, *54*(3), 392–415. https://doi.org/10.1006/JVBE.1998.1681

652. Thompson, R. J., Payne, S. C., & Taylor, A. B. (2015). Applicant attraction to flexible work arrangements: Separating the influence of flextime and flexplace. *Journal of Occupational and Organizational Psychology*, *88*(4), 726–749. https://doi.org/10.1111/JOOP.12095

653. Thorsrud, E. (1955). Socio-technical approach to job design and organizational development. *Management International Review*, *8*(4/5), 120–131. https://www.jstor.org/stable/pdf/40226988.pdf

654. Tilson, D., Lyytinen, K., & Sørensen, C. (2010). Digital infrastructures: The missing IS research agenda. *Information Systems Research*, *21*(4), 748–759. https://doi.org/10.1287/ISRE.1100.0318

655. Tims, M., Bakker, A. B., & Derks, D. (2012). Development and validation of the job crafting scale. *Journal of Vocational Behavior*, *80*(1), 173–186. https://doi.org/10.1016/J.JVB.2011.05.009

656. Tims, M., Bakker, A., & Derks, D. (2013). The impact of job crafting on job demands, job resources, and well-being. *Journal of Occupational Health Psychology*, *18*(2), 230–240. https://doi.org/10.1037/A0032141

657. Tisu, L., Vîrgă, D., & Mermeze, I. (2021). Autonomy and Performance: Proactive Vitality Management and Work Engagement as Sequential Mediators of the Relationship. *Psychological Reports*, *126*(1), 411–433. https://doi.org/10.1177/00332941211048470

658. Toffoletti, K., & Starr, K. (2016). Women Academics and Work–Life Balance: Gendered Discourses of Work and Care. *Gender, Work and Organization*, *23*(5), 489–504. https://doi.org/10.1111/GWAO.12133

659. Tolette, A. (2020). *How Coronavirus has Shifted the Way the World Works: Working and Studying from Home* . Synthesio. https://www.synthesio.com/blog/how-coronavirus-has-shifted-the-way-the-world-works/

660. Tomczak, M. T., Mpofu, E., & Hutson, N. (2022). Remote Work Support Needs of Employees with Autism Spectrum Disorder in Poland: Perspectives of Individuals with Autism and Their Coworkers. *International Journal of Environmental Research and Public Health*, *19*(17), 10982. https://doi.org/10.3390/IJERPH191710982

661. Torkzadeh, G., Chang, J. C. J., & Demirhan, D. (2006). A contingency model of computer and Internet self-efficacy. *Information and Management*, *43*(4), 541–550. https://doi.org/10.1016/J.IM.2006.02.001

662. Townsend, A. M., DeMarie, S. M., & Hendrickson, A. R. (1998). Virtual teams: Technology and the workplace of the future. *Academy of Management Executive*, *12*(3), 17–29. https://doi.org/10.5465/ame.1998.1109047

663. Trist, E., & Emery, F. (2015). Sociotechnical Systems Theory. In J. B. Miner (Ed.), *Organizational Behavior 2: Essential Theories of Process and Structure* (pp. 187–212). Routledge. https://doi.org/10.4324/9781315702001-21

664. Tsai, C. J. (2016). Boredom at Work and Job Monotony: An Exploratory Case Study within the Catering Sector. *Human Resource Development Quarterly*, *27*(2), 207–236. https://doi.org/10.1002/HRDQ.21249

665. Turel, O., & Qahri-Saremi, H. (2016). Problematic Use of Social Networking Sites: Antecedents and Consequence from a Dual-System Theory Perspective. *Journal of Management Information Systems*, *33*(4), 1087–1116. https://doi.org/10.1080/07421222.2016.1267529

666. Twenge, J. M., Campbell, S. M., Hoffman, B. J., & Lance, C. E. (2010). Generational differences in work values: Leisure and extrinsic values increasing, social and intrinsic values decreasing. *Journal of Management*, *36*(5), 1117–1142. https://doi.org/10.1177/0149206309352246/SUPPL_FILE/JOM_2010-02-23_09-30-45.MP3

667. Ugwu, F. O., Enwereuzor, I. K., & Mazei, J. (2022). Is Working from Home a Blessing or a Burden? Home Demands as a Mediator of the Relationship Between Work Engagement and Work-Life Balance. *Applied Research in Quality of Life*, *18*(1), 341–364. https://doi.org/10.1007/S11482-022-10084-6

668. Umstot, D. D., Bell, C. H., & Mitchell, T. R. (1976). Effects of job enrichment and task goals on satisfaction and productivity: Implications for job design. *Journal of Applied Psychology*, *61*(4), 379–394. https://doi.org/10.1037/0021-9010.61.4.379

669. Urquhart, J. (2022, September 5). *Employees favour work-life balance over salary, study suggests*. People Management. https://www.peoplemanagement.co.uk/article/1797980/employees-favour-work-life-balance-salary-study-suggests

670. Utami, I., & Supriyadi. (2013). Flexible Working Arrangement and Stress Management Training in Mitigating Auditor's Burnout: An Experimental Study. *Accounting and Taxation*.

671. Vaast, E., & Pinsonneault, A. (2021). When Digital Technologies Enable and Threaten Occupational Identity: The Delicate Balancing Act of Data Scientists. *Management Information Systems Quarterly*, *45*(3). https://aisel.aisnet.org/misq/vol45/iss3/6

672. Vaghefi, I., Lapointe, L., & Boudreau-Pinsonneault, C. (2017). A typology of user liability to IT addiction. *Information Systems Journal*, *27*(2), 125–169. https://doi.org/10.1111/ISJ.12098

673. Valcour, M. (2007). Work-Based Resources as Moderators of the Relationship Between Work Hours and Satisfaction With Work-Family Balance. *Journal of Applied Psychology*, *92*(6), 1512–1523. https://doi.org/10.1037/0021-9010.92.6.1512

674. Van den Broeck, A., & Parker, S. K. (2017). Job and Work Design. In *Oxford Research Encyclopedia of Psychology*. Oxford University Press. https://lirias.kuleuven.be/1678614?limo=0

675. Van den Broeck, A., Vander Elst, T., Dikkers, J., De Lange, A., & De Witte, H. (2012). This is funny: on the beneficial role of self-enhancing and affiliative humour in job design. *Psicothema*, *24*(1), 87–93. http://www.ncbi.nlm.nih.gov/pubmed/22269369

676. van den Heuvel, M., Demerouti, E., Bakker, A. B., & Schaufeli, W. B. (2010). Personal Resources and Work Engagement in the Face of Change. In *Contemporary Occupational Health Psychology: Global Perspectives on Research and Practice* (Vol. 1, pp. 124–150). Wiley-Blackwell. https://doi.org/10.1002/9780470661550.CH7

677. Van der Vegt, G. S., Emans, B. J. M., & van de Vliert, E. (2001). Patterns of interdependence in work teams: A two-level investigation of the relations with job and team satisfaction. *Personnel Psychology*, *54*(1), 51–69. https://doi.org/10.1111/J.1744-6570.2001.TB00085.X

678. Van Gog, T., Kester, L., & Paas, F. (2011). Effects of concurrent monitoring on cognitive load and performance as a function of task complexity. *Applied Cognitive Psychology*, *25*(4), 584–587. https://doi.org/10.1002/ACP.1726

679. Van Osch, W., Steinfield, C. W., & Balogh, B. A. (2015). Enterprise social media: Challenges and opportunities for organizational communication and collaboration. *Proceedings of the Annual Hawaii International Conference on System Sciences*, *2015-March*, 763–772. https://doi.org/10.1109/HICSS.2015.97

680. Vander Elst, T., Verhoogen, R., Sercu, M., Van Den Broeck, A., Baillien, E., & Godderis, L. (2017). Not Extent of Telecommuting, but Job Characteristics as Proximal Predictors of Work-Related Well-Being. *Journal of Occupational and Environmental Medicine*, *59*(10), e180–e186. https://doi.org/10.1097/JOM.0000000000001132

681. Vanderstukken, A., Nikolova, I., de Jong, J. P., & Ramioul, M. (2021). Exploring types of telecommuters: A latent class analysis approach. *European Journal of Work and Organizational Psychology*, *31*(2), 245–259. https://doi.org/10.1080/1359432X.2021.1952989

682. Vaziri, H., Wayne, J. H., Casper, W. J., Lapierre, L. M., Greenhaus, J. H., Amirkamali, F., & Li, Y. (2022). A meta-analytic investigation of the personal and work-related antecedents of work–family balance. *Journal of Organizational Behavior*, *43*(4), 662–692. https://doi.org/10.1002/JOB.2594

683. Venkatesh, A., & Vitalari, N. P. (1992). An Emerging Distributed Work Arrangement: An Investigation of Computer-Based Supplemental Work at Home. *Management Science*, *38*(12), 1687–1706. https://doi.org/10.1287/MNSC.38.12.1687

684. Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, *28*(2), 118–144. https://doi.org/10.1016/J.JSIS.2019.01.003

685. Viotti, S., Guglielmetti, C., Gilardi, S., & Guidetti, G. (2021). The role of colleague incivility in linking work-related stressors and job burnout. A cross-sectional study in a sample of faculty administrative employees. *La Medicina Del Lavoro | Work, Environment and Health*, *112*(3), 209–218. https://doi.org/10.23749/MDL.V112I3.10732

686. Vogel, B., Reichard, R. J., Batistič, S., & Černe, M. (2020). A bibliometric review of the leadership development field: How we got here, where we are, and where we are headed. *The Leadership Quarterly*, 101381. https://doi.org/10.1016/J.LEAQUA.2020.101381

687. Vogel, R. (2012). The Visible Colleges of Management and Organization Studies: A Bibliometric Analysis of Academic Journals. *Organization Studies*, *33*(8), 1015–1043. https://doi.org/10.1177/0170840612448028

688. Vough, H. C., & Parker, S. K. (2008). Work Design Research: Still Going Strong. In C. L. Cooper & J. Barling (Eds.), *Handbook of Organizational Behavior* (Vol. 1, pp. 420–426). Sage Publications.

689. Vranjes, I., Notelaers, G., & Salin, D. (2022). Putting Workplace Bullying in Context: The Role of High-Involvement Work Practices in the Relationship Between Job Demands, Job Resources, and Bullying Exposure. *Journal of Occupational Health Psychology*, *27*(1), 136–151. https://doi.org/10.1037/OCP0000315

690. Vuori, V., Helander, N., & Okkonen, J. (2019). Digitalization in knowledge work: the dream of enhanced performance. *Cognition, Technology and Work*, *21*(2), 237–252. https://doi.org/10.1007/S10111-018-0501-3

691. Waight, C. L., Kjerfve, T. N., Kite, A., & Smith, B. (2022). Connecting and relating in Brazil: implications of remote work. *Human Resource Development International*, *25*(2), 231–253. https://doi.org/10.1080/13678868.2022.2048435

692. Wajcman, J., & Rose, E. (2011). Constant connectivity: Rethinking interruptions at work. *Organization Studies*, *32*(7), 941–961. https://doi.org/10.1177/0170840611410829

693. Walia, P. (2014). Work-Life Balance in Relation to Task Variety and Task Autonomy: A Study of Bank Employees. *Journal of Strategic Human Resource Management*, *3*(1).

694. Wallin, J. A. (2005). Bibliometric Methods: Pitfalls and Possibilities. *Basic & Clinical Pharmacology & Toxicology*, *97*(5), 261–275. https://doi.org/10.1111/J.1742-7843.2005.PTO_139.X

695. Walton, R. (1985). From control to commitment in the workplace. *Harvard Business Review*, *63*(2), 76–84.

696. Walz, S. M., & Niehoff, B. P. (2016). Organizational Citizenship Behaviors: Their Relationship to Organizational Effectiveness. *Journal of Hospitality and Tourism Research*, *24*(3), 301–319. https://doi.org/10.1177/109634800002400301

697. Wang, B., Liu, Y., & Parker, S. (2020). How does the use of information communication technology affect individuals? A work design perspective. *Academy of Management Annals*, *14*(2), 695–725. https://doi.org/10.5465/ANNALS.2018.0127

698. Wang, B., Liu, Y., Qian, J., & Parker, S. K. (2021). Achieving Effective Remote Working During the COVID-19 Pandemic: A Work Design Perspective. *Applied Psychology*, *70*(1), 16–59. https://doi.org/10.1111/APPS.12290

699. Wang, E. S. T., & Lin, C. L. (2018). How work design characteristics affect service employees' work–family conflicts. *The Service Industries Journal*, *38*(13–14), 925–947. https://doi.org/10.1080/02642069.2017.1421635

700. Waschull, S., Bokhorst, J. A. C., Wortmann, J. C., & Molleman, E. (2022). The redesign of blue- and white-collar work triggered by digitalization: collar matters. *Computers & Industrial Engineering*, *165*, 107910. https://doi.org/10.1016/J.CIE.2021.107910

701. Waterson, P., Robertson, M. M., Cooke, N. J., Militello, L., Roth, E., & Stanton, N. A. (2015). Defining the methodological challenges and opportunities for an effective science of sociotechnical systems and safety. *Ergonomics*, *58*(4), 565–599. https://doi.org/10.1080/00140139.2015.1015622

702. Webster, J., & Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly*, *26*(2), xiii–xxiii.

703. Weerasinghe, T. D., & Dilhara, M. G. D. (2018). Effect of Work Stress on Work Life Balance: Moderating Role of Work-Life Support Organizational Culture in Sri Lanka Customs Department. *Journal of the University of Kelaniya*, *32*(1–2), 69. https://doi.org/10.4038/KALYANI.V32I1-2.26

704. Wefald, A., & Downey, R. (2009). Construct Dimensionality of Engagement and its Relation With Satisfaction. *The Journal of Psychology*, *143*, 91–111. https://doi.org/10.3200/JRLP.143.1.91-112

705. Wernerfelt, B. (1984). A Resource-based View of the Firm. *Strategic Management Journal*, *5*, 171–180.

706. Whiston, S. C., & Cinamon, R. G. (2015). The work-family interface: Integrating research and career counseling practice. *Career Development Quarterly*, *63*(1), 44–56. https://doi.org/10.1002/J.2161-0045.2015.00094.X

707. Wibowo, S., Deng, H., & Duan, S. (2022). Understanding Digital Work and its Use in Organizations from a Literature Review. *Pacific Asia Journal of the Association for Information Systems*, *14*(3), 2. https://doi.org/10.17705/1pais.14302

708. Wijngaards, I., Pronk, F. R., Bakker, A. B., & Burger, M. J. (2022). Cognitive crafting and work engagement: A study among remote and frontline health care workers during the COVID-19 pandemic. *Health Care Management Review*, *47*(3), 227–235. https://doi.org/10.1097/HMR.0000000000000322

709. Windeler, J. B., Chudoba, K. M., & Sundrup, R. Z. (2017). Getting away from them all: Managing exhaustion from social interaction with telework. *Journal of Organizational Behavior*, *38*(7), 977–995. https://doi.org/10.1002/job

710. Włodarkiewicz-Klimek, H. (2021). New Models of Work Organization in an Industry 4.0 Enterprise-Evolution of the Form of Work. *European Research Studies Journal*, *XXIV*(3), 1095–1105.

711. Wong, S. I., & van Gils, S. (2022). Initiated and received task interdependence and distributed team performance: the mediating roles of different forms of role clarity. *AI and Society*, *37*(2), 781–790. https://doi.org/10.1007/S00146-021-01241-W/TABLES/2

712. Wontorczyk, A., & Rożnowski, B. (2022). Remote, Hybrid, and On-Site Work during the SARS-CoV-2 Pandemic and the Consequences for Stress and Work Engagement. *International Journal of Environmental Research and Public Health 2022, Vol. 19, Page 2400*, *19*(4), 2400. https://doi.org/10.3390/IJERPH19042400

713. Wood, S., & de Menezes, L. M. (2008). Comparing perspectives on high involvement management and organizational performance across the British economy. *The International Journal of Human Resource Management*, *19*(4), 639–683. https://doi.org/10.1080/09585190801953673

714. Wood, S., Veldhoven, M. Van, Croon, M., & Menezes, L. M. de. (2012). Enriched job design, high involvement management and organizational performance: The mediating roles of job satisfaction and well-being. *Human Relations*, *65*(4), 419–445. https://doi.org/10.1177/0018726711432476

715. Woodside, A. (2014). Embrace• Perform• Model: Complexity Theory, Contrarian Case Analysis, and Multiple Realities. *Journal of Business Research*, *67*(12), 2495–2503.

716. Woodsite, A. G. (2013). Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. *Journal of Business Research*, *66*(4), 463–472. http://www.sciepub.com/reference/319913

717. Woolliams, P., & Trompenaars, F. (2013). Realizing Change Through Other Ways of Working: Reconciling Competing Demands. *The Organization Development Journal*, *31*(2), 6–16.

718. Wosik, J., Fudim, M., Cameron, B., Gellad, Z. F., Cho, A., Phinney, D., Curtis, S., Roman, M., Poon, E. G., Ferranti, J., Katz, J. N., & Tcheng, J. (2020). Telehealth transformation: COVID-19 and the rise of virtual care. *Journal of the American Medical Informatics Association*, *27*(6), 957–962. https://doi.org/10.1093/JAMIA/OCAA067

719. Wrzesniewski, A., Bartel, C. A., & Wiesenfeld, B. (2013). *Remoteness as a resource: The impact of virtual work on job crafting*.

720. Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: revisioning employees as active crafters of their work. *Academy of Management Review*, *26*(2),

179–201. https://positiveorgs.bus.umich.edu/wp-content/uploads/Crafting-a-Job_Revisioning-Employees.pdf

721. Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of personal resources in the job demands-resources model. *International Journal of Stress Management*, *14*(2), 121–141. https://doi.org/10.1037/1072-5245.14.2.121

722. Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Work engagement and financial returns: A diary study on the role of job and personal resources. *Journal of Occupational and Organizational Psychology*, *82*(1), 183–200. https://doi.org/10.1348/096317908X285633

723. Xie, J. L., Elangovan, A. R., Hu, J., & Hrabluik, C. (2019). Charting New Terrain in Work Design: A Study of Hybrid Work Characteristics. *Applied Psychology*, *68*(3), 479–512. https://doi.org/10.1111/APPS.12169

724. Yang, E., Kim, Y., & Hong, S. (2023). Does working from home work? Experience of working from home and the value of hybrid workplace post-COVID-19. *Journal of Corporate Real Estate*, *25*(1), 50–76. https://doi.org/10.1108/JCRE-04-2021-0015/FULL/PDF

725. Yang, Z., Liu, P., & Cui, Z. (2021). Strengths-Based Job Crafting and Employee Creativity: The Role of Job Self-Efficacy and Workplace Status. *Frontiers in Psychology*, *12*, 5819. https://doi.org/10.3389/FPSYG.2021.748747/BIBTEX

726. Yasbek, P. (2004). The business case for firm-level work-life balance policies: a review of the literature. In *Labour Market Policy Group* .

727. Yorks, L. (1976). *A radical approach to job enrichment*. Amacom.

728. Yu, J., & Wu, Y. (2021). The Impact of Enforced Working from Home on Employee Job Satisfaction during COVID-19: An Event System Perspective. *International Journal of Environmental Research and Public Health 2021, Vol. 18, Page 13207*, *18*(24), 13207. https://doi.org/10.3390/IJERPH182413207

729. Zahari, N., & Kaliannan, M. (2022). Antecedents of Work Engagement in the Public Sector: A Systematic Literature Review. *Review of Public Personnel Administration*. https://doi.org/10.1177/0734371X221106792/ASSET/IMAGES/LARGE/10.1177_0734371X221106792-FIG3.JPEG

730. Zamani, E. D., Abbot, P., Lin, A., & Watson-Manheim, M. B. (2022). Information Systems Journal: Special Issue The new wave of “hybrid work”: An

opportunity to revise assumptions and build theory . In *Information Systems Journal* .

731. Zaniboni, S., Truxillo, D. M., & Fraccaroli, F. (2013). Differential effects of task variety and skill variety on burnout and turnover intentions for older and younger workers. *European Journal of Work and Organizational Psychology*, *22*(3), 306–317. https://doi.org/10.1080/1359432X.2013.782288

732. Zareen, M., Razzaq, K., & Mujtaba, B. (2013). Job Design and Employee Performance: the Moderating Role of Employee Psychological Perception. *European Journal of Business and Management*, *5*(5), 46–54. https://nsuworks.nova.edu/hcbe_facarticles/227

733. Zaza, S., Wright-De Agüero, L. K., Briss, P. A., Truman, B. I., Hopkins, D. P., Hennessy, M. H., Sosin, D. M., Anderson, L., Carande-Kulis, V. G., Teutsch, S. M., & Pappaioanou, M. (2000). Data collection instrument and procedure for systematic reviews in the guide to community preventive services. *American Journal of Preventive Medicine*, *18*(1), 44–74. https://doi.org/10.1016/S0749-3797(99)00122-1

734. Zeng, D., Takada, N., Hara, Y., Sugiyama, S., Ito, Y., Nihei, Y., & Asakura, K. (2022). Impact of Intrinsic and Extrinsic Motivation on Work Engagement: A Cross-Sectional Study of Nurses Working in Long-Term Care Facilities. *International Journal of Environmental Research and Public Health 2022, Vol. 19, Page 1284*, *19*(3), 1284. https://doi.org/10.3390/IJERPH19031284

735. Zhang, R. P., & Bowen, P. (2021). Work-family conflict (WFC) – Examining a model of the work-family interface of construction professionals. *Safety Science*, *144*, 105469. https://doi.org/10.1016/J.SSCI.2021.105469

736. Zhang, W., Jex, S. M., Peng, Y., & Wang, D. (2017). Exploring the Effects of Job Autonomy on Engagement and Creativity: The Moderating Role of Performance Pressure and Learning Goal Orientation. *Journal of Business and Psychology*, *32*(3), 235–251. https://doi.org/10.1007/S10869-016-9453-X/FIGURES/3

737. Zhou, E. (2020). The "Too-Much-of-a-Good-Thing" Effect of Job Autonomy and Its Explanation Mechanism. *Psychology*, *11*(2), 299–313. https://doi.org/10.4236/PSYCH.2020.112019

738. Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, *18*(3), 429–472. https://doi.org/10.1177/1094428114562629

APPENDICES

Appendix 1: Daljši povzetek (Extended summary in Slovene language)

Oblikovanje delovnega mesta obravnava vhodne informacije, delovni proces, izide dela in delovni kontekst. Parker (2014a) trdi, da oblikovanje dela vključuje določanje vsebine dela in organizacijo dela, nalog, dejavnosti, odnosov in odgovornosti. Natančneje, namen oblikovanja dela je izpolnjevanje tehnoloških in organizacijskih zahtev s strani organizacije ter družbenih in osebnih zahtev s strani zaposlenih (Davis, 1966). Obstaja veliko pristopov k oblikovanju dela, vsi pa nastopajo z istim namenom – povečati pozitivne učinke dela in zmanjšati negativne. Na začetku so se raziskave o oblikovanju dela osredotočale na standardiziranje, kasneje pa so raziskovalci zagovarjali tezo, da bi bili zaposleni bolj produktivni in zadovoljni, če bi bila njihova delovna mesta obogatena in ne poenostavljena (Oldham & Fried, 2016).

V zadnjih desetletjih je informacijsko-komunikacijska tehnologija (IKT) postala ključna komponenta vseh sodobnih podjetij (Reeves & Deimler, 2011) in popolnoma spremenila naravo dela (Staples et al., 1999). Z uporabo sodobnih tehnologij (npr. elektronskih sodelovalnih sistemov) lahko zaposleni zdaj ne glede na čas in fizično lokacijo vedno komunicirajo in sodelujejo s svojimi sodelavci in vodstvom (Coenen & Kok, 2014; Cox, 2009). To je privedlo do pojava porazdeljenega dela, ki je opredeljeno kot "*ureditev, ki omogoča, da se zaposleni in njihove naloge razporedijo stran od fizične lokacije organizacije*" (Gajendran & Harrison, 2007). V literaturi in praksi obstaja veliko različnih oblik, definicij in konceptualizacij porazdeljenega dela, kot so npr. oddaljeno delo, delo na daljavo, teledelo, delo od doma ipd. (Haddon & Brynin, 2005; Raiborn & Butler, 2009). Prakticiranje dela na daljavo, ene izmed oblik porazdeljenega dela, se je v zadnjem desetletju močno povečalo. Od izbruha COVID-19 je le-to postalo vsakodnevna praksa za številne delavce po vsem svetu, vendar mnogi vodilni ne vedo, kako svoje zaposlene kvalitetno pripraviti nanj in kako oblikovati takšno delovno mesto in sam kontekst delovnega mesta na posameznih ravneh kot tudi skozi več ravni, da bi omogočalo popolno izkoriščanje mnogih funkcionalnosti tehnologij, ki podpirajo digitalno delo (Davies, 2021). Organizacije, ki so uvedle porazdeljene delovne ureditve, odrejajo drugačne ravni značilnosti delovnih mest od tradicionalnih, kar nakazuje na dejstvo, da so prakse oblikovanja dela odvisne od konteksta (Pérez Pérez et al., 2005). Tehnologija lahko, odvisno od več dejavnikov, na delovne vire in zahteve vpliva bodisi pozitivno bodisi negativno, ter prav tako vpliva na dobro počutje in uspešnost zaposlenih (S. K. Parker & Grote, 2020).

Tradicionalne teorije oblikovanja dela (Hackman et al., 1975; Humphrey et al., 2007) izpostavljajo idejo, da lahko managerji uporabijo različne strategije za spodbujanje oblikovanja delovnega mesta, ki naj bi vodile do bolj motiviranih zaposlenih in boljših izidov, kot so individualna delovna uspešnost in ravnovesje med poklicnim in zasebnim življenjem (angl. work life balance; WLB). Pokazalo se je že, da lahko značilnosti dela spodbujajo samoiniciativno preoblikovanje delovnih mest (Tims et al., 2012), da oblikovanje dela vpliva na motivacijo zaposlenih in da motivacija vpliva na različne izide

(Bakker & Demerouti, 2007). S pojavom različnih oblik dela je ključno vprašanje ali in kako se te strategije med različnimi pojavnimi oblikami dela razlikujejo.

Akademiki in praktiki večinoma različujejo med tremi različnimi pojavnimi oblikami dela, in sicer delo na daljavo, delo na fizični lokaciji in hibridno delo (Włodarkiewicz-Klimek, 2021). Pričakujejo, da bo hibridno delo na daljavo prihodnost dela (Kane et al., 2021; McKinsey & Company, 2020), kar potrjuje, da je obravnavana tema pomembna in jo je potrebno bolj poglobljeno raziskati. Organizacije, katerih delovno okolje ni vezano na čas in prostor, morajo preoblikovati svoj delovni model – ne le strukturno, temveč tudi z vidika delovnih metod, delovnih prostorov in kulture – saj njihovi zaposleni zahtevajo drugačne pogoje kot bi jih sicer v tradicionalnih delovnih okoliščinah (Arora & Suri, 2020). Take organizacije imajo običajno bolj prilagodljive prakse ravnanja z ljudmi, več dejavnosti prepustijo zunanjim izvajalcem in so ciljno usmerjene (Pérez Pérez et al., 2005). Uporaba IKT preko oblikovanja delovnih zahtev in odnosov, vpliva tudi na samo oblikovanje dela (B. Wang et al., 2020).

V svoji doktorski disertaciji sem se osredotočila predvsem na koncepte oblikovanja dela, pojavne oblike dela in izide. Podrobneje sem preučila značilnosti oblikovanja dela in raziskala, katere konfiguracije (tj. možne kombinacije različnih ravni značilnosti oblikovanja dela) teh značilnosti oblikovanja dela vodijo do boljših rezultatov glede na različne pojavne oblike dela. Za še večji in bolj celovit vpogled sem poglobljeno pregledala tudi učinke konfiguracij značilnosti oblikovanja dela moderiranih tako z individualnimi značilnostmi zaposlenih kot z značilnostmi samega delovnega konteksta. Disertacija teoretično temelji na razširjeni različici Modela virov in zahtev dela (angl. Job demands-resources model; JD-R; Bakker & Demerouti, 2017), ki ponuja dinamičen pogled na medsebojno delovanje delovnih potreb in delovnih virov, saj nakazuje, da lahko zaposleni kažejo samoiniciativno proaktivno vedenje zaposlenih (npr. samoiniciativno preoblikovanje dela) in so aktivni akterji konstrukcije svojega delovnega okolja. Glavni cilj disertacije je nadgradnja (razširjene) teorije JD-R z raziskovanjem modela skozi prizmo različnih pojavnih oblik dela, ob hkratnem upoštevanju različnih kontekstualnih in individualnih značilnosti. Glavni namen disertacije je prispevati k izboljšanju razumevanja izziva, kako oblikovati optimalno delovno mesto za različne pojavne oblike dela, ob upoštevanju individualnih značilnosti in delovnih kontekstov. Disertacija poskuša rešiti praktično-relevanten problem oblikovanja najbolj optimalne konfiguracije dela za znanjske delavce, ki so pretežno umeščeni v določeno pojavno obliko dela, in teoretično-relevanten problem tradicionalnih teorij oblikovanja dela, ki jih je potrebno posodobiti, da ustrezajo tehnološko naprednim novim delovnim okoljem.

Poglavje 1: Sistematični in bibliometrični pregled literature raziskovanega področja

Glavni cilj tega poglavja je zagotoviti pregled literature o ključnih raziskovalnih temah.

To poglavje se začne s pregledom literature (obogatenega) oblikovanja dela, pojavnih oblik dela in ključnih delovnih in nedelovnih rezultatov, uporabljenih v raziskovalnem modelu disertacije. Prvi del poglavja bo torej služil kot pregled glavne ideje disertacije in njenih ključnih konceptov. Osnova za konceptualizacijo vseh vključenih konstruktov bo izhajala iz teorije modela JD-R.

Arthur (1994) opredeljuje obogateno oblikovanje dela kot pristop, medtem ko ga Wood in de Menezes (2008) vidita bolj kot usmeritev za oblikovanje visokokakovostnih delovnih mest, ki zaposlenim omogočajo nekaj diskrecije in fleksibilnosti pri opravljanju in izvrševanju njihovih primarnih delovnih nalog (Walton, 1985). Večja obogatitev delovnega mesta je dosežena z višjimi ravnmi delovnih značilnosti Modela obogative dela (angl. job characteristics model; Hackman & Lawler, 1971; Hackman & Oldham, 1976). Visoka obogatitev delovnega mesta vodi do številnih pozitivnih rezultatov, kot so večja motivacija zaposlenih za delo, zadovoljstvom pri delu in ravnotežje med delom in zasebnim življenjem, čeprav so nekatere študije pokazale, da lahko ta odnos včasih oslabijo tako osebni kot tudi organizacijski dejavniki (Fried & Ferris, 1987; K. H. Roberts & Glick, 1981; Spector, 1985; Sushil, 2014).

Model JD-R predlaga razvrstitev značilnosti delovnega konteksta v dve široki kategoriji: delovne zahteve in delovni viri, pri čemer oba predstavljata fizični, družbeni ali organizacijski vidik dela. Tiste značilnosti, ki zahtevajo trajni fizični in/ali psihološki napor in so zato povezane s fiziološkimi in/ali psihološkimi bremeni, se imenujejo delovne zahteve. Na drugi strani pa tiste, ki so bistvenega pomena za doseganje z delom povezanih ciljev, zmanjševanje zahtev dela in s tem povezanih fizioloških in psiholoških bremen, ter spodbujanje osebne rasti in razvoja, imenujemo delovni viri. Delovni viri lahko ščitijo zaposlene pred neugodnimi učinki delovnih zahtev (Demerouti, Nachreiner, et al., 2001; Xanthopoulou et al., 2007). Posamezni dejavniki (npr. optimizem, odpornost) so v okviru modela JD-R interpretirani kot osebni viri, ki odražajo pozitivno prepričanje vase ali v svet in lahko služijo kot moderatorji vpliva na delovne zahteve (van den Heuvel et al., 2010) ter so bili zato priznani kot pomembna razširitev prvotnega okvira (Bakker & Demerouti, 2014). Ker je porazdeljeno delo v porastu, je pomembno, da se model JD-R razvije v smer vključitve IKT in s tem značilnosti oblikovanja porazdeljenega dela.

Da bi pridobili dodatno celovito znanje s tega področja, to poglavje vključuje tudi bibliometrični pregled literature s področja porazdeljenega dela in bibliometrični pregled literature presečišča med porazdeljenim delom in oblikovanjem dela.

Drugi del poglavja skuša poglobiti trenutni pregled področja porazdeljenega dela s predstavitvijo celovitega obsežnega pregleda razvoja in trenutnega stanja področja. Ta raziskovalna tematika je hitro rastoče področje akademskih prizadevanj in prakse, a hkrati obstaja veliko različnih definicij, oznak in konceptualizacij porazdeljenega dela. Ker so raziskave osredotočene le na določene poddomene, je malo verjetno, da raziskovalci vidijo celotno konceptualno zasnovo in v celoti razumeli medsebojne povezave med različnimi

koncepti, ki opisujejo porazdeljeno delo, njegovo ozadje in konceptualni prostor. Obstoječi pregledi se bodisi lotevajo omejenega obsega fenomena porazdeljenega dela, so pripovedne/subjektivne/nesistematične in zato nimajo objektivnosti, celovitosti in ponovljivosti, ali pa niso nedavni. Za odpravo glavnih ugotovljenih vrzeli v sedanjem pregledu literature so bile izvedene tri bibliometrične analize (tj. sosklicevanje, sočasno pojavljanje in bibliografsko povezovanje). Podatki, pridobljeni iz podatkovne baze Web of Science (WOS), so bili analizirani in vizualizirani s programsko opremo VOSviewer, razvito s strani Van Eck in Waltman (2010). Za identifikacijo, analizo in opis grozdov je bil nato izveden obsežen pregled literature.

Zadnji del poglavja nadgrajuje prejšnjega z analizo razmerja (prekrivanja) med področjem porazdeljenega dela in področjem oblikovanja dela. Metodološko povezuje prej opisano analizo s tematskim modeliranjem, kar dodatno poveča rigidnost in relevantnost študij bibliometričnih pregledov (D. Blei et al., 2010; Mohr & Bogdanov, 2013; Schmiedel et al., 2019). Navkljub dosedanjim prispevkom (npr. Handke et al., 2020; S. K. Parker & Grote, 2020; B. Wang et al., 2020), ki so ponudili pregled vodilnih konceptualnih perspektiv, ki povezujejo področja IKT in oblikovanje individualnega/timskega dela, še vedno manjka celovit, sistematičen, meddisciplinaren, objektiven pregled področja, ki sočasno pokriva vse te pomembne teme, preučuje teoretične podlage, aktualna vprašanja in priljubljene trende, vključno z najsodobnejšimi rešitvami oblikovanja porazdeljenih delovnih značilnosti, ki v praksi ustrezajo izrednim razmeram zaradi COVID-19. Ta del disertacije prispeva k teoriji z izdelavo celovitega vključujočega okvira, ki usmerja razumevanje trenutnega konceptualnega prostora, ponuja praktične nasvete za izbiro ustreznih delovnih ureditev za vpeljavo porazdeljenega dela v organizacijah, in izpostavlja izzive porazdeljenega dela, ki čakajo na reševanje v bližnji prihodnosti. Takšen pregled je pomemben, ker lahko zagotovi vpogled v to, kako je razvoj IKT in pripadajoče ureditve porazdeljenega dela vplival na naravo delovnih značilnosti in oblikoval alternative individualnega oblikovanja dela v organizacijah.

Poglavje 2: Odkrivalno-potrditvena analiza konfiguracij (obogatenega) oblikovanja dela

Glavni cilj tega poglavja je analiza in izpostavitev konfiguracij oblikovanja dela za napovedovanje različnih izidov, kot so individualna delovna uspešnost ter ravnovesje med poklicnim in zasebnim življenjem. Prvi del poglavja predstavlja konceptualno ozadje konfiguracij in pomembnosti holističnega proučevanja. Vsaka (opazovana) konfiguracija ima svoje prednosti in izzive.

Drugi in tretji del tega poglavja raziskujeta, kako oblikovati različne pojavne oblike dela (tj. delo na fizični lokaciji, hibridno delo in delo na daljavo), da bi dosegli najvišjo individualno delovno uspešnost in ravnovesje med poklicnim in zasebnim življenjem. Številne študije so pokazale, da imajo zaposleni, ki delajo na daljavo, višjo individualno delovno uspešnost in so bolj produktivni kot zaposleni, ki delajo v skupni pisarni (npr. Baltes et al., 1999; Gajendran et al., 2014). Veliko študij pa je pokazalo ravno obratno (Perry et al., 2018).

Enako velja tudi za študije, ki proučujejo ravnovesje med poklicnim in zasebnim življenjem; nekatere raziskave kažejo, da delavci, ki delajo na daljavo, dosegajo boljše WLB (Sullivan, 2012), medtem ko so drugi ugotovili ravno nasprotno (npr. Bellmann & Hübler, 2020b). Glede na te nasprotujoče si ugotovitve je jasno, da rezultati niso odvisni le od specifičnih pojavnih oblik dela, temveč tudi od tega, ali so značilnosti oblikovanja dela primerne za določeno obliko dela. Ta raziskava prispeva k teoriji z opredelitvijo, kako se te značilnosti oblikovanja dela razlikujejo glede na pojavne oblike dela. Za kvalitativno primerjalno analizo je bila uporabljena programska oprema Fuzzy set (fsQCA), impliementirana pa je bila kvalitativna primerjalna analiza (QCA), metodologija, ki omogoča hkratno analizo večjega števila primerov v zapletenih situacijah. Le-ta lahko pomaga razložiti, zakaj se nekatere spremembe pojavijo v nekaterih primerih, v drugih pa ne (Korjani & Mendel, 2012).

Poglavje 3: Preplet oblikovanja dela, individualnih značilnosti in delovnega konteksta pri napovedovanju izidov dela na podlagi različnih pojavnih oblik dela

To poglavje nadgrajuje prejšnja poglavja z vključitvijo dodatnih moderatorjev (in mediatorjev), ki lahko igrajo pomembno vlogo pri konfiguracijah oblikovanja dela in napovedujejo rezultate na podlagi različnih pojavnih oblik dela. Tako je cilj tega poglavja vključiti in razložiti mejne pogoje.

Prvi del je namenjen preučevanju medsebojnega delovanja obogatenega oblikovanja dela (konfiguracija vseh delovnih značilnosti na visoki ravni hkrati), delovnega konteksta (tj. formalizacija) in individualnih značilnosti (tj. odpornost in proaktivnost) pri napovedovanju ravnotežja med poklicnim in zasebnim življenjem. Tema ravnovesja med poklicnim in zasebnim življenjem je široko raziskana, kar je prineslo kompleksne definicije, teoretične pristope, ukrepe, determinante in posledice. Študija prispeva k področjem organizacijskega vedenja, medsebojnega usklajevanja dela in zasebnega življenja ter managementa človeških virov na naslednje načine. Prvič, k literaturi o ravnotežju med poklicnim in zasebnim življenjem prispeva z analizo vpliva individualne značilnosti na ravnotežje med poklicnim in zasebnim življenjem (Polat & Özdemir, 2020; Walia, 2014), pri čemer to strujo raziskav dopolnjujemo s celostnim pristopom k zajemanju obogatenega oblikovanja delovnih mest kot del drugega reda konstrukta, ki uteleša ključne značilnosti delovnega mesta in preučuje njegov odnos z ravnotežjem med poklicnim in zasebnim življenjem. Potrjujemo ugotovitve Jindala in ostalih (2013), da obogateno oblikovano delo vodi do višjega ravnotežja med poklicnim in zasebnim življenjem. Pri tem so ugotovitve dodatno podprte z vključitvijo ne samo samoocen ravnotežja med poklicnim in zasebnim življenjem, temveč tudi ocen njihovih družinskih članov. To zagotavlja pomemben vpogled v kompleksne interakcije posameznikov, delovnih mest in organizacijskih dejavnikov, ki oblikujejo organizacijsko realnost pri napovedovanju ravnotežja med poklicnim in zasebnim življenjem zaposlenih. Ta del dopolnjuje tudi nedavno študijo Bakkerja, Breevaarta, Scharpa in de Vriesa (2021),v kateri avtorji predlagajo, da bi naj managerji spodbujali svoje zaposlene k proaktivnosti in

jim zagotavljali avtonomijo in povratne informacije, za namene ohranjanja delovne uspešnosti in zadostitve osnovnih potreb zaposlenih (Bakker et al., 2021).

Drugi del proučuje potencialno negativen vpliv uporabe tehnologije in fleksibilnih ureditev dela. Medtem ko je uporaba IT na delovnem mestu prinesla številne koristi za delavce in organizacije (Dwivedi et al., 2020; Lund et al., 2020; Venkatesh & Vitalari, 1992), so nekatere prejšnje raziskave prav tako identificirale slabosti zaradi pretirane uporabe tehnologije (Berg-Beckhoff et al., 2017; S. K. Parker & Grote, 2020; B. Wang et al., 2020). Z naraščajočo uporabo tehnologije na delu in fleksibilnimi delovnimi ureditvami se mnoge organizacije soočajo s težavami pri razumevanju, kako delo, posredovano z digitalnimi sredstvi, napoveduje specifične (pozitivne in/ali negativne) delovne izide. Naši rezultati kažejo, da obogateno oblikovanje nalog (tj. večja raznolikost nalog, avtonomija pri odločanju, delovnih metodah in delovnih urnikih) delavcem omogočajo večjo uporabo tehnologije, in da je taka uporaba tehnologije na delu pozitivno povezana z delovno zavzetostjo zaposlenih. Vendar pa, ko so bila obogatena oblikovanja nalog povezana z izidi zaposlenih preko uporabe tehnologije na delu in fleksibilnih delovnih ureditev, so ti kontekstualni dejavniki spremenili smer napovedovanja izgorelosti zaposlenih in delovne zavzetosti. Bolj specifično, fleksibilne delovne ureditve so zmanjšale individualno izgorelost, hkrati pa so zmanjšale tudi zavzetost zaposlenih. Sklepamo, da lahko pod določenimi pogoji, tako uporaba tehnologije na delu kot tudi fleksibilne delovne ureditve, prinašata tako koristi (delovno zavzetost) kot tudi bremena (izgorelost). Uporaba tehnologije na delu bolj primerna za zagotavljanje zavzetosti zaposlenih, medtem ko so fleksibilne delovne ureditve pomembnejše pri zmanjševanju izgorelosti zaposlenih. To lahko menedžerjem, oblikovalcem delovnih mest v organizacijah in oblikovalcem podjetniških sistemov omogoči bolj niansirano razumevanje kompleksnega prepletanja med sočasnim oblikovanjem delovnega mesta, fleksibilnostnimi ureditvami in IT sistemi pri napovedovanju zdravja in dobrega počutja na delovnem mestu.

Tretji del tega poglavja raziskuje, katere konfiguracije značilnosti oblikovanja delovnih mest spodbujajo motivacijo za delo in samoiniciativno preblikovanje dela ter, ali se koristne konfiguracije oblikovanja dela za napovedovanje mehanizmov preoblikovanja dela na lastno pobudo zaposlenega razlikujejo med različnimi pojavnimi oblikami dela. Pokazalo se je že, da se delovna motivacija zaposlenih lahko povečana z večjo obogatitvijo zaposlitve, ki jo lahko dosežemo z višjimi ravnmi delovnih značilnosti (tj. raznolikost veščin, avtonomija, povratne informacije; Hackman et al., 1975) ter da bolj motivirani zaposleni z večjo verjetnostjo samoiniciativno preoblikujejo svoje delo, kar vodi do višjih ravni delovnih in osebnih virov in s tem še višje stopnje delovne motivacije (Bakker & Demerouti, 2007). Na podlagi okvira JD-R lahko ravnovesje med delovnimi zahtevami in delovnimi viri, ki jih ustvarja oblikovanje dela, izboljša primernost osebe za delovno mesto, kar posledično prispeva k večjemu zadovoljstvu pri delu, višji delovni zavzetosti, delovni učinkovitosti in uspešnosti (Tims et al., 2013).

Poglavje 4: Splošna razprava

Četrto poglavje služi kot pregled glavnih ugotovitev, prispevkov k obstoječi literaturi in praktičnih implikacij. Disertacija povezuje diskusije o praksah managementa človeških virov in organizaciji dela, natančneje o najbolj učinkovitih praksah oblikovanja dela in pogovore o prihodnosti dela. Le-ta povezuje literaturo o oblikovanju dela, digitalnem delu in prihodnosti dela (organizacijsko vedenje). Disertacija ima pet glavnih prispevkov k teoriji: 1. Prikazuje pregled literature s področja porazdeljenega dela in njegovega prepleta s področjem oblikovanja dela. Pri tem pokaže evolucijski razvoj dinamične spremembe obeh področij in podaja klasifikacijo konceptov porazdeljenega dela, ki se med seboj razlikujejo glede na lokacijo dela, geografsko porazdeljenostjo in uporabo IKT. Prikazuje tudi eksponentno rast raziskav s področja porazdeljenega dela in njegove povezanosti z informacijskimi sistemi. 2. podkrepitev JD-R z raziskovanjem, kako različne dimenzije/konfiguracije oblikovanja dela prispevajo k rezultatom v specifičnih pojavnih oblikah dela. To je bilo storjeno z identifikacijo in primerjavo skupin ljudi z različnimi pojavnimi oblikami dela, saj jih za zdaj večina raziskav preučuje ločeno. 3. nadgradnja tradicionalnih modelov oblikovanja dela z a) s celostnim pristopom h konfiguracijam oblikovanja dela in b) raziskovanjem področja informacijsko komunikacijskih tehnologij skupaj s pojavnimi oblikami dela. To je bilo storjeno s predlogom konfiguracij oblikovanja dela, ki temeljijo na različnih pojavnih oblikah dela, za želene rezultate, in ne le z raziskovanjem posameznih značilnosti in rezultatov oblikovanja dela, kot so storile druge raziskave. 4. primerjava in hkratno opazovanje različnih med sabo potencialno nasprotujočih si rezultatov (npr. uspešnost proti dobremu počutju) in razkritje najbolj koristnih delovnih pogojev, ki podpirajo enega ali drugega (ali oba hkrati). Ne nazadnje, 5. prispevek k literaturi je doprinos z vključevanjem mejnih pogojev, ki izhajajo iz JD-R. To je bilo storjeno s preučitvijo vplivov posameznikovih značilnosti in značilnosti delovnega konteksta ter dodatno vključitvijo časovnega konteksta. Ugotovite disertacije imajo tudi praktične prispevke. Managerji bodo pridobili konkreten vpogled v specifike, kako se konfiguracije oblikovanja dela razlikujejo med delom na daljavo, delom na fizični lokaciji organizacije in hibridnim delom ter katera vrsta dela vodi do najboljših rezultatov. Ključne ugotovitve disertacije so na koncu združene v celovit okvir in podroben načrt, ki bo koristen za managerske prakse na globalni ravni in bo premostil vrzel med teorijo in prakso. Povzetek poglavij je viden v Tabeli 1, pregled konstruktov po poglavjih pa v Tabeli 2.

Tabela 1: Povzetek poglavij

POGLAVJE	NASLOV	PROUČEVANI KONSTRUKTI	RAZISKOVALNA VPRAŠANJA/HIPOTEZE	METODOLOGIJA	UGOTOVITVE
1.2	Bibliometrična analiza področja porazdeljenega dela z uporabo več tehnik hkrati: Kje se je vse začelo, kaj se dogaja sedaj in kaj lahko pričakujemo v prihodnosti	Porazdeljeno delo/Pojavne oblike dela	(1) Kakšna je struktura področja porazdeljenega dela in kako so se njegove teoretične osnove razvile in preoblikovale skozi čas? (2) Katere tematike so povezane s porazdeljenim delom? (3) Kakšna je intelektualna struktura trenutne/nastajajoče literature področja porazdeljenega dela?	VZOREC: 12,034 člankov (objavljenih do 2020) ANALIZA: Sosklicevanje, Sočasno pojavljanje, Bibliografsko povezovanje	(1) Teoretične osnove porazdeljenega dela izhajajo iz področja IS, kasneje pa so prispevki prišli tudi iz področij OP, managementa in IT, kar je na koncu vodilo do bolj uporabnih področij OP in HRM. Pojavljajoči se koncepti, povezani s porazdeljenim delom, so se sprva osredotočali predvsem na lokacijo dela posameznika in prihranke pri porabi goriva/časa, medtem ko so se kasneje v razvoju področja koncepti bolj osredotočali na uporabo IKT in odnose med sodelavci ter nadrejenimi in zaposlenimi. (2) Porazdeljeno delo in povezani koncepti se prekrivajo in pogosto napačno uporabljajo; ti izrazi so povezani, vendar niso sopomenke in bi jih bilo treba uporabljati v skladu z njihovimi natančnimi definicijami. Koncepti, ki označujejo porazdeljeno delo, se razlikujejo glede na uporabo IKT, lokacijo dela in geografsko razporeditev. Glej sliko 9. (3) Nekatera od trenutno vročih raziskovalnih področij, povezanih s porazdeljenim delom, so naslednja: (kulturna) raznolikost, konflikt med delom in družino, zaupanje in konflikti v porazdeljenih ekipah ter deljenje znanja in komunikacija v virtualnih ekipah.
1.3	Proti integrativnemu okviru oblikovanja porazdeljenega dela: Večtehnični bibliometrični pregled	Porazdeljeno delo/Pojavne oblike dela, Oblikovanje dela	(1) Kakšna je intelektualna struktura področja prekrivanja področja porazdeljenega dela in oblikovanje dela in kako so se njune teoretične osnove razvile in preoblikovale skozi čas? (2) Katere tematike so povezane s prekrivanjem področja porazdeljenega dela in oblikovanjem dela? (3) Kakšna je intelektualna struktura trenutne/nastajajoče literature prekrivanja področja porazdeljenega dela in oblikovanja dela?	VZOREC: 93 člankov (objavljenih do 2020) + 115 člankov (objavljenih po covid-19) ANALIZA: Sosklicevanje, Sočasno pojavljanje, Bibliografsko povezovanje, Tematsko modeliranje	(1) Čeprav je ta raziskovalna niša sprva izhajala iz področja OB/OP, so jo kasneje razvijali z vključevanjem teoretičnih vpogledov iz področij managementa, HRM in IS ter tehnologij. Sprva se je osredotočala bolj ali manj na mikro raven (posameznik v svojem delovnem kontekstu), iz identificiranih teorij pa lahko sklepamo, da se je naslednje (drugo preučevano) obdobje osredotočalo tudi na makro raven, s poudarkom na strateških, industrijsko-ekonomskih in konkurenčnih vidikih podjetij (2) Trenutne aziskave so pokazale, da porazdeljenega dela ni mogoče ustrezno razložiti z obstoječimi modeli oblikovanja dela (npr. JCM, WDQ in JDR). Zato smo z združevanjem dveh večinoma nepovezanih raziskovalnih področij porazdeljenega dela in oblikovanja dela razvili integrativni okvir oblikovanja porazdeljenega dela (glej sliko 18) (3) Začetna raziskovalna fronta razkriva pomembnost odnosno usmerjenega vodenja in individualiziranega obravnavanja, to je, bolj osnovano na individualnih značilnostih in preferencah. Dodatna (po-covidna) raziskovalna fronta razkriva, da novejše raziskave upoštevajo tudi nekatere socioekonomske dejavnike, kot so starost in spol, ter poudarjajo pomembnost upravljanja meja in dobrega počutja.
2.1	Raziskovanje konfiguracij oblikovanja dela: Razkrivanje kompleksnosti humanizacije digitalnega delovnega mesta	Porazdeljeno delo/Pojavne oblike dela, Oblikovanje dela	(1) Kakšne so ravni značilnosti oblikovanja dela v posamezni konfiguraciji?	VZOREC: 13 uglednih strokovnjakov na področju oblikovanja dela ANALIZA: Kvalitativna analiza povratnih informacij strokovnjakov v kombinaciji s pregledom literature	(1) Ugotovitve strokovne skupine poudarjajo različna razmišljanja, ki so podlaga za različne konfiguracije oblikovanja dela. Razlike med konfiguracijami poudarjajo zapleteno ravnotežje, ki je potrebno za uskladitev dela, nalog, znanja in socialnih značilnosti z nadrejenimi organizacijskimi cilji in razvijajočo se naravo dela. Razhajanja od prvotno predlaganih značilnosti nekaterih konfiguracij oblikovanja dela, kot sta Obogateno in Urejeno oblikovanje dela, bi lahko pripisali kolektivnim izkušnjam strokovnjakov in globljemu razumevanju praktičnih posledic teh konfiguracij v resničnih delovnih okoljih.

se nadaljuje

Tabela 1: *Povzetek poglavij (nad.)*

POGLAVJE	NASLOV	PROUČEVANI KONSTRUKTI	RAZISKOVALNA VPRAŠANJA/HIPOTEZE	METODOLOGIJA	UGOTOVITVE
2.2	Onkraj pisarniških sten: Konfiguracije oblikovanja dela za uspešno izvedbo nalog v različnih oblikah dela	Porazdeljeno delo/Pojavne oblike dela, Oblikovanje dela, Uspešnost izvedbe naloge	(1) Katere konfiguracije oblikovanja dela so najbolj koristne za uspešnost izvedbe nalog zaposlenih v različnih pojavnih oblikah dela?	VZOREC: 1215 različnih zaposlenih (z nadrejenimi, ki so ocenjevali uspešnost izvedbe naloge zaposlenih) v Črni gori ANALIZA: Kvalitativna primerjalna analiza Fuzzy set (fsQCA)	(1) Rezultati naše raziskave kažejo, da je zaokroženost naloge najpomembnejša (nujna) značilnost dela pri vseh pojavnih oblikah dela: • Za delo na fizični lokaciji organizacije je prav tako ključna visoka stopnja raznolikosti nalog. • V hibridnem okolju zaposleni potrebujejo kombinacijo identificiranih nujnih značilnosti delovnega mesta za delo na fizični lokaciji organizacije in dela na daljavo, poleg tega pa še visoko stopnjo povratnih informacij z dela. • Za delo na daljavo sta nujni še visoka stopnja obdelave informacij ter visoka stopnja družbene podpore.
2.3	Uganka oblikovanja dela: Odkrivanje razmerja med oblikovanjem dela in ravnovesjem med poklicnim in zasebnim življenjem v različnih oblikah dela	Porazdeljeno delo/Pojavne oblike dela, Oblikovanje dela, Ravnotežje med poklicnim in zasebnim življenjem	(1) Katere konfiguracije oblikovanja dela najbolj koristijo ravnotežju med poklicnim in zasebnim življenjem v različnih pojavnih oblikah dela?	VZOREC: 605 reprezentativnih anketirancev v Franciji, zbranih prek agencije ANALIZA: Kvalitativna primerjalna analiza Fuzzy set (fsQCA)	(1) Analiza variance je pokazala, da imajo zaposleni, ki delajo v hibridnih delovnih okoljih, na splošno najvišje ravnotežje med poklicnim in zasebnim življenjem, sledijo jim zaposleni, ki delajo na daljavo in nato delavci, ki delajo na fizičnih lokacijah organizacij. Nadalje analiza fsQCA kaže, da je oblikovanje dela pomembno za WLB pri vseh pojavnih oblikah dela, vendar se zdi, da je učinke najbolj izrazit za delo na fizični lokaciji organizacije, sledi hibridno in nato delo na daljavo. Poleg tega analiza nujnosti razkriva skupne zahteve oblikovanja dela za vse pojavne oblike dela, s čimer poudarja pomembnost obdelave informacij, raznolikosti veščin in družbene podpore. Dodatno: • Delo na fizični lokaciji organizacije: Raznolikost nalog • Hibridno delo: IT prisotnost • Delo na daljavo: Raznolikost nalog
3.1	Ali je ključ do ravnovesja med poklicnim in zasebnim življenjem (obogateno) zasnovano delovno mesto? Učinki trojne interakcije s formalizacijo in prilagodljivimi osebnostnimi značilnostmi	Obogateno oblikovano delo, Formalizacija, Proaktivna osebnost, Odpornost, Ravnotežje med poklicnim in zasebnim življenjem	H1: Obogateno oblikovano dela je pozitivno povezano z višjimi ravnmi ravnotežja med poklicnim in zasebnim življenjem. H3b: Obstaja učinek trojne interakcije med obogatenim oblikovanjem dela, ravnotežja med poklicnim in zasebnim življenjem, ter proaktivno osebnostjo; pozitivna povezava je močnejša pri ljudeh z bolj proaktivno osebnostjo, v primerjavi s tistimi z manj.	VZOREC: 436 zaposlenih v Črni gori ANALIZA: Potrditvena faktorska analiza, t-test za neodvisne vzorce PROCESS macro različica 3 (model 1 in model 3)	(1) Obogateno oblikovanje dela je pozitivno povezano z ravnotežjem med poklicnim in zasebnim življenjem (tj. posamezniki, ki so imeli višje ravni obogatenega oblikovanja dela, so poročali tudi o višjih ravneh WLB). (2) Nato smo preučili skupno moderiranje formalizacije in osebnostnih lastnosti na razmerje med obogatenim oblikovanjem dela in WLB. Ugotovili smo pomembno moderiranje formalizacije in proaktivne osebnosti (ne pa tudi odpornosti) na razmerje med obogatenim oblikovanjem dela in WLB Rezultati nakazujejo, da obogateno oblikovano delovno mesto pozitivno vpliva na ravnovesje med poklicnim in zasebnim življenjem. Ta interakcija je še močnejša v primeru visoke stopnje formalizacije in proaktivne osebnosti zaposlenih.

se nadaljuje

Tabela 1: *Povzetek poglavij (nad.)*

POGLAVJE	NASLOV	PROUČEVANI KONSTRUKTI	RAZISKOVALNA VPRAŠANJA/HIPOTEZE	METODOLOGIJA	UGOTOVITVE
3.2	S tehnologijo podprto znanjsko delo: Vloga obogatenega oblikovanja delovnih nalog, uporabe tehnologije in fleksibilnega dela pri krmarjenju skozi paradoks izgorelosti in delovne zavzetosti	Obogateno oblikovane delovne naloge, Uporaba tehnologije pri delu, Fleksibilne urednitve dela, Delovna zavzetost, Izgorelost	H1: Obogateno oblikovanje delovnih nalog je pozitivno povezano z uporabo tehnologije pri delu s strani zaposlenih. H2b: Uporaba tehnologije pri delu je pozitivno povezana z zavzetostjo zaposlenih pri delu. H3a: Fleksibilni delovni dogovori moderirajo razmerje med obogatenim oblikovanjem delovnih nalog in izgorelostjo, ki je mediirano z uporabo tehnologije pri delu, zaradi česar je razmerje manj pozitivno. H3b: Fleksibilni delovni dogovori moderirajo razmerje med obogatenim oblikovanjem delovnih nalog in zavzetostjo pri delu, ki je mediirano z uporabo tehnologije pri delu, zaradi česar je razmerje manj pozitivno.	VZOREC: 3,647 znanjskih delavcev, ugnezdenih v 127 podjetij v Nemčiji ANALIZA: Hierarhično linearno modeliranje Mlmed SPSS (v25)	(1,2) Rezultati kažejo, da obogateno oblikovanje delovnih nalog omogoča delavcem večjo uporabo tehnologije, in da je taka uporaba tehnologije pri delu pozitivno povezana z delovno zavzetostjo zaposlenih. (3ab) Ko so bila obogatena oblikovanja delovnih mest povezana z izidi zaposlenih preko uporabe tehnologije pri delu in fleksibilnih delovnih dogovorov, so ti kontekstualni dejavniki spremenili smer napovedovanja izgorelosti zaposlenih in njihove zavzetosti pri delu. Ustrezni dejavniki so uspeli zmanjšati individualno izgorelost, hkrati pa so zaposlene naredili manj zavzete pri svojem delu.
3.3	Spodbujanje delovne zavzetosti z obogatenim tehnološko optimiziranim oblikovanjem delovnih mest v različnih pojavnih oblikah dela: Vloga mehanizmov preoblikovanja dela na lastno pobudo zaposlenega	Obogateno oblikovano delo, Pojavne oblike dela, Motivacija pri delu, Samoiniciativno preoblikovanje dela, Delovna zavzetost	H1a: Delovna motivacija je močnejši napovednik samoiniciativnega preoblikovanja dela kot obratno. H2: Vzročnost konstruktov, ki sestavljajo mehanizme za preoblikovanjde dela na lastno pobudo zaposlenega, se razlikuje za različne oblike dela. H3: Delovna motivacija mediira razmerje med tehnološko obogatenim delom in zavzetostjo pri delu. H 4: Pojavna oblika dela moderira razmerje med tehnološko obogatenim delom in zavzetostjo pri delu, ki je mediirano z delovno motivacijo.	VZOREC: 242 reprezentativnih zaposlenih v Sloveniji, na treh časovnih točkah (726 enot opazovanja) ANALIZA: Potrditvena faktorska analiza Longitudinalna regresijska analiza Mlmed	(1) Ugotovljeno je bilo, da ima delovna motivacija večji vpliv na samoiniciativno preoblikovanje delovnih mest kot obratno. To razmerje je bilo dejansko enako v vseh treh pojavnih oblikah dela. (2) Ugotovitve kažejo, da ima oblikovanje delovnih mest večji vpliv na motivacijo pri delu, ko zaposleni delajo na daljavo ali hibridno, kot pa iz fizične lokacije organizacije. (3) Rezultati kažejo, da je razmerje med tehnološko optimiziranim obogateno oblikovanim delaom in zavzetostjo pri delu mediirano z delovno motivacijo in da je razmerje pozitivno. (4) Razmerje med tehnološko optimiziranim obogateno oblikovanim delom in zavzetostjo pri delu je bilo moderirano s pojavno obliko dela, kar kaže, da se lahko učinki tehnološko optimiziranega obogatenega dela na delovno motivacijo in zavzetost pri delu razlikujejo glede na pojavno obliko dela.

Vir: lastno delo.

Tabela 2: *Pregeld konstruktov po poglavjih*

	NEODVISNA SPREMENLJIVKA	MODERATOR	INDIVIDUALNE ZNAČILNOSTI (MODERATORJI)		DELOVNI KONTEKST (MEDIATOR IN MODERATOR)		MEHANIZMI PREOBLIKOVANJA DELA NA LASTNO POBUDO ZAPOSLENEGA (MEDIATORJI)		IZIDI (ODVISNE SPREMENLJIVKE)			
	(obogateno) oblikovano delo	Porazdeljeno delo/Pojavne oblike dela	Proaktivna osebnost	Odpornost	Uporaba tehnologije pri delu	Formalizacija	Samoiniciativno preoblikovanje dela	Motivacija pri delu	Uspešnost izvedbe naloge	Ravnotežje med poklicnim in zasebnim življenjem	Delovna zavzetost	Izgorelost
1.2												
1.3												
2.1												
2.3												
3.1												
3.2												
3.3												

Vir: lastno delo.

Appendix 2: A multi-technique bibliometric analysis of the field of distributed work: where it all began, where it is now and where it is going

Table 1A: *Definitions of different (distributed work) terms*

MAIN TERM	TYPES (1st order)	TYPES (2nd order and 3rd order)		DEFINITION
REMOTE WORK – work performed by a person at a different location from the person(s) who directly supervises and/or pays them to do it. Sources: Mokhtarian (1991ab), Olson & Primps (1984); Templer, Armstrong-Stassen, Devine, & Solomon (1999)	**HOME-BASED REMOTE WORK**	**RUNNING A HOME-BASED BUSINESS AS ONE'S ONLY JOB**		Primary home-based business
		MOONLIGHTING FROM HOME		When individuals run a side business from home, in addition to another job.
		A SALARIED EMPLOYEE WORKING AT HOME AFTER HOURS		When an employee brings his/hers work home to work overtime after a full day at the office.
		A SALARIED EMPLOYEE WORKING AT HOME IN LIEU OF IN-OFFICE WORK - of the "classical" forms of telecommuting.	**OCCASIONAL WORK AT HOME**	Working at home from time to time.
			REGULAR WORK AT HOME	Working at home regularly.
	NON-HOME BASED REMOTE WORK	**WORKING FROM A CENTER CLOSER TO HOME THAN THE PRIMARY OFFICE**	**THE SATELLITE WORK CENTRE**	When employees work from a workstation closer to their home than their main office. The satellite workplace accommodates employees of only one company, while the local or neighbourhood workplace is a facility shared by two or more employers.
			NEIGHBORHOOD WORK	
		FIELD WORK		When the employee works at one or more locations other than the main office. Examples: if he/she collects data from customers in different stores.
		WORKING WHILE TRAVELING ; MOBILE OFFICES		When employee works while travelling. Usually using mobile phones, portable computers and other ICT.
		MANAGING A BRANCH OFFICE		The branch manager works remotely because the boss is at corporate headquarters. However, most other employees in a branch office report to on-site supervisors and are therefore not remote workers.
	HOME-BASED OR NON-HOME BASED	**LONG-DISTANCE TELECOMMUTING**		Employee who lives and works in one Standard Metropolitan Statistical Area (SMSA), but works for an employer or client in another ("distant") SMSA or even country.

To be continued

Table 1A: *Definitions of different (distributed work) terms (cont.)*

MAIN TERM	TYPES (1st order)	TYPES (2nd order and 3rd order)	DEFINITION
TELECOMMUTING - Partial or total replacement of the twice-daily commute by telecommunications, with or without the aid of computers. Telecommuting need not involve telecommunication at all. Source: Nilles (1988)	**HOME-BASED TELECOMMUTING**	**HOME-BASED TELECOMMUTING**	A person works from home rather than in a traditional office. Employees of larger companies, as opposed to home-based business owners, who by definition work primarily at home. They have a full-time job, part of which they telecommute. Thus, most telecommuters divide their time between two office environments: one at home, one in a traditional office setting (although one or both offices may differ in spatial arrangement from the traditional notion of an office).
	REGIONAL CENTER BASED TELECOMMUTING	**SATELLITE CENTRES**	Facilities set up by large corporations to house only their own telecommuting employees. They typically house anywhere from 20 to more than 100 employees, some of whom still commute several miles to get to the centre, as opposed to the distances of several dozen miles they must otherwise travel.
		NEIGHBOORHOOD CENTRES	Neighbourhood centres are smaller facilities that house a small number of staff and can serve as mini-satellites or mini-local centres. The emphasis here is on neighbourhood: each of these centres would be only a few blocks from workers' residences.
TELEWORK Sources: Huws et al., (1990), Mokhtarian (1991ab)	**TELEWORK**		Telework is the use of telecommunication technologies to get work done; some examples include teleconferencing, online database searches, fax transmissions, cell phone calls, voicemail, and electronic mail - as well as, in the broadest sense, ordinary telephone calls. While information is exchanged remotely in these examples, the focus in this context is on remoteness from supervision. Telework can replace travel, but it does not have to. Moving the work to the workers not the workers to work.
FLEXIPLACE Source: Schiff (1983)	**FLEXIPLACE**		Flexiplace means giving people more options about where they work, including the ability to work at home some or all of the time. However, to be successful, flexiplace needs to be voluntary and tailored to individual needs and circumstances.

To be continued

Table 1A: *Definitions of different (distributed work) terms (cont.)*

MAIN TERM	TYPES (1st order)	TYPES (2nd order and 3rd order)	DEFINITION
VIRTUAL WORK Sources: Jarvenpaa et al. (1997); O'Hara-Devereaux & Johansen (1994); Townsend et al. (1998)	**TELEWORK**		Work done partially or entirely away from the company's main workplace using information and telecommunications services.
	VIRTUAL GROUP		Several teleworkers reporting to the same manager.
	VIRTUAL TEAM		Several teleworkers interacting with each other and collaborating to achieve common goals.
	VIRTUAL COMMUNITY		Larger units of distributed work whose members share common goals, roles and norms and collaborate via ICT.
DISPERSED COLLABORATION **Sources:** Cramton (2001); Maznevski & Chudoba (2000)	**GEOGRAPHICALLY DISPERSED TEAMS**		Groups of people who share the purpose but perform interdependent tasks in different locations and at different times, using ICT much more than face-to-face meetings.

To be continued

Table 1A: *Definitions of different (distributed work) terms (cont.)*

MAIN TERM	TYPES (1st order)	TYPES (2nd order and 3rd order)		DEFINITION
DISTRIBUTED WORK Sources: Be'langer & Collins (1998); Templer et al. (1999)	**DISTRIBUTED WORK** The umbrella term. Distributed work arrangements encompass many different alternatives to working in a traditional office. Arrangements that allow employees and their tasks to work in various locations outside of a central business office or physical location of the organization.	**DO NOT HAVE A PERMANENT WORK LOCATION ON COMPANY PREMISES;** Both types of these work arrangements require an infrastructure that allows employees to plug in phones and computers anywhere in the building and route calls and access to computer programs and files there.	**FLEXIBLE WORK ARRANGEMENTS**	In a flexible work organisation, employees have office furniture and equipment that can be moved within a building as needed to facilitate work tasks.
			HOTELING	With hoteling, the company provides a number of work spaces, and when an employee needs to be in the office, he or she checks in at a workstation, retrieves the furnishings from a locker or other central storage facility, and checks out at the end of the day. Employees use their desks as needed. When they arrive at the office, support staff sets up an office with supplies, hooked up computers, and retrieves files and personal items (e.g., family photos) from the hoteler's storage room.
		WORK AT SITES INTENTIONALLY LOCATED TO BE NEARER THE EMPLOYEES' HOMES		Company sites that are intentionally located near employees' homes, such as satellite work centres and neighbourhood work centres. Such distribution of work is motivated by a desire to reduce commuting times and costs, but may also result from a need or desire to attract employees who cannot easily travel to distant, central locations. Company sites that are intentionally located near employees' homes, such as satellite work centres and neighbourhood work centres. Such distribution of work is motivated by a desire to reduce commuting times and costs, but may also result from a need or desire to attract employees who cannot easily travel to distant, central locations.
		WORK AT LEAST PART OF THE TIME AT HOME		Employees who work at home at least part of the time.
DISTANCE WORK Source: Olson & Primps (1984)	**DISTANCE WORK**			Employees working together at a distance and not being collocated, especially through the use of ICT.
DOMINETICS Source: Bui et al. (1996)	**DOMINETICS**			The connection between domicile, connections, and electronics.
E-WORK Source: Nof (2003)	**E-WORK**			Any collaborative, computer-based and communication-enabled productive activity in highly distributed organizations of humans and/or robots or autonomous systems.

Appendix 3: Beyond the office walls: Work design configurations for task performance across forms of work)

Table 2A: *Calibration of thresholds and descriptives*

Characteristic	Fully in	crossover	Fully out	Mean	SD	Min	Max
Onsite							
Job autonomy	4	3	2	3.61	.78	1	5
Task variety	4	3	2	4.02	.72	1	5
Task significance	4	3	2	3.63	.90	1	5
Task identity	4	3	2	3.96	.62	1.75	5
Feedback from job	4	3	2	3.85	.72	1	5
Job complexity	4	3	2	2.56	.83	1	5
Information Processing	4	3	2	3.90	.77	1	5
Problem-solving	4	3	2	3.36	.82	1	5
Skill variety	4	3	2	3.74	.78	1	5
Specialization	4	3	2	3.63	.77	1	5
Social support	4	3	2	3.99	.54	1.33	5
Interdependence	4	3	2	3.37	.73	1	5
Interaction outside the organization	4	3	2	3.66	.93	1	5
Feedback (others)	4	3	2	3.51	.87	1	5
Task performance	4	3	2	3.86	.52	1.8	5
Hybrid							
Job autonomy	4	3	2	3.88	.72	1.33	5
Task variety	4	3	2	4.00	.69	2	5
Task significance	4	3	2	3.76	.76	1.75	5
Task identity	4	3	2	3.98	.63	2	5
Feedback from job	4	3	2	4.00	.63	1.66	5
Job complexity	4	3	2	2.51	.84	1	4.75
Information Processing	4	3	2	4.05	.67	1.50	5
Problem-solving	4	3	2	3.72	.67	1.50	5
Skill variety	4	3	2	3.95	.67	1.50	5
Specialization	4	3	2	3.87	.67	1.75	5
Social support	4	3	2	4.00	.54	2	5
Interdependence	4	3	2	3.41	.71	1	5
Interaction outside the organization	4	3	2	3.59	.87	1	5
Feedback (others)	4	3	2	3.66	.78	1.33	5
Task performance	4	3	2	3.92	.54	1.4	5
Off-site/ Remote							
Job autonomy	4	3	2	3.76	.66	1	5
Task variety	4	3	2	3.85	.75	2	5
Task significance	4	3	2	3.58	.76	2	5
Task identity	4	3	2	4.03	.64	1.25	5
Feedback from job	4	3	2	3.83	.68	1.33	5
Job complexity	4	3	2	2.89	.90	1	4.50
Information Processing	4	3	2	3.96	.61	2.50	5
Problem-solving	4	3	2	3.71	.69	1.75	5
Skill variety	4	3	2	3.81	.71	2.25	5
Specialization	4	3	2	3.61	.73	2	5
Social support	4	3	2	3.97	.55	1.83	5
Interdependence	4	3	2	3.58	.69	1.50	5
Interaction outside the organization	4	3	2	3.79	.77	1	5
Feedback (others)	4	3	2	3.62	.81	1	5
Task performance	4	3	2	3.95	.49	2.8	5

Source: Own work.

Table 3A: *Truth table – On-site work*

fJAuto	fTV	fTS	fTID	fJFB	fJC	fIP	fPS	fSV	fSP	fSS	fInterd	fIOO	fOFB	number	fTPerf	raw consist.	PRI consist.	SYM consist
1	1	1	1	1	0	1	1	1	1	1	0	1	0	3	1	0.994219	0.987029	0.987991
1	1	1	1	1	0	1	1	1	1	1	1	1	0	5	1	0.991323	0.984249	0.984249
1	1	1	1	0	0	1	1	1	1	1	1	1	1	3	1	0.99801	0.995115	0.995116
1	1	1	1	1	0	1	1	1	1	1	1	0	1	12	1	0.997765	0.996227	0.996227
1	1	1	1	1	0	1	0	1	1	1	1	0	1	4	1	0.997438	0.994413	0.994413
1	1	0	1	1	1	1	1	1	1	1	1	1	1	4	1	0.996531	0.992363	0.992363
0	1	1	1	1	0	1	1	1	1	1	1	1	1	6	1	0.990389	0.980934	0.980934
1	1	1	1	1	0	1	1	1	0	1	1	1	1	4	1	0.990226	0.980433	0.980433
1	1	0	1	1	0	1	1	1	1	1	1	1	1	7	1	0.987832	0.976738	0.981683
1	1	1	1	1	0	1	1	1	1	1	0	0	1	5	1	0.987171	0.976245	0.976246
1	1	1	1	1	0	1	1	1	1	1	0	1	1	17	1	0.986148	0.976266	0.976266
0	1	1	0	1	0	1	1	1	1	1	1	1	1	3	1	0.984696	0.960317	0.960317
1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	1	0.98186	0.966193	0.969331
1	1	1	1	1	0	1	0	1	1	1	0	1	1	3	1	0.9816	0.957904	0.958802
1	1	1	1	1	0	1	1	1	1	1	1	1	1	111	1	0.97733	0.969206	0.982127
1	1	1	1	1	1	1	1	1	1	1	1	1	1	36	1	0.974183	0.95968	0.975152
0	1	1	1	1	0	1	0	1	1	1	1	1	1	4	1	0.970427	0.92916	0.93724

Source: Own work.

Table 4A: Truth table – *Hybrid work*

fJAuto	fTV	fTS	fTID	fJFB	fJC	fIP	fPS	fSV	fSP	fSS	fInterd	fIOO	fOFB	number	fTPerf	raw consist.	PRI consist.	SYM consist
1	1	1	1	1	0	1	1	1	1	1	0	1	1	5	1	0.997023	0.995235	0.995236
1	1	1	1	1	0	1	1	1	1	1	1	0	1	8	1	0.98817	0.982383	0.983913
1	1	1	1	1	0	1	1	1	1	1	1	1	0	3	1	0.985354	0.975643	0.975643
1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	1	0.978088	0.968699	0.968699
1	1	1	1	1	0	1	1	1	1	1	1	1	1	35	1	0.971082	0.962228	0.976027

Source: Own work.

Table 5A: Truth table – *Remote work*

fJAuto	fTV	fTS	fTID	fJFB	fJC	fIP	fPS	fSV	fSP	fSS	fInterd	fIOO	fOFB	number	fTPerf	raw consist.	PRI consist.	SYM consist
1	1	1	1	1	0	1	1	1	1	1	0	1	1	2	1	1	1	1
1	1	0	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1	1
0	1	1	0	0	0	1	1	1	1	0	1	1	0	1	1	1	1	1
1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1
1	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1
1	0	0	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1
1	1	1	1	1	0	1	1	1	1	1	1	1	1	3	1	0.99692	0.995582	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	1	0.952224	0.935556	0.982497

Source: Own work.

Table 6A: *Necessary condition analysis*

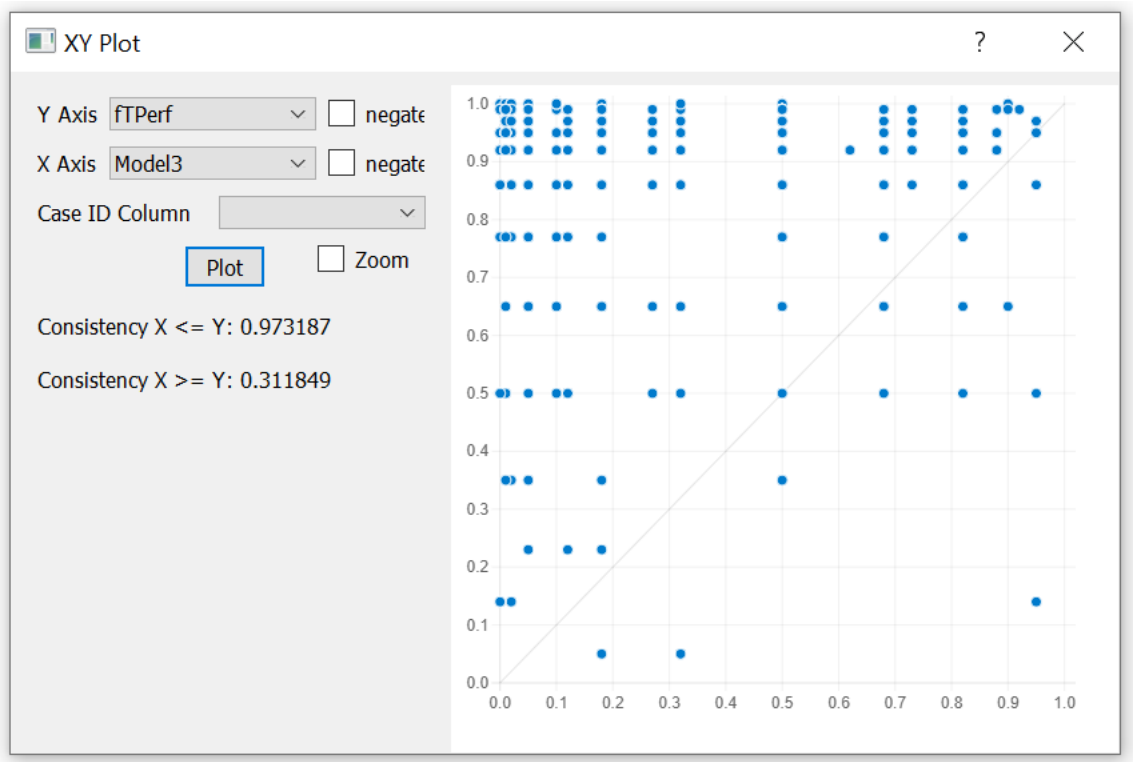
Characteristic	Onsite		Hybrid		Off-site/ remote	
	consistency	**coverage**	**consistency**	**coverage**	**consistency**	**coverage**
Job autonomy	0.794	0.924	0.879	0.931	0.885	0.952
~ Job autonomy	0.272	0.934	0.177	0.939	0.181	0.976
Task variety	**0.902 (RoN=0.63)**	0.903	**0.897 (RoN=0.80)**	0.920	0.846	0.931
~ Task variety	0.144	0.948	0.151	0.952	0.204	0.992
Task significance	0.764	0.914	0.824	0.930	0.762	0.935
~ Task significance	0.296	0.941	0.234	0.952	0.295	0.987
Task identity	**0.910 (RoN=0.62)**	0.908	**0.909 (RoN=0.86)**	0.921	**0.930 (RoN=0.78)**	0.928
~ Task identity	0.142	0.962	0.137	0.940	0.112	0.995
Feedback from job	0.867	0.912	**0.909 (RoN=0.66)**	0.917	0.881	0.931
~ Feedback from job	0.189	0.947	0.141	0.994	0.168	0.997
Job complexity	0.351	0.937	0.327	0.948	0.471	0.944
~ Job complexity	0.718	0.925	0.735	0.932	0.595	0.966
Information processing	0.869	0.909	**0.918 (RoN=0.75)**	0.919	**0.902 (RoN=0.90)**	0.929
~ Information processing	0.181	0.935	0.126	0.931	0.143	1.000
Problem-solving	0.707	0.935	0.846	0.940	0.840	0.943
~ Problem-solving	0.367	0.931	0.221	0.949	0.224	0.996
Skill variety	0.831	0.915	0.894	0.922	0.848	0.934
~ Skill variety	0.229	0.947	0.160	0.977	0.207	1.000
Specialization	0.797	0.918	0.883	0.928	0.779	0.936
~ Specialization	0.269	0.952	0.172	0.945	0.277	0.981
Social support	**0.931 (RoN=0.35)**	0.907	**0.934 (RoN=0.45)**	0.924	**0.931 (RoN=0.82)**	0.931
~ Social support	0.121	0.975	0.115	0.945	0.115	1.000
Interdependence	0.708	0.930	0.729	0.945	0.783	0.938
~ Interdependence	0.369	0.950	0.346	0.958	0.279	0.993
Interaction outside the organization	0.765	0.904	0.758	0.927	0.875	0.950
~ Interaction outside the organization	0.290	0.954	0.298	0.944	0.187	0.963
Feedback (others)	0.744	0.923	0.801	0.801	0.806	0.947
~ Feedback (others)	0.320	0.929	0.260	0.942	0.259	0.980

Source: Own work.

Table 7A: *Predictive validity – Onsite work*

Model: TPerf = f(JAuto, TV, TS, TID, JFB, JC, IP, PS, SV, SP, SS, Interd, IOO, OFB)	**Raw coverage**	**Unique coverage**	**Consistency**
M1: JAuto*TV*TS*TID*JFB*~JC*IP*PS*SV*SP*SS*OFB	.324	.013	.971
M2: JAuto*TV*TS*TID*JFB*~JC*IP*SV*SP*SS*Interd*OFB	.320	.008	.976
M3: JAuto*TV*TS*TID*JFB*~JC*IP*SV*SP*SS*IOO*OFB	.311	.005	.973
M4: TV*TS*TID*JFB*~JC*IP*SV*SP*SS*Interd*IOO*OFB	.301	.006	.968
M5: ~JAuto TV*TS* JFB*~JC*IP*PS* SV*SP*SS*Interd*IOO*OFB	.099	.005	.981
M6: JAuto*TV*TS*TID*JFB* IP*PS* SV*SP*SS*Interd*IOO*OFB	.296	.042	.964
Solution coverage	**.434**		
Solution consistency	**.956**		

Test of **M3** using the holdout sample data



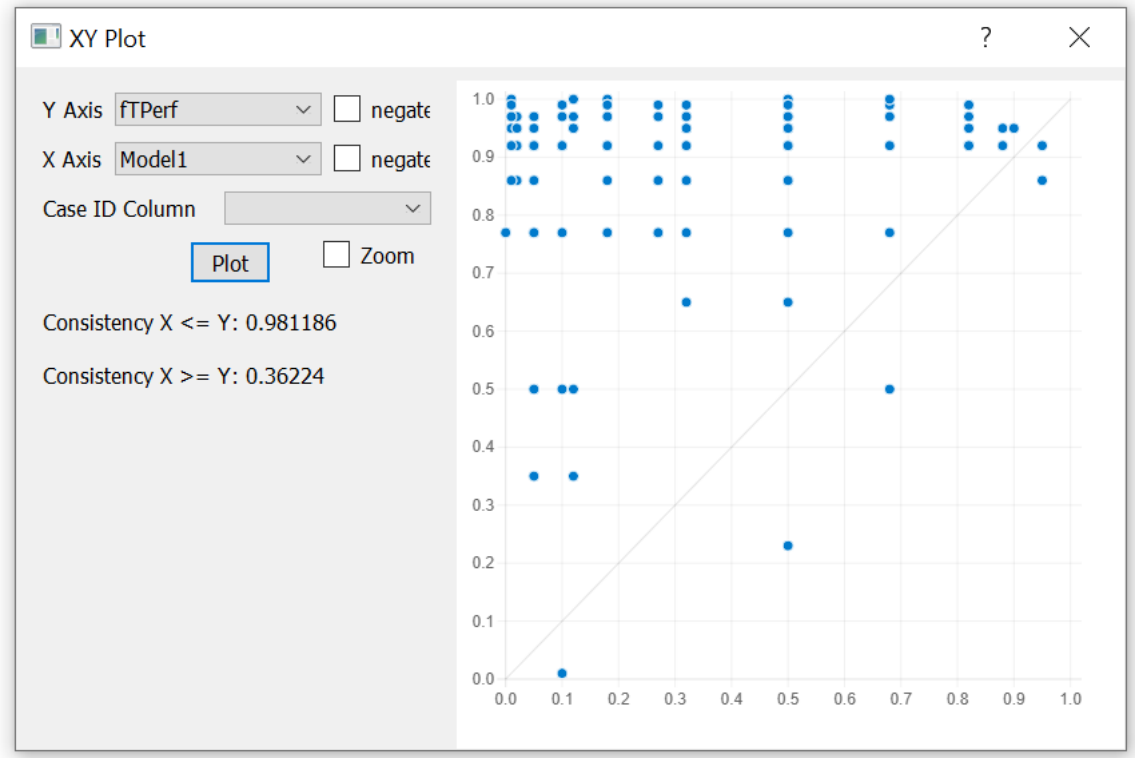
TPerf=task performance, **JAuto**= Job autonomy, **TV**= Task variety, **TS**= Task significance, **TID**= Task identity, **JFB**= Feedback from job, **JC**= Job complexity, **IP**= Information processing, **PS**= Problem-solving, **SV**= Skill variety, **SP**= Specialization, **SS**= Social support, **Interd**= Interdependence, **IOO**= Interaction outside the organization, **OFB**= Feedback (others), ~=absence of a characteristic

Source: Own work.

Table 8A: *Predictive validity – Hybrid work*

Model: TPerf = f(JAuto, TV, TS, TID, JFB, JC, IP, PS, SV, SP, SS, Interd, IOO, OFB)	Raw coverage	Unique coverage	Consistency
M1: JAuto*TV*TS*TID*JFB*~JC*IP*PS*SV*SP*SS* Interd*OFB	.351	.060	.965
M2: JAuto*TV*TS*TID*JFB*~JC*IP*SV*SP*SS* fIOO*OFB	.316	.024	.962
M3: JAuto*TV*TS*TID*JFB*IP*PS*SV*SP*SS* Interd*IOO*OFB	.399	.107	.947
Solution coverage	.484		
Solution consistency	.955		

Test of M1 using the subsample data



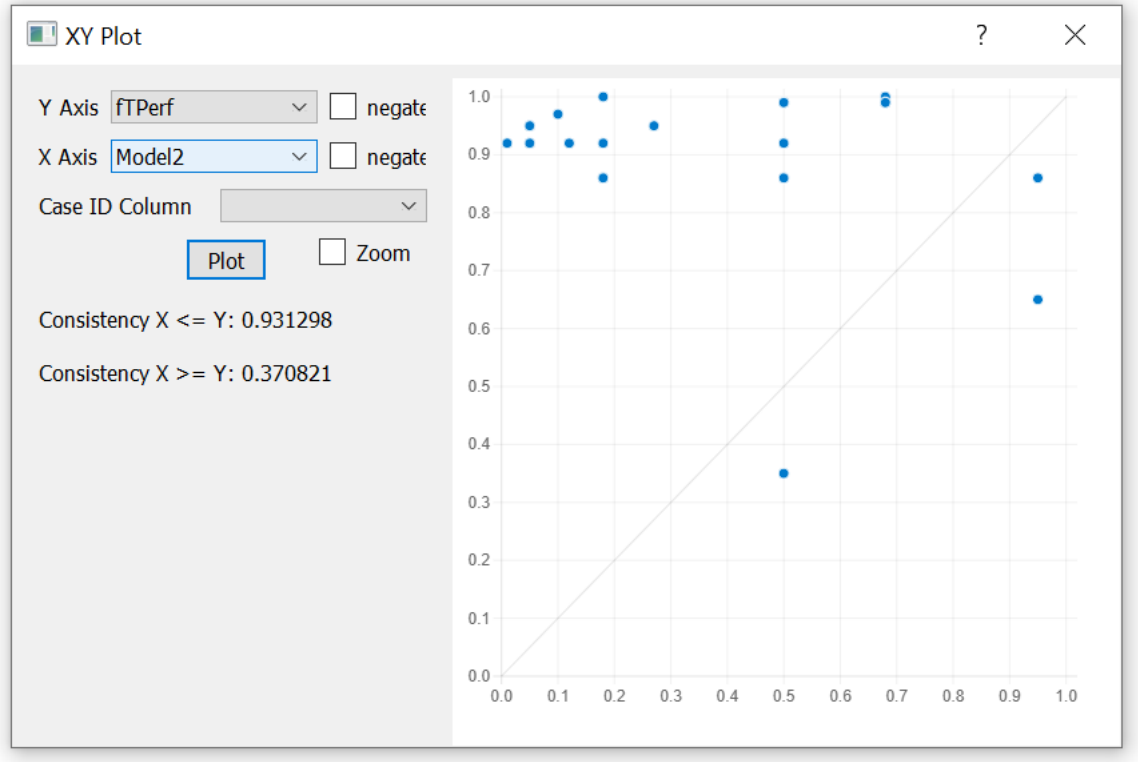
TPerf=task performance, JAuto= Job autonomy, TV= Task variety, TS= Task significance, TID= Task identity, JFB= Feedback from job, JC= Job complexity, IP= Information processing, PS= Problem-solving, SV= Skill variety, SP= Specialization, SS= Social support, Interd= Interdependence, IOO= Interaction outside the organization, OFB= Feedback (others), ~=absence of a characteristic

Source: Own work.

Table 9A: *Predictive validity – Remote work*

Model: TPerf = f(JAuto, TV, TS, TID, JFB, JC, IP, PS, SV, SP, SS, Interd, IOO, OFB)	Raw coverage	Unique coverage	Consistency
M1: JAuto*TV*TS*TID*JFB*~JC*IP*PS*SV*SP*SS* fIOO*OFB	.291	.072	1.000
M2: JAuto*TV*TS*TID*JFB*IP*PS*SV*SP*SS*Interd*fIOO*OFB	.370	.149	.931
M3: JAuto*~TV*~TS*TID*JFB* JC*~IP*PS*SV*~SP*SS*Interd*IOO*OFB	.083	.042	1.000
Solution coverage	.485		
Solution consistency	.946		

Test of M2 using the subsample data



TPerf=task performance, JAuto= Job autonomy, TV= Task variety, TS= Task significance, TID= Task identity, JFB= Feedback from job, JC= Job complexity, IP= Information processing, PS= Problem-solving, SV= Skill variety, SP= Specialization, SS= Social support, Interd= Interdependence, IOO= Interaction outside the organization, OFB= Feedback (others), ~=absence of a characteristic

Source: Own work.

Appendix 4: The work design puzzle: untangling its relationship with work-life balance across different forms of work

Table 10A: *Tests of between-subjects effects*

Dependent Variable: WLB_mean

FOW	Mean	Std. Deviation	N
onsite	3,4977	,78612	215
hybrid	3,6839	,80309	227
remote	3,5291	,92396	163
Total	3,5760	,83451	605

Source: Own work.

Table11A: *Tests of between-subjects effects*

Dependent Variable: WLB_mean

Source	Type III Sum of Squares	df	mean square	F	Sig
Corrected Model	4,321[a]	2	2,16	3,124	0,045
Intercept	7551,623	1	7551,623	10920,019	0
FOW	4,321	2	2,160	3,124	0,045
Error	416,307	602	0,692		
Total	8157,375	605			
Corrected Total	420,627	604			

a. R Squared = ,010 (Adjusted R Squared = ,007)

Source: Own work.

Table 12A: *On-site work design configurations*

Configurations	**1**	**2**	**3**	**4**	**5**
Job autonomy	●	●	●	●	●
Task variety	●	●	●	●	●
Task significance	●	●	●	●	●
Task identity	●	●	●	●	●
Feedback from job	●	●	●	●	●
Job complexity	⊗	●	⊗	⊗	●
Information Processing	●	●	●	●	●
Problem Solving	●	●	●	●	●
Skill variety	●	●	●	●	●
Specialization	●	●	●	●	●
Social support	●	●	●	●	●
Interdependence	●		●		●
Interaction outside organization	●	●	●	●	●
Feedback (others)	●	●		●	●
Tech complexity		⊗	●	●	⊗
Tech uncertainty	●	●	●	●	●
Techno Overload		●	●	●	●
IT Presenteeism	●	●	●	●	●
Raw coverage	.238	.116	.200	.195	.116
Unique coverage	.030	.005	.007	.004	.004
Consistency	.985	.955	.997	.998	.954
Overall solution coverage	**.453**				
Overall solution consistency	**.893**				

NB: (●) denotes the presence of a characteristic, (⊗) indicates the absence of a characteristic. Blank cells reflect not binding characteristics. We included only configurations that include the necessary characteristics for the focal form of work and sufficient raw coverage (> .10); *Source: Own work.*

Table 13A: *Hybrid work design configurations*

Configurations	**1**	**2**	**3**	**4**
Job autonomy	●	●	●	●
Task variety	●	●	●	●
Task significance	●	●	●	●
Task identity	●	●	●	●
Feedback from job	●	●	●	●
Job complexity		●	●	⊗
Information Processing	●	●	●	●
Problem Solving	●	●	●	●
Skill variety	●	●	●	●
Specialization	●	●	●	●
Social support	●	●	●	●
Interdependence	●	●	●	●
Interaction outside organization	●	●	●	●
Feedback (others)	●	●		●
Tech complexity	⊗	⊗	⊗	
Tech uncertainty			●	●
Techno Overload		⊗	⊗	●
IT Presenteeism	●	●	●	●
Raw coverage	.224	.151	.156	.237
Unique coverage	.041	.021	.026	.108
Consistency	.907	.935	.942	.923
Overall solution coverage	**.380**			
Overall solution consistency	**.911**			

NB: (●) denotes the presence of a characteristic, (⊗) indicates the absence of a characteristic. Blank cells reflect not binding characteristics. We included only configurations that include the necessary characteristics for the focal form of work and sufficient raw coverage (> .10); *Source: Own work.*

Table 14A: *Remote work design configurations*

Configurations	**1**	**2**	**3**
Job autonomy	●	●	●
Task variety	●	●	●
Task significance	●	●	●
Task identity	●	●	●
Feedback from job	●	●	●
Job complexity	●	●	
Information Processing	●	●	●
Problem Solving	●	●	●
Skill variety	●	●	●
Specialization	●	●	●
Social support	●	●	●
Interdependence	●	●	●
Interaction outside organization	●	●	●
Feedback (others)	⊗	●	●
Tech complexity		⊗	●
Tech uncertainty	⊗	●	●
Techno Overload	⊗		●
IT Presenteeism	●	●	●
Raw coverage	.109	.127	.183
Unique coverage	.016	.029	.073
Consistency	.885	.922	.894
Overall solution coverage	**.430**		
Overall solution consistency	**.851**		

NB: (●) denotes the presence of a characteristic, (⊗) indicates the absence of a characteristic. Blank cells reflect not binding characteristics. We included only configurations that include the necessary characteristics for the focal form of work and sufficient raw coverage (> .10); *Source: Own work.*