remaking

Remote-Working Multiple Impacts
in the Age of Disruptions:
Socioeconomic Transformations,
Territorial Rethinking, and Policy Actions

D 1.1 Report on background knowledge to inform the empirical research

This Deliverable is composed of three main documents:

- The Literature Review on the conceptual foundations of RW and its functions;
- The Report on future scenarios and provide quantitative forecasts for likely evolution of RW and
- The Descriptive Analysis of Remote Workers data from the Survey

2

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Task 1.2 Literature Review on conceptual foundations of RW and its functions

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Deliverable information	
Dissemination level	Public
Type of deliverable	Report
Work package	WP1 – Task 1.2 Literature Review
Status - version, date	Draft – V1 – 13 May 2024 Draft – V2 – 03 July 2024 Draft – V3 – 10 September 2024 Draft – V4 – 30 October 2024 Final version – V5 27 November 2024
Deliverable leader	Marco R. Di Tommaso (UNIBO)
Contributing partners	UNIBO – IRS – PBS – COLABOR – ECHN – POLIMI
Contractual date of delivery	30/11/2024
Keywords	Literature Review – Remote Work Arrangements

Quality control

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Version History

Version	*Date*	*Organisation*	*Summary of changes*
0.1	03/04/2024	UNIBO	Sharing Guidelines with partners
0.2	13/05/2024	UNIBO	First draft of document structure
0.3	03/06/2024	UNIBO	First release of the Literature Review
0.4	10/09/2024	UNIBO	Second release with updated contributions of the narrative part
0.5	17/10/2024	UNIBO	Third release with Quantitative Analysis and revision of the narrative part
0.6	30/10/2024	UNIBO	Final version to be reviewed by WP Leaders and Advisory Board Member
0.7	27/11/2024	UNIBO	Integrating comments by WP Leaders and Advisory Board Member

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Sommario

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Executive Summary

This deliverable, part of the REMAKING project under Horizon Europe, provides a comprehensive Literature Review on Remote Working Arrangements (RWAs) and their implications across individual, organizational, and socio-economic dimensions.

Drawing on a systematic analysis of 516 publications, the review synthesizes existing knowledge on remote work as a transformative element influenced by global megatrends, namely globalization and technological developments, and external shocks, such as the COVID-19 pandemic and the Russian invasion of Ukraine.

The review is grounded into a comprehensive coverage of the topic. Data sources include academic databases like Scopus, Web of Science, and Google Scholar. Keywords aligned with project themes guided the identification of relevant studies, categorized for thematic analysis using "Zotero", the open-source reference management software. Contributions were distributed among consortium partners, ensuring a balanced, cross-sectional narrative synthesis. The research categorizes remote work studies by transversal issues—territory, gender, sector, occupation, and type of source—enabling a preliminary understanding of its diverse implications.

It highlights the uneven adoption of remote work across Europe, examining its varied impacts on individuals, organizations, and regions. However, the majority of studies analyzed fail to provide a nuanced and comprehensive understanding of the phenomenon across the full spectrum of its dimensions, such as gender, territory, sectors, occupations, and types of remote work (e.g., hybrid work, work-from-home, digital nomads, among others).

Initially limited to specific sectors and roles, remote work adoption was gradually driven by advancements in digital technologies and connectivity. However, the COVID-19 pandemic marked a turning point, propelling remote work into the mainstream across Europe. This shift underscored its dual role as a mechanism for resilience during crises and a potential driver of structural change in labor markets and regional development. Despite this growth, adoption remains uneven, with significant disparities between Northern and Western Europe, where advanced digital infrastructure and supportive labor policies prevail, and Southern and Eastern Europe, where uptake has been slower due to structural and cultural barriers. In general, knowledge-intensive sectors have seen the greatest success in adopting forms of remote work, leveraging its flexibility.

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At the individual level, remote work has profoundly influenced well-being, routines, and relationships. While many workers benefit from increased flexibility and autonomy, challenges such as technostress, social isolation, and blurred boundaries between work and personal life persist. Women and caregivers often face intensified work-life conflicts, underscoring the need for equitable policy interventions.

For organizations, remote work has necessitated significant adjustments in business models, management practices, and innovation strategies. However, maintaining organizational cohesion and identity in remote-first cultures presents ongoing challenges. Hybrid models, blending in-office and remote work, are increasingly favored as they balance flexibility with the need for collaboration and team cohesion. Moreover, new forms of leadership have emerged as critical in mitigating negative effects, with ergonomic considerations and thoughtfully designed hybrid workspaces further enhancing employee satisfaction and productivity.

From a socio-economic and territorial perspective, remote work is redefining labor markets and transforming territories, communities and spatial mobility, with potential environmental impacts. It offers the potential to mitigate regional inequalities by enabling a redistribution of workforce talent toward rural and second-tier urban areas. However, its transformative potential is constrained by disparities in digital infrastructure, the uneven geographical distribution of remote-compatible sectors, access to broadband and coworking spaces, particularly in peripheral and rural regions.

In conclusion, remote work represents an opportunity to rethink the interplay between labor, production, and regional economies. While its potential is vast, its success depends on carefully designed interventions that mitigate potential disparities among different socio-economic groups and territories. In this perspective, the review of the literature highlights that, to maximize the benefits of remote work, evidence-based policies must address these challenges holistically. Precisely, policymakers should integrate remote work into broader territorial development strategies, considering its role in fostering resilient and inclusive economies. The REMAKING project emphasizes the need for a coordinated approach, recognizing remote work not merely as a temporary response to crises but as a strategic lever for shaping the future of work in Europe.

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Acknowledgements

This Literature Review document is the result of a collective effort by the whole REMAKING Team, made possible thanks to the continuous interactions and collaboration among REMAKING research groups and scholars. In this context, single parts of the Literature Review have particularly benefited from specific contributions, as follows. The general organization and supervision of the work and the document, including the general description and methodology, were managed by UNIBO. The data collection phase and the narrative synthesis of the evidences were carried out by UNIBO, COLABOR, IRS EV, PSB, POLIMI and ECHN. The Descriptive quantitative analysis of the results and the final elaboration of the key findings was developed by UNIBO. In the end, the final Literature Review document was peer-reviewed by WP Leaders (IRS, TCD, COLABOR, VA) and Advisory Board members, Prof. Francesca Spigarelli (University of Macerata, Italy) and Prof. Vinod K. Aggarwal (Berkeley, University of California, the US).

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PART A Opening Section

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Introduction

Purpose of the deliverable

This section of Deliverable 1.1 addresses a Literature Review made for the purpose of Task 1.2 «Literature review on conceptual foundations of RW and its functions» led by UNIBO. It summarises the results of a literature review produced by the REMAKING Consortium around the main pillars of the project, namely the individual dimensions, transformations on production organization and current and potential socio-economic transformations, including the Literature Reviews foreseen in Task 2.1, 3.1 and 4.1.

The aim of the task 1.2 is to provide a thorough analysis of the existing knowledge in literature on the rise and use of RWA in relationship with long megatrends (post-Fordism, globalisation, digitalization, platformization) and external disruptions.

It relies on collaborative work made by partners UNIBO – IRS – PBS – COLABOR - ECHN – POLIMI of the REMAKING Consortium. The research groups collected and analysed 516 publications. The collective work has been designed and monitored by UNIBO. The different sections of the Literature Review have been allocated to different partners, mirroring the Consortium responsibilities in the Work Plan. For the data collection we have used a common folder on the free package "Zotero", a free and open-source reference management software.

UNIBO, as Task Leader, coordinated and oversaw the collective research and provided specific guidelines for its development (Annex I).

Structure of the deliverable

The present deliverable is organized in 5 Sections, explained as follows. In Section 1 an overall description of the Methodology to produce the literature review is given. Section 2 presents the origins and diffusion of the phenomenon, the connection with Shocks and megatrends, the evolution and diffusion of RWA in Europe and the geography of RWA in urban and rural territories. Section 3 focuses on current and potential transformations on Individuals, with a specific attention to: subjective well-being, everyday practices and routines, relationships. Section 4 provides information on the current and potential transformations on production organization: Business models, teleworkability and the organizational impacts, Innovation and economic performances. Finally, Section 6 provides a critical

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discussion of the main findings of the systematic literature review and some preliminary corresponding recommendations.

Intended audience

This deliverable is addressed to academics. However, some results may be readable to policymakers and stakeholders.

Glossary

- **Remote Work**: Remote work is defined by the International Labour Organization as "situations where the work is fully or partly carried out on an alternative worksite other than the default place of work" (ILO, 2020, p. 5). Wikipedia states as a practice of working at or from one's home or another space rather than from an office.
  RWA – Remote Working Arrangements can be founded with the following synonyms: Remote work/homework/telework/home-based work/home-based e-work/work from home/remote employee/e-work/flexible work/agile work/telecommute/new way of work/hybrid work/digital nomads/smart working/remote commuting.
- **Hybrid Work**: the term 'hybrid work' has been used to refer to situations in which (teleworkable) work is carried out both from the usual place of work (normally the employer's premises) and from home, as experienced during the pandemic, or from other locations[1]
- **Techno-stress**: Technostress is commonly defined as an ICT user's experience of stress when using technology (Ragu-Nathan et al. 2008). Technostress is derived from an adaptation problem that an individual experiences when he or she is unable to cope with or get used to ICT. In the organisational context, technostress is caused by individuals' attempts and struggles to cope with constantly evolving ICTs and the changing physical, social and cognitive demands associated with their use, such as application multitasking, constant connectivity, information overload, frequent system upgrades and consequent uncertainty, constant re-learning and consequent job insecurity, and technical problems associated with the organisational use of ICTs (Tarafdar, Tu, Ragu-Nathan, 2010). The literature has identified several symptoms associated with technostress, such as anxiety, physical diseases, behavioural strain, mental fatigue, memory problems, poor concentration, irritability, feelings of exhaustion

[1] https://www.eurofound.europa.eu/en/publications/2023/hybrid-work-europe-concept-and-practice

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and insomnia. Among the most common organisational consequences of technostress, recent studies have found reduced employee productivity, job performance, job satisfaction and organisational commitment, reduced intention to use ICT and increased turnover intentions (Molino et al., 2020).

List of Acronyms/Abbreviations

Abbreviation	***Explanation***
RWA	Remote Work Arrangement
WFH	Working from Home

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Methodology

This Literature Review is based upon a methodological approach in which systematic review methods are streamlined or omitted to produce evidence for scholars in a resource-efficient manner, a reasonable timeframe, and in compliance with the project deadline.

It provides a descriptive summary of the findings to produce a knowledge synthesis to assess what is already known about the phenomenon of Remote Work and its implications in society.

Overall, 516 studies were selected from common academic databases (like Scopus and Web of Science), based on inclusion and exclusion criteria, such as relevance, recency and quality. Studies were labelled with thematic categories (e.g., sector, occupation, remote work arrangement typologies).

Below are listed the main information, criteria, guidelines and phases of the work.

Study Design
Information Sources
Search Strategy
Data Collection and Study Selection
Descriptive Quantitative Analysis

Study Design

This Literature Review has been carried out in in several stages. The design is outlined below.

Green Keywords

The goal and the vision of the Remaking project is to consider Remote Work not only "as a mere flexible working arrangement … [but also] as a vehicle of potential socio-economic transformation for second tier and rural areas…". In this perspective, the consortium has identified, through a collective process, a list of green keywords for each topic of research, specifying possible trajectories of research dimensions consistent but not limited to the subject under analysis. Green keywords have driven and oriented the search and in parallel used to label each study under analysis. Topics of research carefully mirror the workplan of the project.

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Inclusion and exclusion criteria

To identify the main corpus of the review, we have established a set of Inclusion and Exclusion Criteria, detailed in subsection 1.4 Data Collection and Study Selection.

Descriptive Quantitative Analysis

Furthermore, to complement the process of collecting evidence, UNIBO provides a Descriptive Quantitative Analysis of the existing literature to get a nuanced understanding of the existing literature through the lens of the cross-cutting categories used as inclusion criteria (see above).

Partners have been asked to tag every study collected on Zotero using the above-mentioned categories. The use of tags through this platform facilitated the implementation of quantitative analysis of the literature review, due to its capabilities for classification, filtering, and counting of selected tags – e.g. through the tag "gendered" we can determinate how many issues address gender-related topics out of the total number of issues analysed. At the end of the "tagging" process, a quantitative analysis is made by UNIBO team. Results of the Descriptive Quantitative analysis can be found in the section 1.6, "Quantitative analysis".

Narrative analysis

In the narrative section "The Evidences in short" the 516 studies collected have been elaborated and a synthesis of the results is reported in a narrative format.

Information sources

The information in the Literature Review arises from different sources, according to the related topic: Scopus, Google Scholar, Web of Science.

Search Strategy

Below the keywords used to drive the search per Section.

- Section 1 – Origins of the phenomenon: Shock and Megatrends

1. Remote work, region, diffusion, sector, geography, skills, gender, urban, rural, megatrend, shock, globalization, technology, war, Covid-19 pandemic, covid, labour market, employment, remote work, structural change.

- Section 2 – Current and potential transformations on Individuals (WP2)

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1. Remote work, work-life balance, emotion, health, care, proximity, safety, isolation, job satisfaction, stress, motivation, productivity, efficiency, job quality, right to disconnect, well-being, flexibility, time management, lifestyle, routine, family, friend, communication, work-family conflicts, coworker, colleague, remote work and various components of well-being, such as emotion, work-life balance, health, safety, isolation, job satisfaction, and productivity.

- Section 3 – Current and potential transformations on production organization (WP3)

  Remote working, remote work, telecommute, work-from-home (WFH), telework, flexible work arrangements, digital workplace, hybrid work, remote employee, home office, remote job, remote workforce, in combination with keywords for every chapter:

  1. Business models and remote working: platformization, business models, business transformation, strategy, digital transformation, information technologies. Teleworkability and the organizational impacts of remote work: teleworkability, skills, organizational flexibility, meaningful work, belongingness, socialization, productivity, leadership, inclusive culture, employee satisfaction, work-life balance, employee isolation, engagement, employee well-being, Innovation and economic performance: innovation, performance, entrepreneur, startups, creativity, organizational culture, productivity, team, conflict management.

- Section 4 – Current and potential socio-economic transformations (WP4)
  1. Labour market: remote work, telework and labour market, highly skilled, employment decisions, wages.
  2. Mobility and Environmental impacts: mobility, remote working, telework, environmental impacts, green transition, commuting, sustainability, mobility, twin transition, remote working.
  3. Community: community, workspaces (coworking), accessibility to services, digital nomads, theories (lifestyle mobilities), qualitative studies, case study, coliving.
  4. Reshaping territories remote working (RW), residential mobility, digitalization, deterritorialization, coworking spaces (CS), Covid-19, commuting, geography of work.

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Data Collection and Study Selection

Through research on comprehensive academic databases using specific keywords, a total of 3154 papers were initially identified. Based on their relevance to the research objectives, a selection was then made, resulting in the exclusion of several non-pertinent studies. After removing duplicates, the inclusion and exclusion of articles in the literature review followed specific criteria.

Inclusion Criteria include:

- **Territory**: Urban/Rural areas and/or Country-level/Non-territorial
- **Gender**: Gendered/Non-Gendered
- **Sector**: All sectors, Manufacturing, Creative, Services
- **Occupation**: All occupations, Knowledge-intensive/ Routinary
- **Content**: Theories, Case-study, Qualitative study, Quantitative study, Descriptive statistics and Policies
- **Remote Work Arrangements**: Work from home, Digital nomads, Telework, Hybrid work, All RWA
- **Type of source**: Prestigious Scientific and International Journals, Working Papers, Policy Papers or Reports from International Organisations (e.g. OECD, ILO), Grey literature, Databases

Exclusion criteria include:

- **Language:** only English
- **Consistency with the research objective**
- **Time-frame:** studies published in the last 10 years

Most studies older than 10 years were excluded from the review to contextualize the research on remote work within the timeframe spanning the pre-pandemic to post-pandemic periods, aiming to provide a more recent and up-to-date overview of the phenomenon. Nevertheless, studies older than 10 years that offered a significant contribution to scientific research were included.

Following this screening process, a total of 516 papers were included in the review. The following diagrams provide a summary and visual representation of the inclusion and exclusion process. The first diagram outlines the total number of articles reviewed for the entire literature review, while the subsequent diagrams detail each individual section.

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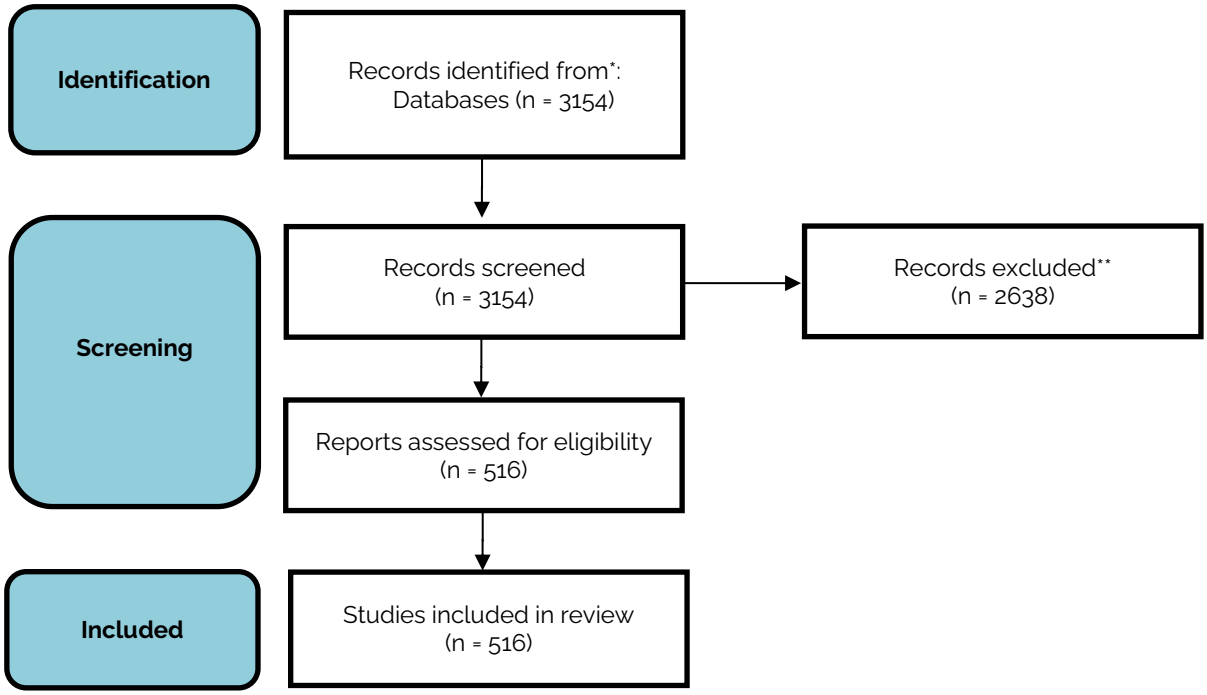
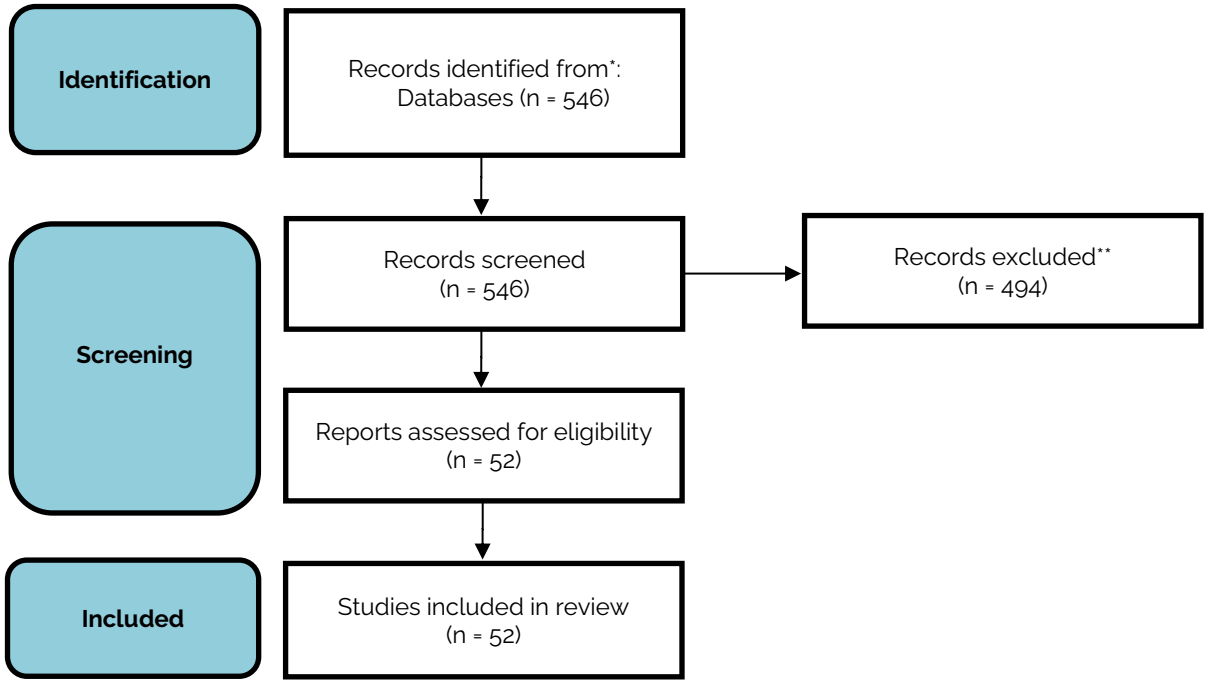
Overall project



Section 1 – Origins and diffusion of the phenomenon: Shocks and Megatrends

For this section includes 52 studies. Below the selection process.



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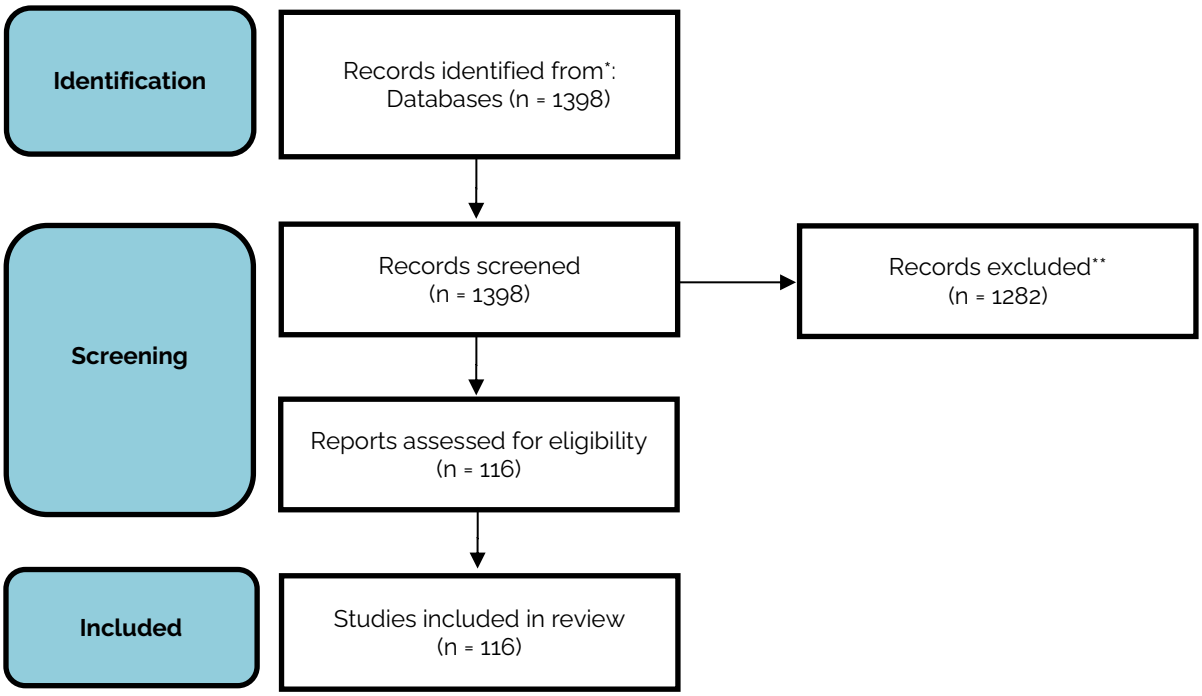
Section 2 – Current and potential transformations on Individuals (WP2)

For this section includes 116 studies. Below the selection process.



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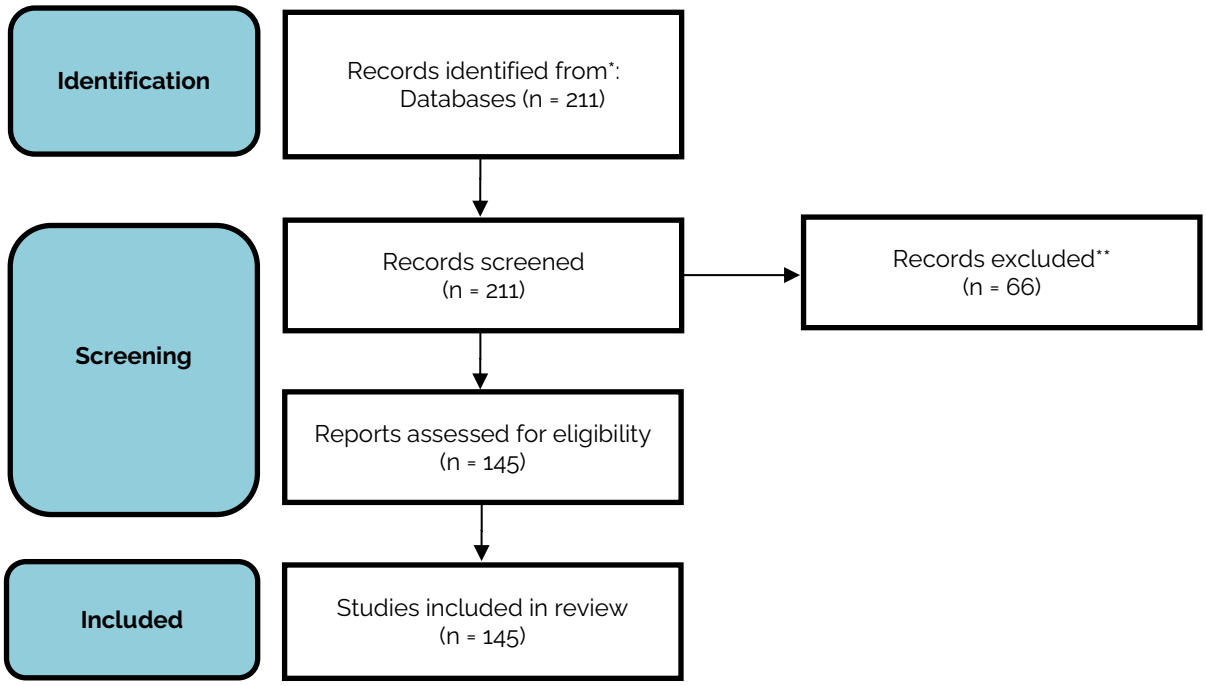
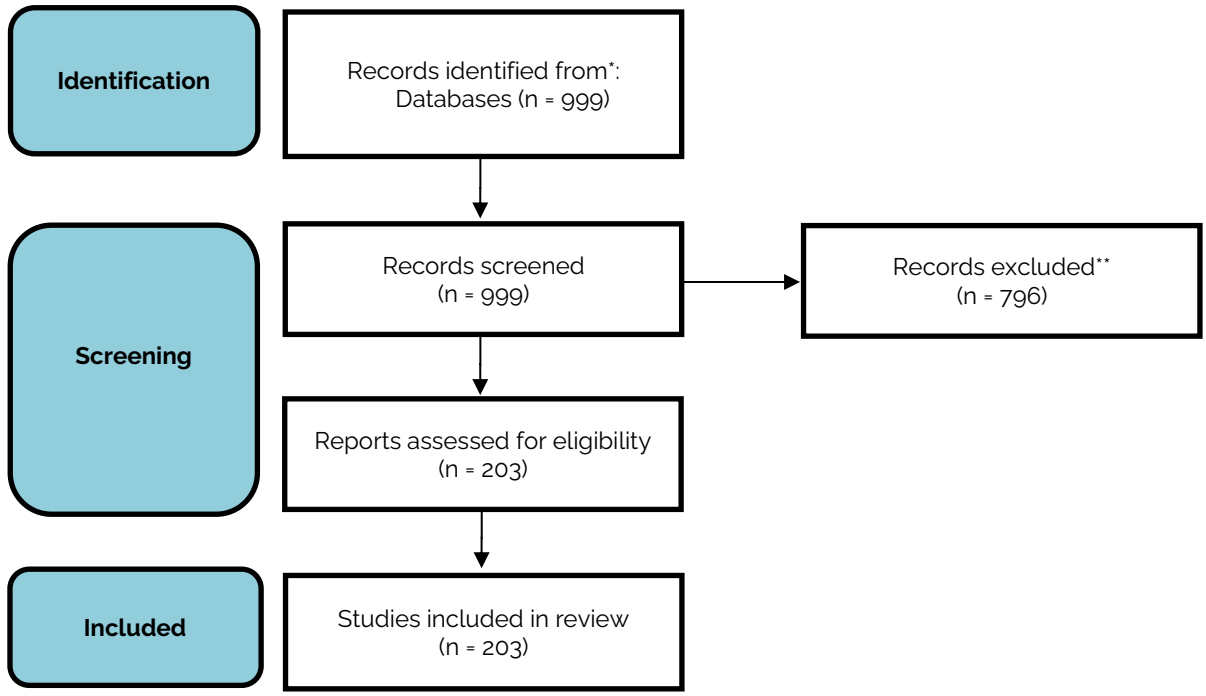
Section 3 - Current and potential transformations on production organization (WP3)

For this section includes 145 studies. Below the selection process.



Section 4 - Current and potential socio-economic transformations (WP4)

For this section includes 203 studies. Below the selection process.



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Descriptive Quantitative Analysis

To conduct the Descriptive Quantitative Analysis, we applied the inclusion criteria as transversal issues to classify the entire corpus of study. Each category includes two or more mutually exclusive descriptors used to classify Literature Review. For each section, the Literature has been classified through the transversal issues to provide a Quantitative Analysis and offer an overview of the level of details of the existing literature on the subject.

The following table summarizes the Transversal issues and related Descriptors.

Transversal issues	***Descriptors***
Territory	Urban, Rural, Country-level, Non-territorial
Gender	Gendered, Non-gendered
Sector	All sectors, Manufacturing, Creative, Services
Occupation	All occupations, Knowledge intensive, Routinary
Content	Theories, Case study, Qualitative study, Quantitative study, Descriptive statistics and policies
Remote work arrangement	Work from home, Digital nomads, Telework, Hybrid work, All RWA
Type of source	Prestigious scientific and international journals, Working papers, Policy papers or reports from international organizations, Grey literature, Databases

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PART B
Narrative Section

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The Evidences in short

Introduction[2]

Remote work represents a substantial transformation in the organization of labour, now positioned at the forefront of contemporary research by scholars and international institutions. Despite its prominence, the full scope and implications of this shift remain insufficiently understood and explored, primarily due to the varied and heterogeneous ways in which remote work has been adopted across different countries and regions. The organizational potential of remote work became particularly evident during the COVID-19 pandemic, when it allowed many businesses to sustain operations and ensure continuity in the face of unprecedented restrictions and lockdowns. This adaptation underscored its role as a crucial mechanism for resilience and adaptability in times of crisis.

However, the concept of remote work is not a novel phenomenon; it existed long before the pandemic but remained relatively limited in its application due to a range of factors, including organizational inertia, technological barriers, and sociocultural norms[3]. Prior to the pandemic, remote work was mainly utilized to address work-life balance challenges, particularly to facilitate the reconciliation of professional duties with family care responsibilities. Its spread within business has been enabled by significant technological advancements, especially the integration of digital technologies into corporate environments. Yet, the broader potential and multifaceted impacts of remote work, particularly concerning regional economic development, workforce distribution, and spatial organization, have only become more apparent in the context of recent global shocks and their aftermath.

Consequently, there is a growing recognition that remote work may hold far-reaching consequences not only for individual organizations but also for labour markets, social inequalities, urban planning, and regional policies. Indeed, remote work has increasingly enabled employees to reside outside of major metropolitan areas, potentially influencing population distribution, land use, and urban planning. This shift can create new economic and social dynamics in less developed or

2 First draft: Elena Prodi (POLIMI) and Marco R. Di Tommaso (UNIBO)
Further comments, revisions and adjustments: Zilvinas Martinaitis (VA)

3 More specifically, it emerged in the 80s and early 90s, when select employees were awarded the opportunity to work from home some of the time. Initially, most of the work-related communication took place over the phone, hence, the term "telework". It gained somewhat more prominence in the 90s, with more widespread use of personal computers.

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peripheral regions, fostering regional development and reducing disparities between urban and rural areas, allowing for greater flexibility and resilience in responding to global economic shifts.

This realization calls for a more nuanced understanding of its dynamics, considering both the opportunities and challenges it presents in a rapidly evolving economic and social landscape. As such, further empirical investigation is necessary to comprehend the full range of effects remote work may have on manifold dimensions, including individual aspects, such productivity, well-being and family ties, the reconfiguration of business and production processes as well as regional cohesion and resilience.

In what follows, this literature review aims to reconstruct the debate around remote work and, more broadly, hybrid forms of work, to frame this phenomenon not merely as a tool for work-life balance, as it was initially conceived, but as a lever for reorganizing workforce and reshaping production organization dynamics, with potential implications for the territories hosting remote workers. Indeed, the dynamics and the implications of this reorganization for workers' lives, production processes, and regional contexts are yet to be fully studied and understood.

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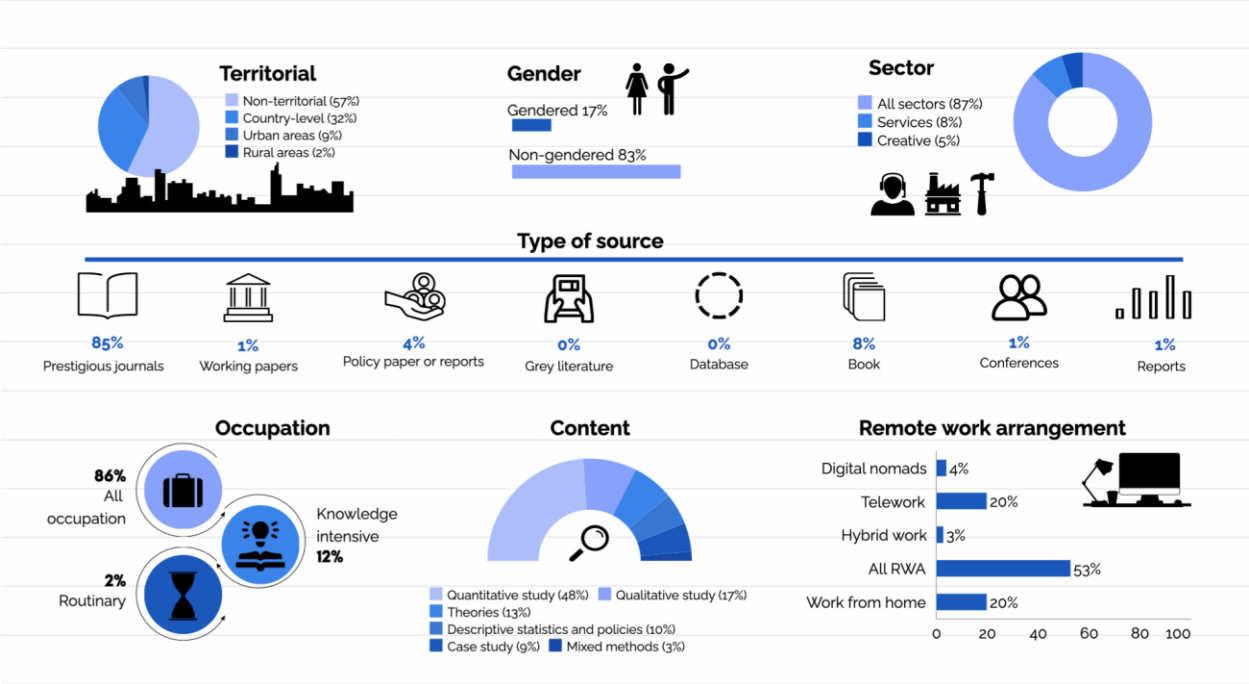
Results of Descriptive Quantitative Analysis[4]

The following infographics present the Descriptive Quantitative Analysis of the Literature Review in its entirety, encompassing all sections collectively. Separate analyses of each section follow, along with a description of the results based on each descriptors.

Overall project



[4] Draft: Patrizia Leone (UNIBO). Further comments, revisions and adjustments: Marco R. Di Tommaso (UNIBO)

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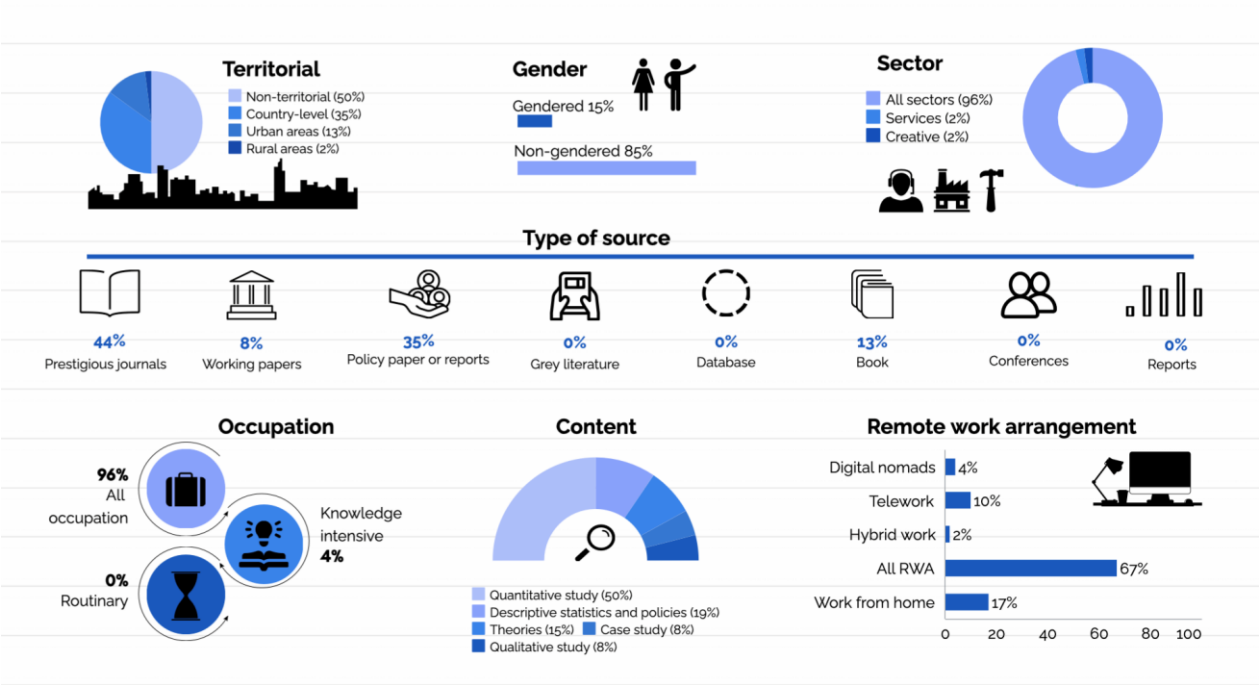
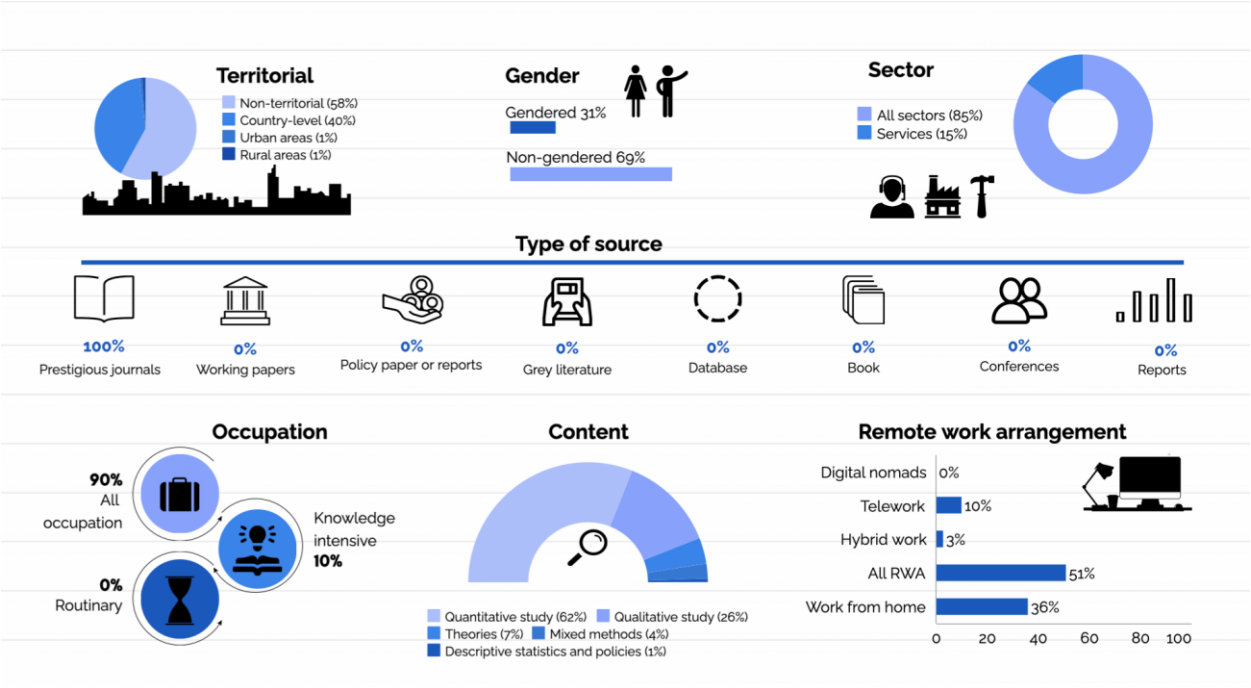
Section 1: Origins and diffusion of the phenomenon: shocks and megatrends



Section 2: Current and potential transformations on individuals



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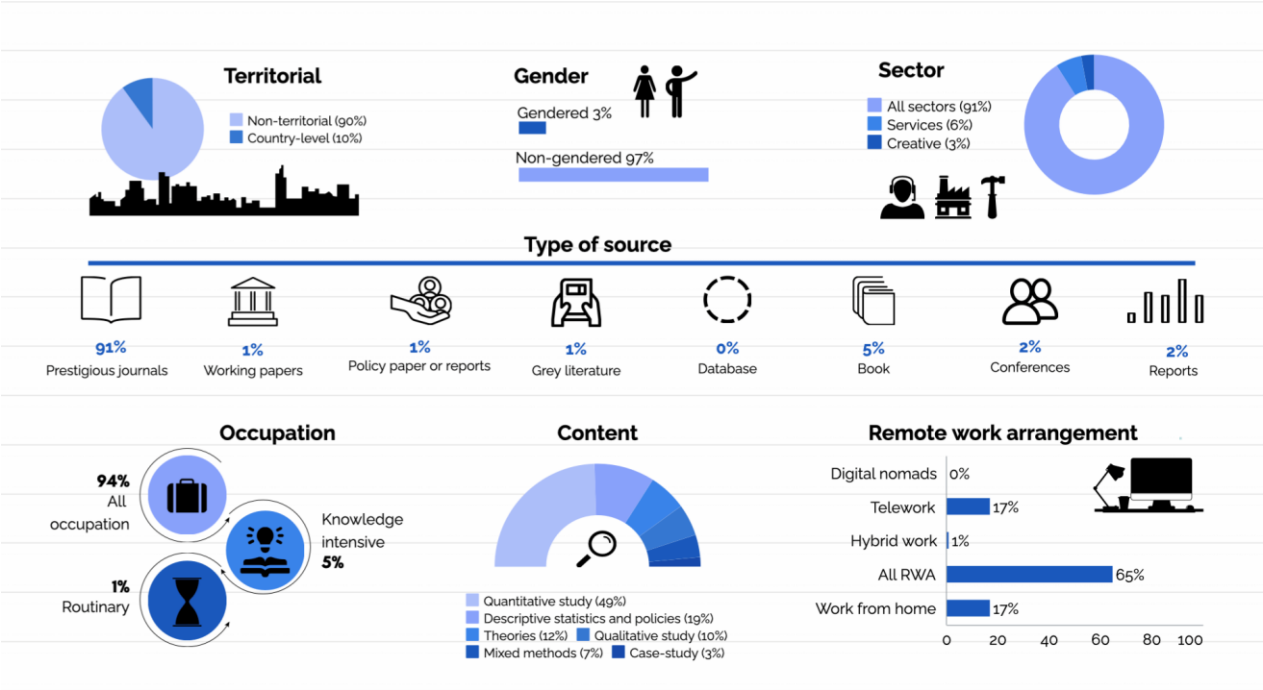
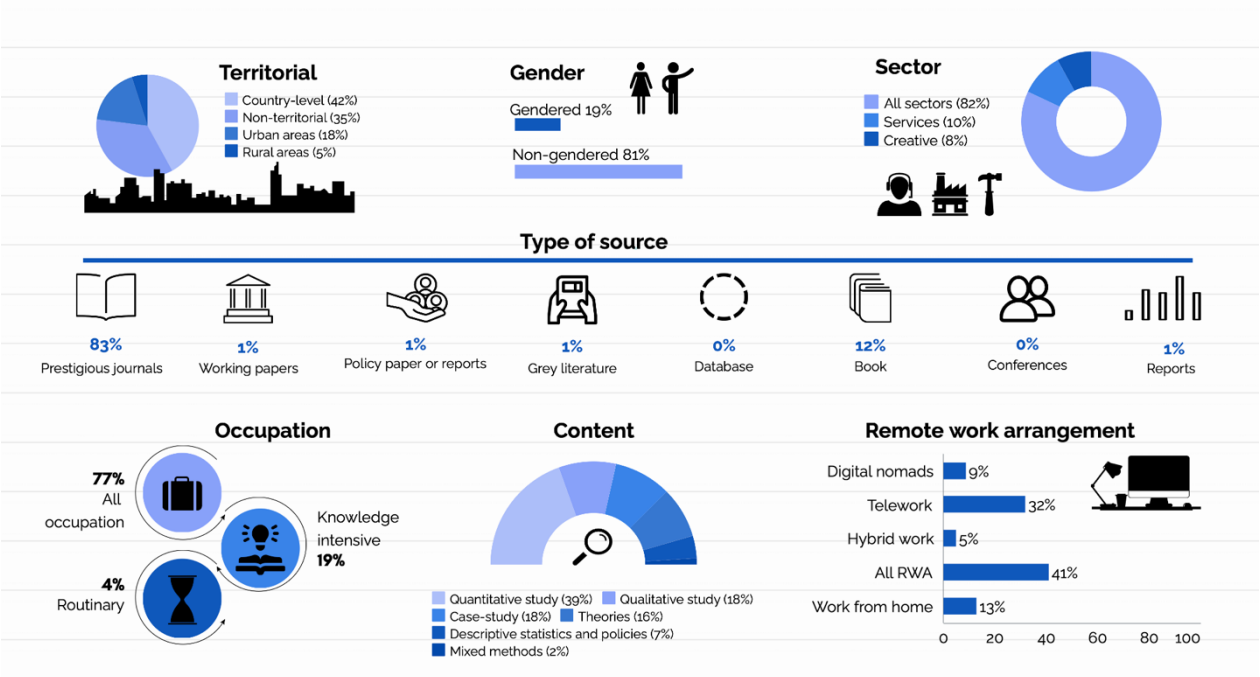
Section 3: Current and potential transformations on production organization



Section 4: Current and potential socio-economic transformations



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The overall result is that the majority of studies do not offer a specific and distinctive view of the phenomenon. More than half do not consider the territorial aspect, and when they do, it is typically on a national level, with very little analysis of urban-rural dynamics. Gender is not an analytical unit in the studies. Only 17% use it in their observations. The productive sectors are also not considered. Manufacturing is not mentioned, and only a small portion focuses on services and the creative sector. There is also no distinction made between high-knowledge occupation and non-high-knowledge occupation (which we have referred to, in opposition, as 'routinary' work), except in 14% of cases. Quantitative and statistical studies are the majority of research approaches used. Qualitative methods represent a minority, and mixed methods are used residually. Among the types of RWA, the majority of studies do not differentiate between categories. The most frequently used category is telework, followed by digital nomads and, to a lesser extent, hybrid work.

Below the analysis made by transversal issues, across the thematic section of literature review.

Territory

Most studies rarely consider the concept of territory, with some exceptions. Business-related studies overlook it in 90% of cases, with the remaining 10% focusing only on the national level, rarely addressing urban or rural distinctions. The Descriptive and Well-being sections also tend to ignore territory, with over 50% of studies in these areas neglecting it, though occasional analyses are conducted at the national and urban levels (13% in the Descriptive section). The Socio-economic transformations section considers territory more frequently, with 42% of studies focusing on the national level, 18% on urban areas, and 5% on rural areas. Overall, rural areas are largely neglected across all sections.

Gender

When it comes to gender, it is seldom used as a unit of analysis. In business-related studies, gender is ignored in 97% of cases. More than 80% of studies in the Descriptive and Territory sections do not address gender, while 31% of studies in the Well-being section consider gender dimensions.

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Sectors

Regarding sectors, productive sectors are rarely included in studies, particularly in the Descriptive and Business sections. However, services and creative sectors are covered more in the Well-being and Socio-economic transformations sections, while the manufacturing sector is almost entirely absent.

Occupation

Occupational distinctions are also limited. The only section that makes significant differentiation between types of occupations is the Socio-economic transformations section, which distinguishes between knowledge workers (19%) and routine workers (3%).

Contents

In terms of content, most sections focus on quantitative and statistical methods, especially in the Descriptive and Business sections. Qualitative methods appear in the Well-being (26%) and Socio-economic transformations (18%) sections, though mixed methods and theoretical approaches are less common, comprising around 15% or fewer of the studies.

Types of RWA

In relation to Remote Work Arrangements (RWA), over 50% of studies do not differentiate between different forms, such as telework, hybrid work, or work-from-home (WFH). The Socio-economic transformations section focuses more on these distinctions, with telework being the most studied in this area, while WFH is more commonly addressed in the Well-being section. Hybrid work, despite its likely prevalence in practice, is minimally covered.

Types of source

Finally, most of the studies reviewed are peer-reviewed articles. Policy papers and international reports are more commonly found in the Descriptive sections, while book chapters appear sporadically in other sections.

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Section 1 – Origins and diffusion of the phenomenon: Shock and Megatrends [5]

Megatrends and shocks changing production and workforce organization

In recent years, the global economic landscape has witnessed substantial structural changes in the organization of production, that have increasingly brought about economically relevant phenomena like value chain reconfiguration, changes in global trade patterns, trends towards firm concentration and the rise of remote work (Di Tommaso et al. 2024; Aggarwal and Aggarwal, 2024).

Structural dynamics represent a main feature of every process of economic growth, development and change, involving complex transformations in the organizational and institutional setups of societies (Pasinetti 1981; Pasinetti and Scazzieri, 1987; Pabst and Scazzieri 2023). These dynamics involves alterations in the relative proportions of productive sectors and therefore in the corresponding employment structure. Structural dynamics have historically attracted considerable attention by scholars, as they exert great impact on the individual members of the community (Pasinetti 1981).

Recent structural shifts in production have been primarily driven by long-term processes known as megatrends—complex, far-reaching transformations in production structures that have profound impacts on socio-economic and spatial relations (Di Tommaso et al., 2022; 2024). Among the most significant megatrends currently reshaping production systems are globalization, advancements in production technologies such as information and communication technologies (ICT), robotics, industrial automation, socio-demographic shifts (particularly aging populations), and environmental degradation (OECD, 2019; Baldwin, 2019). Of these, globalization and technological innovation have been the most influential in transforming both production processes and labour markets (Guriev, 2020; Guriev and Papaioannou, 2020).

[5] Draft: Elena Prodi (POLIMI) and Marco R. Di Tommaso (UNIBO). Further comments, revisions and adjustments: Zilvinas Martinaitis (VA), Patrizia Leone (UNIBO)

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Globalization, primarily driven by firms seeking to reduce costs, has fundamentally altered the international division of labour, increasing the interdependence of political, technological, and trade dynamics across countries (Bianchi and Labory, 2019; Pietrobelli and Rabellotti, 2011). This process has facilitated the relocation of manufacturing and other cost-sensitive operations to regions with lower labour costs while simultaneously promoting the concentration of knowledge-intensive activities and high-value-added services in major urban centres or mega-city regions. These regions, in turn, attract younger, highly skilled workers, creating a new geography of economic activity (Sassen, 2001; Moretti, 2012).

At the same time, globalization has fostered greater global connectivity, not only through physical infrastructure but also via digital tools and communication platforms. This enhanced connectivity has enabled firms to increasingly outsource functions such as customer service, software development, and accounting to workers in countries with lower labour costs. This model has become a widespread operational strategy, allowing firms to reduce costs and improve efficiency by tapping into a global workforce. In parallel, the expansion of digital infrastructure and platforms has allowed companies to broaden their access to labour markets worldwide, recruiting talent from any part of the globe. Remote work exemplifies this trend, enabling companies to access skills and expertise without the constraints of geographical boundaries, thereby creating a "global workforce" where employees can work for companies located in other countries without the need for physical relocation (Broecke 2024).

Overall, these dynamics have been further accelerated by the introduction of new technologies, which have intensified the impacts of globalization. Advancements in automation and logistics, for instance, have reduced production and transportation costs, facilitating international trade. Moreover, progress in ICT and digital technologies has enhanced the trade of services and goods by improving inventory management, enabling cost-effective cross-border marketing, and promoting the servitization of manufacturing (Prodi et al., 2022; Guriev and Papaioannou, 2020).

Technological advancements have not only facilitated the globalization process but have also led to significant changes in work practices and organizational arrangements. The rapid development and diffusion of technologies such as high-speed internet, cloud computing, and collaborative software have enabled more flexible working arrangements, allowing firms to quickly adapt to changing market conditions (Kalleberg, 2001). New work practices, such as remote work and the rise of digital nomadism, have experienced significant development in the second decade

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of the 21st century, reflecting a broader shift towards flexibility and mobility in the workplace (Messenger and Gschwind 2016).

These developments have reshaped the geographic distribution of labour, expanded access to global labour markets, and necessitated the redefinition of policies and regulations at the international level. The convergence of these forces has led to a more interconnected global economy where work is increasingly untethered from specific locations (Kässi and Lehdonvirta 2018). In other words, they have laid the premises and created the conditions for the emergence and expansion of new forms of work organization, primarily remote work.

The concept of remote work was first experimented in the United States in the 1970s. Then, various forms of it spread across many of the world's most industrialized countries, becoming particularly rooted in activities such as sales, technical assistance, consulting, software programming, graphic design, teaching, study and research, journalism, debt collection, personnel administration, call centres, event organization (Melis 2020). Since the 1980s, the flexibilization of work and labour relations has contributed to shape and influence teleworking practices.

It began gaining traction in the early 2000s with the advent of digital technologies and the increasing availability of high-speed internet. Its first normative definition is contained in the European Framework Agreement signed in 2002 by the ETUC (European Trade Union Confederation), UNICE (Union of Industrial and Employers' Confederations of Europe), and CEEP (European Centre for Public Enterprises), according to which it 'constitutes a form of work organization and/or performance that uses information technologies within the framework of an employment contract or relationship, in which the work activity, which could be performed on the premises of the company, is regularly carried out outside the company's premises. (Melis 2020)

However, in the early 2000s its adoption was relatively limited, primarily confined to certain sectors and predominantly used as a means to achieve better work-life balance (Eurofound, 2017).

The financial crisis of 2008 further emphasized the need for flexible work arrangements as companies sought ways to reduce operational costs. Remote work gained some momentum during this period, but its diffusion remained uneven across Europe, with higher adoption rates in countries like the Netherlands and Sweden, where labour market policies and social norms supported flexible work practices.

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In recent years, remote and hybrid work models have experienced an unprecedent increase in Europe, further driven by technological advancements, and accelerated by external pressures and unexpected shocks such as the COVID-19 pandemic, the Brexit, and the Russian invasion of Ukraine in 2022 (Aggarwal and Aggarwal, 2024; OECD 2024)

In particular, the COVID-19 pandemic marked a pivotal moment in the evolution of remote work. Lockdowns and social distancing measures necessitated a rapid shift to remote working for many organizations across Europe (Eurofound and ECJRC 2021). Thus, the COVID-19 pandemic resulted in a sudden increase in working outside the employer's premises and with greater flexibility. According to a survey by Eurofound (2020), the pandemic led to an unprecedented increase in remote work, with around 40% of the EU workforce engaging in remote work during the peak of the crisis. Thus, workers worldwide had to quickly adapt to large-scale remote working practices, carried out through the use of technological tools. This allowed many to experience remote work routines for the first time as well as novel practices of interpersonal relationships and organization of time (Gandini and Garavaglia 2023). This sparked renewed reflections on the nature of work, the types of tasks employees do, the integration of digital technologies into work, productivity, health and safety, well-being, work–life balance and so on.

But the pandemic is not the only shock that has produced an acceleration of the introduction of flexible working arrangements. Other external shocks have accelerated such trends across Western economies, namely the United Kingdom's exit from the European Union (so called "Brexit") in January 2020 and the Russian invasion of Ukraine in February 2022.

Brexit has led to a series of changes in the UK labour market, most notably a reduction in the available workforce due to a decrease in immigration from the European Union, a condition that has had significant effects on European labour markets. In fact, Brexit has further accentuated this trend by making it more difficult for UK companies to hire workers from abroad. On the one hand, this has forced them to consider more flexible and innovative working arrangements (Holland et. al), and remote work has emerged as an adaptation strategy for many companies, which have been prompted to revise their human resource management strategies, adopting remote work as a means to attract global talent and compensate for the shortage of local skills. On the other hand, Brexit has benefited other European countries in several ways, especially in terms of workers' mobility and talent attraction. With the United Kingdom's exit from the European Union, many companies, particularly

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multinationals, have sought to maintain access to the single European market without facing the new trade, regulatory, and mobility barriers introduced by Brexit. For example, countries like Ireland, which remains the only English-speaking country in the EU and offers tax advantages, as well as Germany, the Netherlands, and France, have benefited from the influx of business activities and skilled professionals who have relocated from the UK or decided to work remotely for companies based in other European nations. Many British companies have implemented various organizational adjustments to navigate the challenges posed by Brexit. These include relocating key operations or headquarters to EU member states like the Netherlands or Belgium, as well as adopting flexible working models to continue attracting professionals from different EU countries (Frost, 2022, 2024; OECD 2024).

In parallel, the Russian invasion of Ukraine in February 2022 has represented a significant shock, especially in terms of the relocation of skills and the reorganization of corporate resources on a global scale. The war has caused a mass migration of talent from Ukraine to other European and global countries. Many highly skilled workers, particularly in the technology and IT sectors, have had to leave Ukraine due to the conflict, moving to countries where remote work is possible and encouraged. Several international companies have hired or retained these professionals in remote working roles, allowing them to continue working from safer locations (Dmytryshyn and Romanchukevych, 2022). In fact, some Eastern European countries, such as Poland and the Czech Republic, have seen an increase in the influx of Ukrainian professionals working remotely for international companies. Similarly, many Western companies had software development teams and operational centres in Ukraine, one of the main destinations for technology outsourcing due to competitive costs and the availability of qualified talent. With the onset of the conflict, these companies have had to reconsider their outsourcing strategies and diversify the locations of their remote resources to reduce risks associated with specific geographical dependencies. As a result, there has been a push to distribute remote teams more widely across different countries or to shift to hybrid work models that combine in-house talent with remote workers (Pham et al. 2023). Overall, faced with geopolitical instability and the need to maintain operational continuity, many organizations have further developed flexible work policies, adopting a more flexible, secure, and geographically distributed approach to enable job opportunities for a broader base of workers, including Ukrainian refugees and workers in conflict-affected regions (OECD, 2022; Eurofound and ECJR 2024).

Besides their surge being accelerated by shocks, opportunities for remote and

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hybrid work are continuously being further facilitated by the relentless advancements in digital technology. Cloud computing, collaboration tools, and cybersecurity measures have enabled more secure and efficient remote working arrangements. The rise of digital platforms such as Zoom, Microsoft Teams, and Slack has played a crucial role in maintaining productivity and communication among remote teams (Gartner, 2021) during the pandemic and in its aftermath. Moreover, a recent study in the US found that the number of patents for technologies that support working from home had doubled since the start of the pandemic (Bloom et al, 2021). However, the degree of adoption of remote and hybrid forms of work is still heterogeneous across Europe. As we'll see in the next section, this depends upon several factors primarily connected to the sectoral composition of territories but also on digital infrastructures (Eurofound and ECJR 2024).

All in all, the interplay between megatrends, shocks and relentless technological innovation is driving profound changes in how labour and production are organized, with significant implications for economic, social, and spatial dynamics worldwide. As these trends continue to evolve, they will shape the structural change of the economies and societies in ways that are still unfolding and that is worth being investigated.

The Evolution and Diffusion of Remote and Hybrid Work in Europe

Data on the prevalence of remote work across Europe are primarily collected and offered by the European Union Labour Force Survey (EU-LFS) and Eurofound sources, including the Living, Working and COVID-19 e-survey and the European Working Conditions Survey (EWCS).

In 2008, less than 8% of employees worked from home either 'sometimes' or 'usually'. During the early 2000s, telework was the most common form of remote working arrangement (EU 2002).

Following the financial crisis but preceding the pandemic, EWCS data indicated that 10% of EU employees occasionally worked from home, and 3% engaged in regular home-based telework. Additionally, 5% of employees worked from multiple locations, supported by ICT (EWCS 2015).

There were significant north-south and east-west differences across European countries regarding remote work practices. The EWCS data revealed that teleworking

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was the most prevalent in Denmark, Sweden, and the Netherlands[6], while it was least common in Slovakia, Poland, Czechia, Greece, and Italy (EWCS 2015)[7]. Factors influencing higher prevalence in some countries included ICT penetration, internet connectivity, IT skills availability, economic structure, GDP, national work culture, and managerial practices (Eurofound and ILO, 2017). Collective bargaining and legislation also played a role in regulating telework. Professionals and men over 49 were the most likely to work remotely, with the highest levels of teleworking found in the information and communication, financial services, professional and scientific activities, and public administration sectors.

Before the pandemic, Sostero et al. (2020) estimated that approximately 37% of employment in the EU was potentially suitable for telework, a figure significantly higher than the actual proportion of employees who teleworked before the pandemic. The study projected that about one in five employees (43 million) could have been working from home but did not do so prior to COVID-19.

The pandemic accelerated the adoption of remote and hybrid work models, with 19% of employees working from home in 2020 and 22% in 2021 (Özgüzel et al. 2023).

Remote work saw an increase across all countries during the pandemic. In 2021, a substantial proportion of employees in Belgium, Denmark, Finland, Ireland, Luxembourg, the Netherlands, and Sweden reported working from home at least occasionally. Notable increases were observed from 2019 to 2021 in smaller countries like Ireland and Malta. Conversely, the smallest increases occurred in Bulgaria and Romania, with just 6 and 7 percentage points respectively, where remote work was less common before the pandemic (Özgüzel et al. 2023).

The pandemic highlighted significant variations in remote work by occupations and sectors, being practiced the most among those jobs and in those sectors that are relatively easily adaptable to this type of work.

Professionals experienced the largest increase, exceeding 13 percentage points, while clerical workers saw an increase of nearly 12 percentage points. Remote work tended to rise among in information and communication, financial and insurance, education, professional, scientific, and technical sectors and in occupations such as managers, professionals, technical and associate professionals (Özgüzel et al. 2023;

[6] Countries characterized by flexible labour markets and a high share of employees in knowledge-intensive services (high teleworkability).
[7] Countries characterized by rigid labour markets and structure of economy relying on non-teleworkable occupations.

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Eurofound and ECJR 2024)

The reason is that professional and management jobs are generally more amenable to remote work than other occupations (Adrjan et al., 2021; Adrjan et al., 2023;). Coherently, the services sector is the one that has experienced the most substantial rise in remote work during the pandemic, including the bank sector, finance and public administration (Criscuolo et al. 2021). In contrast, remote work remained less prevalent in sectors such as accommodation and food services, construction, agriculture, manufacturing, and mining (OECD, 2021; Fana et al. 2020).

Educational attainment also influenced remote work rates, since individuals with higher levels of formal education are more likely to work in occupations that are more amenable to remote work: over 30% of employees with tertiary education and 40% with post-tertiary education worked from home, compared to less than 10% of those with secondary education and only 4% of those with just primary education (Özgüzel et al. 2023). This disparity is linked to the types of professions and sectors in which individuals are employed. Highly educated workers are more likely to be in professions and sectors that facilitate remote work, i.e., where tasks can be performed effectively from home. In contrast, those with lower educational levels are often employed in sectors that require physical presence, such as manufacturing, retail, and hospitality, where remote work is less feasible (Adams-Prassl et al., 2022; OECD, 2021).

The association between remote work and gender remains unclear, as empirical evidence is mixed. An OECD report cites Garrote Sanchez et al. (2021), who, in a cross-country study, did not find a consistent pattern. For example, women in Turkey are less likely to be employed in jobs suitable for remote work, whereas in Brazil, Mexico, and the EU, the opposite is true, and no clear patterns emerge in India. Similarly, Sostero et al. (2020) found no significant differences in remote work rates between genders across the EU.

This mixed evidence suggests that gender differences in remote work may depend on the sectoral and labour market composition of different regions and countries—specifically, whether women are employed in sectors that lend themselves to remote work or are concentrated in professions that are not conducive to it. Cultural factors also play a role, as women have historically been more likely to stay at home for childcare and family care, particularly in countries with more traditional and patriarchal social norms. During the pandemic, remote work may have been utilized more by women than men to "cushion" the sudden reduction in

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childcare support due to lockdown measures (Alon et al., 2020).

The evidence on the role of age in remote work remains inconclusive. During the pandemic, the proportion of employees working from home was highest among those over 65 years old (30%), likely due to health and safety concerns, and lowest among those under 25 years old (13%). For employees aged 25 to 49, the share was 26%, while for those aged 50 to 64, it was 24%. Although older workers may generally have weaker information and communication technology (ICT) skills, they are also more likely to occupy senior managerial positions, which are inherently more suitable for remote work (Garrote Sanchez et al., 202; Dingel and Neiman, 2020).

As COVID-19 restrictions were relaxed, many employees returned to their workplaces, leading to a decline in those working entirely from home, with only 12% doing so in the spring of 2022.

Conversely, hybrid work arrangements have increasingly gained popularity among workers and employers, with the proportion of employees engaging in hybrid work rising from 14% in summer 2020 to 18% in summer 2022. Europeans displayed a strong preference for hybrid working models, with 60% expressing a desire to work from home several times a month, rather than working remotely full-time.

Family situations play a role in the adoption of hybrid work or working from home. Employees who have children under 12 years old are more likely to work entirely from home (14%) or in hybrid mode (23%). This preference was slightly more pronounced among women compared to men, with 28% of women and 26% of men favouring this arrangement (Özgüzel et al. 2023).

In this context, the sudden expansion of remote work has also contributed also to a grow in the phenomenon of 'digital nomads', defined as professionals who perform work over the internet to enable a lifestyle of constant travelling and living abroad (Schlagwein, 2018).

The geography of remote work: drivers and urban-rural differences

Currently, in the post-pandemic landscape, the adoption of remote and hybrid work continues to vary significantly across Europe. Northern and Western European countries, such as Denmark, the Netherlands, and Germany, have higher rates of remote work adoption, facilitated by supportive labour market policies and more advanced digital infrastructure. In contrast, Southern and Eastern European countries have seen slower adoption rates, partly due to less developed digital infrastructure and different cultural attitudes towards remote work (OECD, 2020).

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Recent comprehensive studies have sought to understand why workers in some areas transitioned to remote work more rapidly than others. This interest stems from growing evidence suggesting that the capacity for remote work could play a key role in shaping regional inequality and development in the future (Stantcheva, 2022). Therefore, drivers behind remote work adoption, as well as the factors that hinder or facilitate regions in realizing its full potential have been explored with the aim of enabling policymakers to fully harness the benefits of remote work, particularly in areas where its uptake remains limited (Eurofound, 2020).

In this regard, data from the European Union Labour Force Survey, analysed by the OECD, shows that from a geographical perspective, workers in capital regions and urban centres experienced the highest uptake of remote work. While the share of remote workers across all European regions increased on average from 5.4% in 2019 to 14% in 2021, it nearly quadrupled in capital regions, rising from 6% to 22%. Over the same period, the share of remote workers more than tripled in cities, while it only doubled in towns, semi-dense areas, and rural regions. Additionally, areas with higher levels of remote work before the pandemic tended to experience a faster increase in adoption afterwards. This is consistent with findings on the geography of remote work potential indicating that teleworkable employment tends to be more common in cities (44%) than in towns and suburbs (35%) or rural areas (29%) (Sostero et al., 2020).

Studies have shown that spatial differences in remote work uptake are largely explained by variations in sectoral and workforce composition across different locations—specifically, the geographically uneven distribution of people with varying characteristics. In other words, the adoption of remote work is primarily driven by composition effects; cities, for example, have a higher concentration of workers in occupations and sectors more suited to remote work. As a result, areas with a higher concentration of low-skilled jobs are less likely to switch to remote work, whereas locations characterized by skilled, tradable services or industries with remote-compatible professions (such as information technology, finance and insurance, professional services, and management) will find it easier to adapt (Adams-Prassl et al., 2022). Because these industries and jobs tend to cluster in cities due to agglomeration effects, urban areas show a higher rate of transition to remote work compared to non-urban regions.

Overall, the composition of workers and industries—including factors such as education, age, and occupation—accounts for approximately 87.6% of the differences in remote work adoption between cities and other areas in 2020. In contrast, contextual factors, such as broadband infrastructure and internet speed, explain only

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about 12.4% of this disparity (Özgüzel et al. 2023).

These findings have prompted further research in this direction: the OECD has highlighted a growing debate about whether the increase in remote work will lead to a structural relocation of workers and advanced economic activities from core urban areas to less densely populated areas (Florida, Rodríguez-Pose and Storper, 2021; Althoff et al., 2022; Fiorentino et al., 2022).

This question is crucial, as early findings on remote work have shown that those able to work from home represent a characteristic positively associated with greater resilience to potential local labour market shocks (Eurofound and ECJR 2024; Gandini and Cossu 2021). From this perspective, policymakers should consider attracting remote workers to areas with a lower cost of living and higher quality of life (such as greener spaces and less pollution).

This approach could help partially repopulate some depopulated areas and prevent these areas, which lack specific industrial infrastructure, from falling further behind regions with more remote-friendly industries. While there has not yet been a massive movement of people leaving cities for the countryside, and current evidence indicates mostly marginal and localized trends, the development of services in these areas is a crucial factor in attracting people (Akhavan, and Mariotti, 2022; Akhavan, Mariotti and Rossi 2021). For instance, more collaborative workspaces are being established in peripheral and rural areas, serving as a potential tool to promote more balanced regional development and to support regions facing economic and social challenges, such as brain drain, depopulation, and the loss of cultural roots (Marmo and Avdikos, 2023; Mariotti, 2021; Mariotti et al., 2023).

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Section 2 – Current and Potential Transformations on Individuals[8]

Overview

Overview In this section of the literature review, we have examined publications that deal with how remote work affects individuals' subjective well-being, everyday practices, and relationships. Across these themes, we examined the role of intersectional inequalities for access to remote work as well as how an increase in remote forms of work affects intersectional inequalities.

A majority of the reviewed publications discussed disruptions to work during the Covid-19 pandemic, with far fewer addressing disruptions due to war or other shocks. The Covid-19 pandemic has been a central theme, with a large portion of the literature examining how remote work affects individuals in this context. For this literature review, we have specifically focused on studies investigating the lasting changes initiated by work-from-home mandates during the Covid-19 pandemic, rather than the unique challenges posed by lockdowns.

The Covid-19 pandemic-induced shift to remote work coincided with numerous lifestyle changes that impacted individuals' well-being, daily routines, and relationships. Consequently, it is often challenging to attribute specific outcomes solely to remote work. For instance, Pinchuk et al. (2023) found that remote work is associated with increased work-related stress when it is compulsory, such as during the Covid-19 pandemic or the war in Ukraine.

Regarding megatrends, digitalisation was generally an implicit theme in most publications, serving more as a backdrop rather than the main focus. The most explicit discussions of digitalisation revolved around specific digital tools used in remote work, such as videoconferencing, and their impacts on communication and stress levels (e.g. La et al. 2023).

The types of remote work discussed in the literature varied, though most papers treated remote work in a broad sense, often using the terms "remote work" and "telework" interchangeably. Among studies focusing on specific forms of remote work, working from home was the most prevalent topic. This focus likely stems from the significant impact that working and living in the same space has on the boundaries between professional and personal life. In contrast, the phenomenon of digital

8 Draft: Salvatore Zappalà, Simone Donati, Ferdinando Toscano (UNIBO); Anna Oechslen (IRS). Further comments, revisions and adjustments: Suntje Schmidt (IRS).

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nomadism received limited attention, with most publications on this topic focusing on institutional frameworks or defining the phenomenon itself. Publications that addressed the impact of digital nomadism on individuals primarily concentrated on mobility issues.

In terms of occupations and sectors, most publications did not differentiate between different sectors. Among those that did, knowledge-intensive occupations were the most frequently studied. Case studies encompassed various occupations, with a notable concentration on software development, healthcare, and higher education. This focus reflects that software development has long been amenable to remote work, while healthcare and higher education were profoundly disrupted by the Covid-19 pandemic. Conversely, there were very few publications on remote work in the manufacturing sector, highlighting the sector-specific distribution of remote work.

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Chapter 1 – Subjective well-being[9]

An important component of this chapter is to clarify how remote work contributes to individual living and working conditions. Thus, in this section of the literature review, we will explore the relationships between Remote Work Arrangements (RWAs) and employees' subjective well-being experiences.

Understanding Well-Being in the Workplace

In everyday experience of lay people, well-being generally refers to a state of health, happiness, comfort, and prosperity (wordreference.com). In the context of workplace and in the experience of workers, well-being refers to employees' experience of feeling good and having a sense of fulfilment and purpose (Sonnentag, 2015). This definition includes both a sense of happiness and satisfaction for the job, as well as a sense of meaning and purpose (Cunningham & Black, 2021). This wider conceptualization of well-being encompasses not only the absence of illness-related symptoms but also employees' ability to adapt positively to their environment, leveraging their emotional, cognitive, and social attributes (Cunningham & Black, 2021).

Danna and Griffin (1999) define employee well-being as the state of satisfaction experienced by employees both at work and outside of work as well as the experience of having good mental, physical, and general health. Historically, negative consequences, or outcomes, of decreased well-being have been explored, including stress (or reduced distress), anxiety, emotional exhaustion, and also physiological outcomes like blood pressure, heart condition, and general decreased physical health (Danna & Griffin, 1999). With the development of positive psychology (Seligman & Csikszentmihalyi, 2000), a more consistent attention has been deserved not only to negative aspects of psychological functioning, but also to positive ones. Thus, scholars conceived employee well-being and measured it using outcomes such as job satisfaction, happiness, organizational commitment, intention to stay,

[9] First draft: Salvatore Zappalà, Simone Donati, Ferdinando Toscano (UNIBO). Further comments, revisions and adjustments: Suntje Schmidt (IRS); Zilvinas Martinaitis (VA)

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work engagement, sense of purpose, or affective well-being (Nielsen et al., 2017). and from the general positive functioning of normal, or lay people, attention to well-being also extended to workplaces, and, more recently, especially after the pandemic, also to remote work. In this section, we review studies that examined the impact of remote work on employees' well-being.

Well-Being Outcomes of Remote Work as a Whole

Many studies, especially those conducted at the beginning and during the pandemic, examined the positive and negative effects of the general experience of Remote Work. Among the negative effects, Kitagawa and colleagues (2021 - 3) found that remote workers experienced greater productivity declines, mainly due to poor setups and communication issues, but, at the same time, better mental health. Remote working was also associated with high presenteeism (Schmitz et al., 2023), stress from noise produced by housemates (Kokoro et al., 2022), greater mental stress, particularly for women with school-age children (Yucecl et al., 2024 - 9), and to higher levels of work-family conflict and therefore to lower life satisfaction (Demirbag K. & Demirbag O., 2022 - 8).

Despite these challenges, many studies highlight the positive aspects of remote work. A two-waves study in Canada, observed that burnout, stress, general mental health and perception of job insecurity significantly decreased over time and workers received more help and feedback from their colleagues and experienced a greater sense of community (Somasundram et al., 2022 - 23).

Other studies reported mixed results. For example, George et al., (2022 - 16) found that remote workers' productivity increased while the meaning derived from daily activities decreased, and that, similarly, stress was reduced while health problems increased. Shimura et al. (2021 - 20) noted that while remote work was associated to reduced physical and psychological stress, full remote work (five days a week) was associated to decreased productivity. Similarly, Smimykh (2023 - 4) found that Russian remote workers, examined from 2016 to 2021, both before and during the pandemic, were more satisfied with their jobs than their counterparts who did not work from home; however, remote workers putting in more than eight hours per day reported lower job satisfaction.

Well-Being Outcomes of specific Remote Work aspects

Remote work intensity is a specific aspect of the remote work experience, and it refers to the extensiveness of remote work, ranging from one or two days a week to

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full-time remote work.

It has been studied especially because remote workers, especially dedicated workers, run the risk to be absorbed by a job that can be done at any time at home. Many studies observed a problematic effect of the high remote work intensity. A higher amount of weekly working time from home has been associated to higher stress-related symptoms and decreased job satisfaction (Niebuhr et al., 2022 - 27). Rodriguez-Modrono (2023), using an ordinal measure of intensity, proposes that "several times a month for women and several times a week for men" represent reasonable intensity of remote work, and that a reasonable intensity of work from home may have beneficial effects on health that are reduced when working fully home-based. Gaiaendren et al. (2024 - 51) conducted a meta-analysis to test the idea that the intensity of remote work has indirect and opposite effects on the same well-being variables. These opposite effects depend on two mediators: autonomy and isolation; thus, if autonomy may increase job satisfaction, isolation may decrease the same job satisfaction. The study showed that remote work intensity had small but beneficial effects on job satisfaction, organizational commitment, performance assessed by the supervisor and turnover intention. At the same time, the study showed that, although small, those effects are, anyway, higher than those observed in office-based colleagues of remote workers (Gaiaendren et al., 2024).

The Impact of Technostress

Working remotely for long hours requires quite often a heavy reliance on digital technologies. The constant usage of information and communication technologies forces employees to deal with a considerable amount of information, and technostress is defined as the stress that people experience due to the use of ICT systems and technologies (Salazar-Concha et al., 2021) or, in relation to telework, as the stress experienced by teleworkers due to the lack of adaptation to ICT (Fernandez-Fernandez et al., 2023).

Dutta and Mishra (2023 - 15) found that components of techno-stress, namely techno-overload, techno-complexity and techno-invasion, significantly impacted Indian employees during the pandemic. Fernandez-Fernandez et al. (2023) observed that higher technostress correlates with lower satisfaction and performance, while lower technostress leads to higher satisfaction and performance. South African university employees reported that overwhelming technostress, coupled with work-family issues, increased job demands and negatively influenced work engagement (Harunavamwe & Kanengoni, 2023 - 25). Finally, it has been observed that ICT users,

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working remotely from home during the lockdown, that experienced technostress increased their level of strain which resulted in decreased work satisfaction; however, emotional social support mitigated the effect of technostress on strain (Khedhaouria et al., 2024).

Social Isolation and Support

Remote work tends to isolate workers from the social connections experienced when working at the office. Social isolation from colleagues was related to stress and decreased remote work productivity (Toscano & Zappalà, 2020) and it was also negatively related to virtual leadership (Efimov et al., 2022, 34). Social support from colleagues and leaders (but also from family members) is crucial in mitigating these effects. Over a quarter of the 51 retrieved articles examined the relationship between remote work and the presence/absence of social support – four studies mentioned social support in the title of the contribution and other nine studies included social support in the research design.

Lack of social support, which represents in itself a form of social isolation, was associated to increased job demands, burnout and reduced job satisfaction and performance (Costin et al. 2023; Schmitt, 2024), lost comradery (Babapour et al., 2022), and lower work-life wellness (Como et al., 2020). The lack of supervisor's support was associated with working despite feeling ill, defined as presenteeism (Schmitz et al., 2023), whereas the support of the supervisor acts as a protective factor against techno-complexity (Capone et al., 2024).

Team leaders have a vital role within organizations when they have to manage the remote work of coworkers but also their own remote work. Leaders with high autonomy and core self-evaluation had better health and work-life balance regardless of work location (Neidlinger et al., 2023). Other two studies, two literature reviews, focused on the role of virtual leader. According to Van Wart et al. (2019), virtual leadership is not a leadership style, but rather a specific contextual condition for leadership and it is still unclear which leadership style is more appropriate for virtual teamwork (Gurt & Staar, 2022). Anyway, the literature review conducted by Efimov et al. (2922) suggests a positive relationship between virtual leadership and well-being and job satisfaction, and a negative relationship with psychological strain, stress and perceptions of isolation of digitally collaborating employees. The second review, conducted by Schmitt (2024), underlines the specific behaviors that virtual leader has to take in order to help employees to manage the challenges of virtual environments. In particular, three types of behaviors, or themes, emerged: 1)

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boundaries between work and private life, 2) supportive relationships, and 3) adequate use of technologies. Investing efforts on these three areas, the author conclude that the leader will transform remote work in a job resource, that promotes employees' wellbeing, rather than a job demand, that increases their workload and stress.

Work characteristics, Ergonomic Aspects and Return to Office

In a study (Mishima-Santos et al., 2021), social support provided by leaders and colleagues was considered as an important characteristic of the job together with other characteristics, such as, for instance, feedback from the job, problem-solving, and decision and execution autonomy. The assumption is that work characteristics are related to workers' wellbeing, and the question is how work characteristics influence teleworkers' wellbeing, especially in the long period of social isolation imposed by Covid-19. Using the Work Design Questionnaire, a questionnaire which assesses multiple characteristics of the job, the authors conducted a cluster analysis and observed that two clusters emerged, based solely on the valence. In the first cluster, employees reporting high scores on four work characteristics (namely feedback from the job, social support, problem-solving, and decision and execution autonomy) reported also role clarity, higher wellbeing and lower job dissatisfaction. Conversely, the other cluster showed the opposite configuration: teleworkers with lower scores on those four work characteristics experienced lower well-being (Mishima-Santos et al., 2021). Other relevant work characteristics that affect remote workers' job satisfaction are autonomy at work (Sousa et al., 2023) and the functionality of technical equipment (Neibuhr et al., 2022).

Two important components of the remote work experience are the ergonomic aspects of the remote workplace and the return to work after the (full-time) remote work experience. The literature review by Wuetschert et al. (2022, 33) highlight the lack of ergonomic setups for teleworkers, as well as the organizations' lack of awareness regarding home-based policies and the health- related consequences associated with the absence of ergonomic support. The 14 studies reviewed by Cruz-Ausej et al. (2022, 46) suggest that when home environments are not adapted to work, then low lighting, non-ergonomic chairs and desks, use of tablets, cell phones and laptops represent potential risks of musculoskeletal disorders. Thus, the two reviews suggest that home-based teleworkers face increased health-related risks, particularly in the form of musculoskeletal disorders.

Finally, the return to office work after the long period of telework imposed by

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the pandemic was a major source of stress for some employees (Fan & Moen, 2022; Pandita et al, 2024). Although the return to work after a short period of full-time remote work, or during hybrid work (in which remote work alternates with office work) should be less impactful than the return to work after the full-remote work experienced during the pandemic, organizations should consider the emotional implication and the stress of return-to-office and help employees to adjust to going back to office work.

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Chapter 2 – Everyday practices and routines[10]

When examining the impact of remote work on individuals' everyday practices and routines, flexibility, work-life balance, and work-family conflicts are central recurring themes. The reviewed studies elucidate ambivalences in the experiences of remote work: Remote work arrangements often entail trade-offs between different aspects of job satisfaction and overall well-being, and different forms of remote work are associated with specific benefits and drawbacks. Moreover, the experiences of remote work are highly gendered. Finally, the reviewed publications underline that the impact of remote work on individuals' everyday practices and routines are shaped by workers and their families, organisations, as well as policies and regulations.

Ambivalent flexibility

Remote work offers greater flexibility, but this flexibility can be a double-edged sword. Shirmohammadi et al. (2022) find that experiences of flexibility in remote work are ambivalent and that there is a disconnect between expectations toward remote work and actual experiences. The review examines the contrast between the desirable expectations and undesirable experiences of remote work during the Covid-19 pandemic, drawing on person-environment fit theory. Four key themes emerge: (1) Flextime vs. work intensity - while remote work was expected to provide temporal flexibility, the Covid-19 pandemic led to work intensification with employees feeling pressured to be 'always online'; (2) Flexplace vs. space limitation - although remote work offers locational flexibility, many employees lacked adequate home workspace, leading to challenges in managing work, personal, and family life; (3) Technologically-feasible work arrangement vs. technostress and isolation - while technology enables remote work, it also caused technostress and feelings of professional isolation for employees; and (4) Family-friendly work arrangement vs. housework and care intensity - although remote work was viewed as family-friendly, the Covid-19 pandemic resulted in increased housework and childcare demands, especially for women, negatively impacting work-life balance.

Moller et al. (2024), too, find that flexibility is ambivalent. Focusing on job and family satisfaction as well as work-family conflict, they argue that flexibility is associated with stigma and paradox. The flexibility stigma refers to the negative

[10] Draft: Anna Oechslen (IRS). Further comments, revisions and adjustments: Suntje Schmidt (IRS)

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perceptions and stereotypes associated with remote work, where remote workers are seen as less committed and more distracted by family responsibilities. This stigma can result in fewer job rewards and lower job satisfaction. The flexibility paradox highlights the dual nature of remote work: while it allows parents to manage their dual roles better, it also increases the demands of both work and family, potentially exacerbating work-family conflict. The study suggests that remote work can intensify work-family conflict for parents, particularly mothers, who may take on more domestic responsibilities during work hours, leading to lower satisfaction with both work and family life.

Rodríguez-Modroño and López-Igual (2021) find that teleworkers generally enjoy higher levels of discretion over their work compared to non-teleworkers. They also have better income and career prospects, but these benefits come with increased work intensity and lower working time quality. However, how remote work is performed makes a big difference for how it is experienced: Rodríguez-Modroño and López-Igual (2021) find that remote work experiences differ depending on the extent to which work is performed remotely and where workers are. They find that occasional teleworkers experience the best overall job quality, balancing flexibility with lower work intensity, while highly mobile teleworkers score lowest in terms of job quality, with significant challenges in maintaining work-life balance. Home-based teleworkers fall in between, with better working time quality and intensity but lower prospects in terms of income and career advancement. This is particularly true for women. Yang et al. (2023) find different impacts of working from home depending on whether work is performed during regular work hours (replacement WFH) or outside of those hours (extension WFH). Extension WFH is associated with lower psychological well-being, higher work-to-family and family-to-work conflicts. Replacement WFH is associated with better well-being and higher job satisfaction, but also higher work-to-family conflict. This effect is gendered: extension WFH has more negative effects for women's well-being and work-to-family conflict.

Work-life balance and work-family conflicts

Work-life balance plays a crucial role in many studies on remote work. It is associated with other indicators of subjective well-being, such as job satisfaction (Garcia-Salirrosas et al. 2023). Importantly, many authors stress that work-life balance is subject to individuals' boundary management practices, that is, their ability to uphold boundaries between work and family responsibilities. Allen et al. (2021) find that preference for segmentation is associated with greater work-nonwork balance

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for remote workers during the Covid-19 pandemic; a dedicated office space within the home and fewer household members was also associated with greater work-nonwork balance. Jurnickova et al. (2024) identify different types of individuals working from home; they find that time management, self and family management, task management, stress management, border maintenance, and rules are key categories relevant to the home office experience. Some authors also study boundary management as a joint effort of families, for example, Shirmohammadi et al. (2023) examined boundary management strategies in families where several people work from home: they found specific strategies that families used to manage boundaries between two or more household members' work, learning, and home domains. They identified four strategies to define boundaries in the collective (i.e., repurposing the home space, revisiting family members' responsibilities, aligning family members' schedules, and distributing technology access and use) and five strategies to apply boundaries to accommodate the collective (i.e., designating an informal boundary governor, maintaining live boundary agreements, increasing family communication, incentivizing/punishing boundary respect/violation, and outsourcing)."

Within the category of work-life balance, work-family conflicts are central to many of the reviewed studies. Several studies point out that working from home can have negative impacts on individuals- well-being, performance, and family relationships. Bellmann and Huebler (2021) find a negative impact of remote work on work-life balance. Perry et al. (2023) study how interruptions by family members during working hours affect remote workers' stress. They find that family interruptions during work hours are a significant concern for remote workers. These interruptions are often unexpected and disrupt the individual's behavioural patterns or attentional focus, leading to cognitive switching that consumes time and cognitive resources. While remote work can reduce interruptions common in office settings, it increases the likelihood of family-related interruptions. These interruptions can divert attention from work tasks, increase time pressure, frustration, and demands, and consume resources in both work and family domains. Harunavamwe and Kanengoni (2023) find that work-family conflict is a critical component in the relationship between technostress and work engagement. The negative influence of work-family conflict is stronger than the positive influence of perceived organisational support on work engagement in virtual and hybrid work settings.

Kim et al. (2023b) find that working from home is associated with higher work-family conflicts and higher depression. Kim et al. (2023a) find that the negative effects of working from home is concentrated on women, and on those who are primarily

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responsible for housework while also maintaining market work.

However, authors also found several positive impacts of working from home on work-life balance. Garcia-Salirrosas et al. (2023) explore the interplay between remote work and family dynamics, focusing on factors that contribute to job satisfaction. They find that work-to-family positive spillover, i.e., the transfer of positive experiences and emotions from the work environment to the family environment, can improve family relationships and overall life satisfaction. However, they also stress that avoiding blurring the boundaries between work and personal life is important for maintaining job satisfaction and overall well-being among remote workers. Samuelsson et al. (2022) found that study participants who worked from home reported increased opportunities to structure the workday and combine work and private life, while at the same time experiencing increased isolation from the workplace. Demirbag and Demirbag (2022) find that daily remote work hours moderate the influence of excessive workload and time pressure, respectively, on work-family conflict and, ultimately, on life satisfaction.

In addition, some of the reviewed studies question the premise of work-life balance that assumes two separate spheres that can be neatly separated. This is especially difficult to uphold in remote work settings. De Laat (2023), for example, finds that both men and women who engage in flexible work arrangements often see it as a way to integrate rather than balance work and family responsibilities. This integration helps them maintain identities of both dedicated professionals and involved family members. The phenomenon of dual devotion—where individuals are devoted to both work and family—suggests that flexible work arrangements enable this dual commitment without necessarily reducing overall work hours or family care responsibilities.

Gendered practices and routines

The ambivalent impacts of remote work on everyday practices and routines can partly be explained by how differently different genders experience it. In a study on gendered spatio-temporal patterns of work in European cities, Burchell et al. (2021) find that women are far more likely to be restricted to only working at the employer/business premises while men have more varied and complex spatiotemporal patterns of work. Multi-locational working rather than working at one workplace is a largely male phenomenon. Working exclusively at home is still a rarity, but combinations with employer premises and other workplaces are more common.

Barhate/Hirudayaraj (2021) use work/family border theory to study how the shift

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to remote work affects women's career development. They argue that due to the increase in working from home during the Covid-19 pandemic, there was more spillover between home and family domains. This may lead to more acceptance for less rigid borders between work and home, and more equal distribution of family work.

Rodríguez-Modroño and López-Igual (2021), too, find significant gender disparities in the experiences of teleworkers. Women generally face lower job quality indicators compared to men, especially in terms of income and career prospects. The gender wage gap is exacerbated among teleworkers, with home-based female teleworkers earning significantly less than their male counterparts. The study found that women working from home earn on average 31% less than men. Home-based telework appears to provide a better work-life balance, especially for women, who can manage their unpaid care responsibilities more effectively. However, this often comes at the expense of their career progression and income.

De Laat (2023) finds that despite the potential benefits, flexible work arrangements can exacerbate gender inequalities. Women may end up working longer hours to manage both professional and family duties, which can increase stress and maintain traditional gender roles in caregiving and housework. Men, on the other hand, might experience flexible work as a means to be more present at home without significantly compromising their work, thus perpetuating an unequal division of labour at home.

Parry (2024) finds that in dual-income households with young children working remotely during the Covid-19 pandemic, fathers' work was prioritized in spatio-temporal terms whereas mothers' work was fragmented and dispersed. She considers gendered patterns in the flexibility paradox and labour shouldered by mothers as primary caregivers as potential theoretical explanations for the privileging of fathers' workspace and work time. Carlson et al. (2024) examine how gender ideology moderates the association between fathers' remote work and their performance and share of childcare during the early days of the Covid-19 pandemic in both sole-earner and dual-earner families. The results show, for sole-earning fathers and dual-earner fathers with egalitarian gender attitudes, that the frequency of remote work was positively associated with fathers performing more, and a greater share of, childcare during the Covid-19 pandemic. Yet only dual-earner fathers with egalitarian gender attitudes performed an equal share of childcare in their families.

Overall, flexible work arrangements offer the potential for better work-life

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integration for both men and women, but they do not automatically resolve the underlying gender disparities in household and childcare responsibilities. Women tend to use these arrangements to increase work productivity and manage their dual roles, often leading to overwork, while men use them to become more involved at home without reducing their work commitments significantly (de Laat 2023).

Strategies to improve work-life balance for remote workers

The authors of the reviewed studies outline how remote work can be improved in terms of successfully integrating and combining different responsibilities on an individual, organisational, and institutional level.

On the individual level, studies carve out the role of a conducive mindset, as well as individual and family strategies to improve work-life balance. Nadiv (2022) studied the effect of a 'paradox mindset', that is, the ability to accept and be energised by tensions on work-home conflicts: The study findings highlight the beneficial effect of paradox mindset on the experience of work– home conflict and its outcomes. Although working remotely has great potential to increase the strain and tension experienced by employees, applying a paradox mindset reduces the experience of work–home conflict and is positively associated with certain work outcomes. Jurnickova et al. (2024) identify different types of individuals working from home; key categories relevant to the home office experience: time management, self and family management, task management, stress management, border maintenance, and rules. Perry et al. (2023) differentiate between remote workers' stress responses to interruptions while working at home: they find that the remote working experience is shaped by whether individuals perceive the difficulties faced in remote work as opportunities for learning and growth (challenge stress), which can be motivating and energizing, or obstacles that impede task accomplishment (hindrance stress), which may lead to reducing engagement. The study also explores how the use of breaks for nonwork activities and self-care can help mitigate the negative effects of interruptions by restoring resources, thus influencing the perception of stress in remote work (both challenge and hindrance). Lange and Kayser (2022) explore the relationship between self-efficacy, work-related stress, health outcomes, contributing factors, and work-family conflict in a remote work setting. They find that self-efficacy significantly reduces work-related stress, reduces work-family conflicts, and mediates health outcomes. Autonomy and experience increase self-efficacy. Shirmohammadi et al. (2023) studied boundary management strategies in families where several people work from home. They found specific strategies that families

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used to manage boundaries between two or more household members' work, learning, and home domains. They identified four strategies to define boundaries in the collective: repurposing the home space, revisiting family members' responsibilities, aligning family members' schedules, and distributing technology access and use. Moreover, they identified five strategies to apply boundaries to accommodate the collective: designating an informal boundary governor, maintaining live boundary agreements, increasing family communication, incentivizing/punishing boundary respect/violation, and outsourcing.

Focusing on what supervisors and organisations can do, Garcia-Salirrosas et al. (2023) underscore the importance of family-supportive supervisory behaviours for remote workers. These include adjusting work schedules, reassigning tasks, providing resources, and actively solving work-family conflicts. These behaviours help create a positive work-to-family spillover and a healthy work-life balance, both of which are crucial for improving job satisfaction among remote workers. Shirmohammadi et al. (2022) highlight the important role HRD practitioners can play in supporting remote workers. Suggestions include: (1) providing a balanced preview of remote work's benefits and challenges, (2) offering a range of remote work options, (3) developing managers' skills to support remote workers, (4) helping employees transition to remote work, (5) actively listening to remote workers' concerns, (6) facilitating individualized work arrangements through dialogue, and (7) ensuring remote workers' access to development opportunities. Overall, the review calls for HRD practitioners to adopt a participatory, inclusive, and supportive approach to build sustainable and healthy remote work arrangements. Moreover, Pham et al. (2023) find that a training program for digital skills enhances employees' perceived organizational support, which, in turn, reduces work-to-family conflict. Tramontano et al. (2021) develop an e-work self-efficacy scale to assess digital competencies in remote working. They argue that it is important to focus on digital resilience competencies to promote sustainable, productive, engaging and healthy remote working. In their study on how Australian university employees managed remote working and caring responsibilities during the beginning of the Covid-19 Covid-19 pandemic, Nash and Churchill (2020) find that the Australian higher education sector positioned decisions about caring leave and participation in the paid labour force as 'private' matters in which employees (mainly women) design their own 'solutions' when compared with international institutional counterparts. They argue that by doing so, universities have evaded their responsibility to ensure women's full participation in the labour force.

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Policy recommendations are relatively scarce in the reviewed articles, which may be due to this section's focus on the individual level. Rodríguez-Modroño and López-Igual (2021) highlight the need for specific policies and regulations to address the distinct impacts of different telework arrangements on job quality and to mitigate gender disparities. It calls for attention to the nuanced effects of telework on various dimensions of job quality and the significant role gender plays in these dynamics.

In sum, the reviewed studies show that remote work both offers significant benefits and introduces new challenges that require careful management and supportive measures. Evaluating its impact on individuals' everyday practices and routines requires a differentiation along the lines of type of remote work as well as individual situations. As the Covid-19 pandemic disrupted work routines, some of the difficulties associated with remote work were embedded in the overall disruption of routines. Demirbag and Demirbag (2022) find that employees may be exposed to excessive workload and time pressure due to lack of experience with full-time remote work, lack of infrastructure, incompetent and unprepared management and the need to adapt quickly to new conditions. Pandita et al. (2024) find that the transition of returning to office causes stress, inter alia, because of increased work-family conflict associated with it. That is, work-family conflicts are not exclusively associated with remote or in-office work, but more so with the disruption of existing routines and a lack of autonomy in how one's workday is structured.

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Chapter 3 - Relationships[11]

Relationships are mainly covered in the form of workplace relationships in the reviewed literature. However, there are also publications that focus on the impact of family support (e.g. Qi et al. 2023) or pets (Scholtz 2022) on remote workers' well-being. On the other hand, personal relationships are also affected by working arrangements: for example, Wan et al. (2024) find that remote employees' work-family conflict has a detrimental effect on marriages, in that it increases couples' divorce intentions.

Moreover, the studies cited in the above section have shed light on the entanglement of work and family responsibilities.

Challenges for building and sustaining relationships

The majority of reviewed papers on relationships focus on relationships within the organisation, that is, with coworkers or supervisors, or effects of remote work on organisational culture more generally. They find that being able to keep good relationships with colleagues while working from home is associated with worker well-being (Cavallari et al. 2023) and that lack of face-to-face interaction can deteriorate worker performance (Hansen and Pedersen 2024). Moreover, good relationships with colleagues are found to decrease workers' motivation to work from home (Mergener and Trübner 2022).

Two studies focused on the onboarding of new employees in remote or hybrid contexts: Yarbrough and Salazar (2023) argue that negative experiences during virtual onboarding can have long-term detrimental effects on the employee/employer relationship. The lack of effective communication and professional connections can lead to dissatisfaction and a potentially damaged organizational culture.

Mazzei et al. (2023) find that hybrid work contexts often limit opportunities for informal and person-to-person interactions, which are critical for effective onboarding and socialization, and that newcomers may feel socially isolated, which can hinder the adjustment process.

Mele et al. (2021) focus on the case of public bureaucracies: while remote work

[11] Draft: Anna Oechslen (IRS). Further comments, revisions and adjustments: Suntje Schmidt (IRS).

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offers flexibility and benefits for individual employees, it poses significant challenges to maintaining effective social interactions and professional relationships with coworkers. These challenges include communication difficulties, feelings of isolation, and potential negative impacts on team dynamics and workplace performance. Brooks et al. (2022) find that a shift to remote work during the Covid-19 pandemic had ambiguous impacts on diplomatic personnel's relationships with colleagues: they found virtual meetings to even booster a sense of community, as they broadened the number of people they were regularly in contact with. However, some also missed friendly interactions with colleagues in the office. However, some also noted that they had poor relationships with colleagues and found the shift to remote work to alleviate the stress associated with this.

Altogether the reviewed studies find that good relationships with colleagues are still possible but often require additional effort in remote or hybrid settings. While ample virtual communication channels are available, Toscani (2023) finds in a qualitative study on AI practitioners that tacit knowledge sharing, which is important for innovation, suffers from completely shifting to remote work. Similarly, Jämsen et al. (2022) find that the majority of respondents perceived remote work as a challenge for relational communication, describing issues such as a lack of spontaneous encounters, informal breaks, and a weaker sense of community, leading to feelings of loneliness and isolation. These respondents highlighted the importance of shared physical spaces and face-to-face interactions for relational communication at work. However, a smaller group perceived remote work as an opportunity to gain increased control over communication, a stronger sense of community, and more support from colleagues and supervisors. They appreciated the ability to manage communication better in the remote setting. Durakovic et al. (2023) find that employees felt technologically supported and productive whilst working from home, but aspects of connection, collaboration, and sense of belonging suffered; collaboration and togetherness are main motivators for returning to the office.

La et al. (2023) find that remote work necessitates a deliberate effort to communicate, often leading to more formal and less spontaneous interactions compared to in-person settings. Workers had to carefully plan their social interactions, which contrasted with the impromptu conversations that occurred in the office. This shift often resulted in fewer informal conversations and a more work-focused day. Moreover, the requirement to use multiple communication platforms (e.g., Microsoft Teams, Zoom) could be overwhelming and increase anxiety. Workers felt more contactable and often stressed by the constant influx of communication

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through various modes. The study found that although workers could read expressions and tones of voice through video calls, the lack of physical presence and natural social cues led to awkward silences and feelings of isolation. Participants expressed concerns about the difficulty in interpreting colleagues' well-being and emotions accurately without face-to-face interaction. In addition, organisational culture is affected by remote work: Reduced face-to-face interaction challenged the maintenance of organizational culture and could affect trust and relationships with employers. Participants felt that the benefits of remote work generally outweighed the negatives, but the potential long-term impact on collaboration and problem-solving was a concern.

This is also reflected in how friendships between colleagues develop: Mlonyeni (2023) argues that predominantly virtual communication between colleagues who work remotely makes it less likely for colleagues to form friendships that entail emotional support. However, this does not mean that they cannot have good collegial relationship, they just tend to be more strictly focused on work.

However, Stavrova et al. (2023) do not find that working remotely to a larger extent changes the level of trust individuals have in their coworkers or supervisors. They do find increased trust in the organisation as a whole in the context of the beginning of the Covid-19 pandemic. Byrd (2022), however, argues that a remote work environment presents barriers to inclusion/identification with the organisation. These include weakened human connections and difficulties in sustaining high affective commitment to employers, characterised by trust, respect, and participative support.

On the flipside, employees have to put more effort into gaining trust: Randazzo (2022) argues that work needs 'proof' when it is not (seemingly) obvious that someone is working because their working body is physically present. Proving to colleagues and supervisors that one is working at least the required time and producing valuable results presents a form of additional work, and it may lead to a devaluation of aspects of work that do not directly result in measurable effects.

Proposed strategies to improve relationships

The reviewed studies propose strategies to improve connection and belonging for remote workers on the level of digital tools, workers' behaviour, and organisational strategies.

Leonardi et al. (2024) find in their literature review on how remote work changes

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the world of work that different activities and behaviours are necessary for building relationships compared to in-person interactions and that trust in distributed teams may be experienced as fragile and temporal. But they also find that computer-mediated communication practices also help to build trust.

Yarbrough and Salazar (2023) highlight the necessity for new hires to be proactive in asking questions, scheduling one-on-one meetings, and reaching out to their colleagues and managers. This proactive approach is crucial for building working relationships in a remote setting.

To create a more inclusive remote work environment, Byrd (2022) argues that organisations need to develop new cultures that support remote work. This involves being flexible, less bureaucratic, and more outcomes-based while supporting virtual work arrangement. Leadership must adopt inclusive practices that foster a positive attitude towards diversity and ensure a culture of inclusion. This involves understanding human needs, relationships, and ensuring everyone feels part of the organizational whole. Moreover, organisations need to identify and address exclusionary practices that may derail inclusive goals. Highlighting and challenging these practices can help sustain an inclusive culture in a remote environment.

To counteract the challenges of remote work, Mazzei et al. (2023) emphasize the importance of perceived organizational and supervisor support in fostering affective commitment among newcomers, even if the adjustment process is not fully completed. They highlight the crucial role of organizational insiders, such as supervisors and coworkers, in helping newcomers adjust by providing information, feedback, resources, and support. Structured experiences and training programs designed to introduce new employees to their roles and the organization can significantly aid the onboarding process. Despite the remote component, facilitating occasional face-to-face interactions can help mitigate the negative effects of remote work and enhance the onboarding experience. They recommend training supervisors to act as role models and socialization agents, enhancing their technological, relational, and dialogical skills. They also suggest monitoring the frequency and duration of remote work to avoid counterproductive effects and investing in communication-enhancing technologies. Different approaches, contents, and tools may be needed for those who work in-person versus those who work remotely. For instance, holding orientation programs on company premises rather than remotely can help newcomers better integrate into the organization.

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Remote work and intersectional inequalities

While there is already a number of studies on gendered experiences of remote work, which have been outlined above, there is very little literature to date on further dimensions of inequality, and even less on the intersection of several dimensions. The studies presented below examine how race, age, disability, sexual identity, socio-economic status, and territorial inequalities shape and are shaped by remote working arrangements.

Staniscuaski et al (2021) examine the impact of gender, race, and parenthood on academic productivity during the Covid-19 pandemic in Brazil. The findings reveal that male academics, especially those without children, were the least affected group, while Black women and mothers were the most impacted groups. The Covid-19 pandemic exacerbated the unequal division of domestic labour between men and women, with women, particularly mothers, spending significantly more time on childcare and household responsibilities. This disproportionately affected their ability to submit papers and meet deadlines during the initial period of social isolation. The study also highlighted the persistent racial bias in academia, with Black women facing a double burden of gender and racial discrimination. The results suggest that the Covid-19 pandemic will have long-term consequences on the career progression of the most affected groups, potentially widening the existing gender and racial gaps in science. The authors emphasize the urgent need for institutions and funding agencies to implement policies and actions to mitigate these disparities, such as extending deadlines, providing flexible work arrangements, and creating targeted funding opportunities for underrepresented groups. The study underscores the importance of building a more diverse and equitable academic environment in the post-Covid-19 pandemic era. Also focusing on working parents during the Covid-19 pandemic, Fan and Moen (2024) examine the stress-reducing effects of remote or hybrid work for parents, and how these effects are moderated by state-level school closure policies during the Covid-19 pandemic. They find that the stress-reducing effect of remote or hybrid work was diminished when schools were required to close, and that this is especially pronounced among white mothers, suggesting that the intersection of gender and race shapes the well-being implications of the dual disruptions in work location and childcare arrangements.

Some authors also found potential positive effects of remote work on intersectional inequalities. Marcus et al. (2023) examined the intersection of age, gender, and potential caregiving responsibilities on worker well-being, work-family conflict, and performance while working remotely during the Covid-19 pandemic. The

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authors found null effects for the majority of the interactions tested, with only a few exceptions. Women reported lower well-being and more family-to-work conflict than men, but there were no differences between older and younger workers or between those with more or fewer caregiving responsibilities. The authors speculate that remote work may have helped level the playing field for traditionally disadvantaged groups like women and older adults by reducing discriminatory social interactions. They suggest that if remote work can indeed benefit workplace diversity and inclusion, organizations should consider transitioning to such work arrangements. Overall, the findings challenge prevailing research on the intersectional effects of age and gender and point to the potential benefits of remote work for promoting equality in the workplace.

Drawing from international survey data, Dalessandro and Lovell (2024) explore how working remotely, in a hybrid environment, or onsite/in office matters for employees' sense of belonging at work. They find that older employees, those paid hourly, and those identifying as a "minority" in some ways were significantly less likely to report feeling a sense of belonging at work. Compared to their peers working onsite or in an office, "minority"-identified employees who began working remotely before the Covid-19 pandemic (but not those who started working remotely after the Covid-19 pandemic began) felt an elevated sense of belonging. These results suggest, first, that despite the potentially disruptive nature of work changes in the short term, workspace by itself does not significantly impact employee sense of belonging. However, for "minority"-identified employees in particular, remote work options may offer elevated feelings of belonging in some cases.

The literature that examined the role of age in remote working experiences was mainly focused on the exceptional situation of the Covid-19 pandemic (e.g. Settels 2023, Skalacka and Pajestka 2024). Notably, Scheibe et al. (2022) find higher resilience in older workers.

Several studies point toward remote work mitigating the detrimental effects of office environments. Amerikaner et al. (2023) find that LGBTQ workers felt significantly less stressed and tired while doing paid work from home than while working at a workplace. In their intersectional analysis comparing remote, hybrid, and in-office work during and after the Covid-19 pandemic, Fan and Moen (2023) find that remote or hybrid work may hold the potential to bridge disparities in job conditions between structurally disadvantaged and advantaged workers. They find that especially women of colour are disadvantaged by returning to the workplace. This could be due to the intersections of gender- and race-based occupational segregation, which are

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most manifest in in-person work, and which produce undesirable office environments especially for Hispanic and Black women, but also for Black and Hispanic men who feel less coworker support when working face-to-face. Similarly, Tomczak et al. (2022) find that remote working arrangements can help accommodate the needs of people with autism spectrum disorder by affording higher flexibility and additional work opportunities.

However, remote work also comes with challenges: Szulck (2022) argue, based on a review of the existing literature, that especially aspects of flexibility and digitally mediated communication can pose challenges for neurodivergent workers. Similarly, Badura et al. (2023) suggest that being compelled to work in isolation from others has harmful consequences, including diminished help in the workplace and decreased job satisfaction, for workers with disabilities. They find that employees with disabilities received diminished help from others when working from home and that this diminished help decreased satisfaction, but only in instances where these employees had high-quality relationships with their leaders.

In addition to dimensions of difference shaping experiences of remote work, they are also reflected in access to remote work. Minkus et al. (2022) find that the gender composition of an occupation plays into how probable it is to be working from home: women employed in female-dominated occupations are less often able to work from home. Furthermore, our study confirms that it is particularly the highly educated, as well as those who work in high-prestige occupations, who can work from home. Along similar lines, Kruse et al. (2022) find that people with disabilities were less likely to work remotely during the Covid-19 pandemic, as opposed to more likely before the Covid-19 pandemic, although working remotely can mitigate problems. This is because people with disabilities are often in occupations with lower 'teleworkability'. Moreover, one's location and nationality can affect the accessibility of remote jobs: Braesemann et al. (2022) examine globally distributed remote work with data from an online labour platform. They find that remote work is polarised: North American, European, and South Asian platform workers attract most jobs; and people in large cities participate more in remote jobs than in rural areas; workers with in-demand skills can get profitable jobs, while others face intense competition and obtain low wages. Their findings suggest that agglomerative forces linked to the unequal spatial distribution of skills, human capital, and opportunities shape the global geography of remote work. These forces pull remote work to places with institutions that foster specialisation and complex economic activities, i.e. metropolitan areas focused on information and communication technologies.

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Locations without access to these enabling institutions—in many cases, rural areas—fall behind. In addition, regions with better digital infrastructure can offset some disadvantages of poor physical accessibility, enhancing overall job accessibility (Cavallaro et al. 2022).

What is more, higher socio-economic status is associated with a more favourable working environment for working from home (Loignon et al. 2024). Thus, an increase in working from home makes pre-existing inequalities more salient. Thus, socio-economic status also indirectly affects remote workers' well-being, as a poor working environment at home has detrimental effects on remote workers' mental health (Hipp and Krzywdzinski 2023; Sasaki et al. 2023).

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Section 3 – Current and potential transformations on production organization[12]

Chapter 1 – Remote work transforming business models

Transforming Business Models

The COVID-19 pandemic acted as a catalyst, fundamentally transforming remote work from a niche arrangement into a widespread necessity. Prior to the pandemic, remote work was mostly driven by employees and independent professionals seeking better work-life balance, especially within higher-profile intellectual roles. This early model of remote work faced challenges, including isolation, limited face-to-face communication, and issues around task visibility and supervision. However, as lockdowns began and business continuity took precedence, organizations rapidly adjusted work methods and managerial practices without fully addressing the short-term impacts on teamwork and hierarchical control. The survival of firms during this period necessitated drastic operational changes that laid the groundwork for a new era in business operations.

The shift to remote work has underscored the essential role of digital infrastructure and technology in maintaining productivity and connectivity. The expansion of personal IT devices, cloud services, and remote access tools allowed organizations to overcome geographic limitations and reshape their operations. This transformation required robust IT and transportation infrastructures in previously underserved areas. Studies by Gökhan and Ozmen (2023) and Saraiva et al. (2021) highlight the importance of continuous digital innovation to support these new work environments, emphasizing that the success of remote work hinges on adequate technology and infrastructure. To meet the demands of a geographically distributed workforce, many organizations have implemented high-bandwidth networks, VPNs, and advanced cloud storage solutions.

Remote work's success also depends on effective leadership, employee engagement, and an adaptable organizational culture. Leaders play a pivotal role in maintaining morale and productivity; transformational leadership has been linked to higher job satisfaction and motivation in remote settings (Jones & Schöning, 2021). Employee experience during this shift has been mixed, with some workers reporting

[12] First draft: Ignasi Capdevila (PBS). Second Draft: Elena Prodi (POLIMI). Further comments, revisions and adjustments: Marco R. Di Tommaso (UNIBO), Giulio Buciuni (TCD).

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enhanced autonomy and work-life balance, while others struggle with isolation and blurred boundaries between work and personal life (Patil & Gopalakrishnan, 2020). As firms adapt to remote work, fostering a culture of trust and support becomes vital to maintain employee commitment, especially in distributed teams that lack the cohesion provided by face-to-face interactions.

The normalization of remote work has led to substantial changes in business models and operational frameworks. One of the most visible shifts has been in managing fixed costs: organizations have been able to reduce physical space requirements, cutting expenses on rent and maintenance. This downsizing has enabled firms to redirect resources toward IT infrastructure, security, and employee support systems, reflecting an increased need for technological resilience (Zhang et al., 2023). However, new challenges have emerged regarding compensation models, expense reimbursement, and workplace insurance. For example, determining employer contributions for home office utilities, addressing liability for accidents in domestic workspaces, and navigating legal communication protocols have required new policies and frameworks (Ledesma Herrera et al., 2022).

HR practices have also evolved to address employee retention and engagement in remote settings, where traditional face-to-face interactions are limited. Studies emphasize the need for strategic HR frameworks tailored to virtual work environments, addressing challenges like task supervision, performance monitoring, and employee well-being. Additionally, the integration of digital tools and virtual collaboration platforms has redefined knowledge management and skill distribution within organizations, demanding an alignment between digital competencies and task-specific skills.

Remote work has prompted shifts in management styles and control dynamics, as physical oversight has given way to trust-based management and outcomes-focused evaluations. This evolution has also redefined organizational hierarchies and power structures, impacting how knowledge flows and is managed across the company. Mariotti et al. (2023) identify these shifts as crucial for fostering collaboration and knowledge-sharing within remote teams, as well as minimizing "power distance"—the hierarchical gap that can widen when physical interactions are limited. Strategic management approaches now emphasize flexible, decentralized decision-making and collaborative task management, enhancing both productivity and employee engagement.

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The cost implications of remote work are complex. Downsized physical spaces reduce operational expenses such as rent and facility management, while IT costs have risen to accommodate remote infrastructure. Increased capital (CAPEX) and operational (OPEX) expenses in IT are necessary to support secure and effective remote work environments, including investments in cybersecurity measures and cloud computing solutions (Reidhead, 2022). Although these shifts bring cost savings in some areas, the impact on broader business operations—such as managing knowledge flows and adjusting service portfolios to meet remote work needs—requires ongoing innovation and sector-specific adaptations.

Productivity and innovation in remote work settings also hinge on several factors. Studies by Nwankpa and Roumani (2024) suggest that knowledge sharing and a digitally intensive business environment can enhance productivity. Singh et al. (2022) explore the mental health aspects of remote work, emphasizing the importance of digital well-being as employees adapt to increasingly virtual workplaces. As organizations navigate the evolving landscape, continuous adaptation and innovation are essential for maintaining productivity and addressing the unique challenges of remote work.

Long-term success in the era of remote work requires strategic adaptations across various organizational functions. Sjöberg and Hall (2021) offer a roadmap for implementing sustainable remote work policies, while Tanpipat, Lim, and Deng (2021) highlight the importance of strategic facility management. These strategies are crucial for firms aiming to retain a competitive edge, particularly in knowledge-intensive and platform-based sectors where remote work has become increasingly integral to business operations. Studies from various geographical and sectoral perspectives add depth to this understanding; for example, Urbaniec et al. (2022) provide insights from Polish managers, while Gandini et al. (2024) and Yao et al. (2022) explore platform-based and neo-craft work models, offering valuable lessons for adapting remote work strategies to specific business environments.

The rise of remote work is ushering in profound transformations across business models, management practices, and employee relations. By prioritizing digital infrastructure, adaptable leadership, and a resilient organizational culture, companies can navigate the complex challenges of a remote-first world. While remote work presents clear opportunities for cost savings and productivity gains, it also demands continuous innovation in technology, operations, and employee support. As organizations continue to refine their approaches, they must strike a balance between

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technological advancement, employee well-being, and strategic agility to succeed in the evolving landscape of remote work.

Overall. remote working has transformed traditional organizational structures and practices, significantly impacting various aspects of working life. As businesses increasingly adopt remote work models, it becomes essential to understand how this shift influences organizational dynamics. In what follows, we explore the multifaceted impacts of remote work on organizations, providing a comprehensive understanding of the challenges and opportunities presented by remote work to traditional organization of business and industries, as found in the current literature.

Potential legal and fiscal issues

The Covid-19 pandemic has spotlighted numerous legal and fiscal issues associated with remote work, that terms should consider while adjusting or rethinking the business models. Nikita and Ilona (2021) identified the necessity to adapt taxation schemes, legal contractual forms between employees and companies, and standards regarding corporate liability. Addressing remote work issues within a single country poses no serious difficulty; however, the complexity intensifies when these issues cross national boundaries, even within converging taxation systems like the EU. The calculation bases for social taxes and legal issues concerning geographical positions have gained increasing importance as remote work, once reserved for specific categories like digital nomads or cross-border commuters, becomes more generalized. Policymakers must adapt regulations for telework to meet the new magnitude of the demand for remote work. Establishing guidelines to prevent tax avoidance and "tax dumping" while preserving worker protections and flexibility for geographical repositioning is now imperative.

A significant challenge, involving particularly digital nomads and independent workers, is determining the actual match between work and the country of residence, or if not possible, their "centre of interest" (Regulation EC 883/2004, Articles 13(2) and 16). Cross-border telework, often neglected in the literature, is difficult to appraise in terms of actual size. The EC Report VT/2021/030 (issued May 2023) estimates around 2.2 million cross-border teleworkers in the EU in 2020, with notable dynamics in business ecosystems like Luxembourg. This report highlights the explicit benefits for both employers and workers, such as larger labour markets, greater employment opportunities, and higher autonomy to live where they wish. However, the lack of

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legal status generates uncertainty for both parties and a risk of "social dumping" (European Commission, 2023; Eurofound, 2020).

Research by De Vries, Tummers, and Bekkers (2019) also highlights the benefits and challenges of teleworking in the public sector, emphasizing the need for robust legal frameworks to support these new working arrangements. Additionally, a study by the International Labour Office (ILO) and Eurofound (2017) underscores the importance of clear regulations to mitigate the risks associated with remote work, such as social dumping and tax avoidance. Collectively, these studies underscore the necessity for policymakers to adapt existing labour laws and taxation policies to the realities of a remote workforce.

The legal and regulatory aspects of remote work are crucial for its sustainability. Nikita and Ilona (2021) discuss the regulation of remote and platform work in Russia, emphasizing the need for clear policies to support remote work arrangements. This perspective is essential for ensuring fair and sustainable remote work practices.

Overall studies underscore the multifaceted nature of remote working and its profound impact on business models. The integrated findings emphasize the importance of strategic adaptation, technological integration, supportive leadership, and clear regulatory frameworks in making remote work effective and sustainable. By addressing legal, fiscal, and strategic considerations, organizations can navigate the complexities of remote work and leverage its potential to create resilient and flexible operational models.

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Chapter 2 – Remote work and organizational changes

Workplace flexibility and Remote-First Organizations

Workplace flexibility refers to the ability of workers to decide when, where, and for how long they perform work-related tasks (Hill et al., 2014). It has been found to improve productivity, decrease absenteeism, and reduce work-life conflict (Baltes et al., 1999; Bloom et al., 2015). However, it can also lead to professional and social isolation, potentially affecting employee development and promotion rates (Cooper & Kurland, 2002).

High teleworkability jobs, typically involving information processing, can be performed effectively through remote work, influencing employees' well-being by improving productivity and work-life balance (Eurofound, 2020).

Work can be organized in different ways depending on the degree of integration of remote work. Table 1 categorizes five tiers of remote organizing (Brünker et al, 2023): Onsite-only (no remote work allowed), Remote exceptions (some remote work based on job responsibilities), Hybrid (combination of onsite and remote work), Remote-first (default remote work with optional office presence), and All-remote (no physical office, fully distributed work). Each tier reflects varying degrees of remote work implementation based on organizational decisions and job requirements.

Remote-first organizations proactively adopt remote work as the default mode, requiring a configuration that maximizes employee well-being and job satisfaction (Asatiani et al., 2021). These organizations operate on a continuum from onsite-only to all-remote, each with different implications for organizational identity and culture (Rhymer, 2023).

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Table 1: Five Tiers of Remote Organizing. Source: Brünker et al (2023)

Tier	Description	Supporting literature
Onsite-only	An organization without instances of remote work. This is based on a leadership decision and/or a business model that does not allow for remote work.	Gitlab, 2023; Mueller-Langer and Gómez-Herrera, 2022
Remote exceptions	Most of the workforce operates from one or more physical office locations, with a subset of employees having the option to work remotely on a permanent basis because of their job responsibilities or geographic location.	Gitlab, 2023; Santos and Ralph, 2022
Hybrid	A combination of onsite and remote work that 'incorporates interstices of multiple locations (digital and physical) and the relation they assume in time and space'.	Feiten Haubrich and Hafermalz, 2022, p.3; Feiten Haubrich and Hafermalz, 2022; Santos and Ralph, 2022
Remote-first	Presumes that every employee operates from their individual work environment. A physical office may exist, but onsite presence varies and is not obligatory.	Asatiani and Penttinen, 2019; Santos and Ralph, 2022
All-remote	No maintenance of a physical office location with all work tasks being distributed independent of space and time, often across countries and time zones.	Choudhury, 2022; Rhymer, 2023

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Organizational impacts of remote work

Remote working is viewed as a source of opportunities for firms, provided organizations can adapt their structures and routines (Thompson, 2021). Scholars emphasize that remote working can enhance access to a diverse range of knowledge and support creativity (Bhatti et al., 2024; Thompson, 2021). It can also improve customer relationships (Silva and Merino, 2017; Olsen et al., 2024) and intensify knowledge exchanges within companies (Bhatti et al., 2024). To leverage these opportunities, Thompson (2021) stresses that managers must experiment with new practices and structures to align remote working with firms' goals and strategies.

However, scholars also recognize that remote working introduces new risks by complicating social interactions. It can generate new forms of conflict and feelings of exclusion (Raghuram, 2021; Byrd, 2022; Yin et al., 2022), which inhibit tacit knowledge exchanges, creativity, and ultimately impede innovation performance (Tonnessen, 2023). Remote working can also lead to anxiety and loneliness (Hoak, 2023). These risks are amplified when firms fail to adapt management practices, rules, and incentives to the remote working environment and employees' aspirations for work-life balance.

Scholars investigate the antecedents of how and why remote working contributes to new innovation management logics. These antecedents are defined at individual, collective, and organizational levels (Berchicci et al., 2016). Some antecedents are also related to national culture (Yin et al., 2022) and the technological properties of the digital platforms used (Bhatti et al., 2024).

Scholars offer avenues for future research and managerial recommendations. Organizations must find a balance between using physical and virtual spaces for managing projects and teams. The challenge for managers is to find the relevant mix between face-to-face interactions and virtual exchanges (Tonnessen, 2023; Olsen et al., 2024). Silva and Merino (2017) propose that companies adopt a design management approach, which is based on the practices, feelings, and thinking processes of designers, to address the challenges associated with the generalization of remote working.

Other scholars provide insights into managerial practices in the context of remote working. Yin et al. (2022) and Leonardi and Bailey (2008) highlight the development of new managerial practices to make implicit knowledge explicit and reduce the risk of

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misinterpretation. Managers must act as facilitators of social interactions by adapting their communications (Tonnessen; Olsen et al., 2024). They should follow employees with goodwill, recognize when and why employees are struggling, and act as inclusive leaders (Bhatti et al., 2024).

The shift to remote working requires significant adjustments in organizational practices and culture. While it presents opportunities for innovation and enhanced performance, it also poses challenges that demands more rigorous organizational and management methods.

Leadership and organizational control

Remote work has fundamentally transformed traditional organizational dynamics, especially in terms of control mechanisms and leadership practices. The inherent autonomy in remote work environments challenges conventional methods of supervisory oversight (Morgeson & Humphrey, 2008). Supervisors often feel a loss of direct control over their teams, leading to uncertainties about goal achievement and performance monitoring. However, cultivating a high-quality relationship between supervisors and remote employees can mitigate these challenges. When supervisors demonstrate trust and support through transparent communication and frequent interactions, remote workers are motivated to exceed expectations (Maslyn & Uhl-Bien, 2001; Schriesheim, Castro, & Cogliser, 1999).

During the Covid-19 pandemic, organizations like Hewlett Packard, Hilton, Nordstrom, and HubSpot received high culture ratings primarily due to honest and transparent communication from leadership (Sull & Sull, 2020). Effective supervisory support during remote work mitigates its impact on organizational culture, underscoring the crucial role of leadership in maintaining cohesion and productivity.

E-leadership, as discussed by Avolio et al. (2014), is pivotal in virtual environments where geographical dispersion is common (Cascio & Montealegre, 2016). Leaders in virtual settings must prioritize building relationships, facilitating information access, and empowering employees to self-manage (Carte et al., 2006). Technologies mediate these leadership behaviours, influencing how leaders communicate, motivate, and inspire remote teams (Avolio et al., 2000, 2014). The adoption of IT tools during the Covid-19 pandemic enabled seamless transitions to remote work, highlighting their critical role in maintaining business continuity and enhancing autonomy (Reuschke & Felstead, 2020; Sridhar & Bhattacharya, 2020).

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Effective leadership in virtual teams requires empathy, shared responsibility, and a holistic approach that prioritizes both productivity and employee well-being (Matli, 2020). Managing remote teams presents unique challenges compared to face-to-face interactions, necessitating adaptive leadership strategies that consider technological influences on team dynamics and individual cognition (Hoch & Kozlowski, 2014).

Remote work environments reshape organizational control and leadership dynamics by emphasizing autonomy, technological mediation, and the importance of supportive supervisory relationships. Effective leadership in remote settings involves strategically leveraging IT tools, fostering transparent communication, and empowering employees to thrive in virtual workspaces. Recent studies emphasize the need for leaders to adopt new strategies, such as promoting mental health awareness, fostering inclusive work environments, and maintaining regular virtual check-ins to ensure team cohesion and productivity. By adapting leadership practices to the realities of remote work, organizations can enhance control mechanisms, maintain productivity, and cultivate a resilient workforce capable of thriving in a digital age.

Organizational culture and identification

Some scholars argue that one of the most important impacts of remote working is the transformation of organizational culture (Byrd, 2022; Raghuram, 2021). Remote work can lead to feelings of exclusion and reduce the sense of belonging and shared values, ultimately negatively affecting shared identity. Consequently, remote working can pose an obstacle to developing an organizational culture conducive to good economic performance, in terms of productivity and innovation.

Remote work has significantly altered how we perceive and experience meaningful work. Meaningful work, which encompasses unity with others, shared values, and the articulation of these values through work, reflects one's life purpose through work activities and relationships within the workplace (Lips-Wiersma and Morris, 2009; Chalofsky, 2003, 2010). An inclusive organizational culture enhances this sense of meaningful work (Mousa et al., 2021).

In remote work settings, the lack of interpersonal networking and developmental activities can lead to social isolation, negatively impacting meaningfulness and performance (Charalampous et al., 2019; Ashkanasy and Dorris, 2017). Sustaining

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meaningful work in such contexts requires adapting to new organizational missions and fostering situational purpose (Jiang, 2021). Leadership plays a crucial role in overcoming isolation and promoting meaningful work remotely (Antonacopoulou and Georgiadou, 2021).

Meaningful work involves contributing to the collective, with social interaction and group membership being critical (You et al., 2020). A socio-moral climate, characterized by openness, appreciation, and collaboration, enhances this sense of meaningful work (Schnell, Höge, and Pollet, 2013). Emotions like belongingness and the desire for approval help sustain meaningful work (Fiske, 2002).

The subjective nature of creating meaning in remote environments is influenced by the context, including interactions with supervisors and colleagues (Schnell, Höge, and Weber, 2019; Ellis et al., 2019). Developing leadership competencies to foster meaningful work in remote settings is essential (Ghadi, Fernando, and Caputi, 2015). Employees' sense of meaningfulness thrives in contexts characterized by interpersonal closeness and belonging (Lysova et al., 2019).

Remote work presents significant challenges in fostering a sense of belongingness and organizational identification among employees as well. The shift to remote environments often exacerbates feelings of exclusion and disconnection, particularly affecting individuals from underrepresented social groups (Carnevale and Hatak, 2020). To address these challenges, employers must rethink organizational strategies, especially leadership approaches, to cultivate an inclusive culture that supports meaningful work and nurtures a sense of purpose, community, and belongingness (Adawiyah and Pramuka, 2017; Bailey et al., 2019).

Successful remote organizations have adapted by developing new cultures characterized by flexibility, reduced bureaucracy, and outcome-based procedures (Harrington and Santiago, 2006). Beyond technological solutions, building a remote culture involves understanding human needs, fostering meaningful relationships, and ensuring that work contributes to collective goals (Charalampous et al., 2019). Inclusive leadership plays a crucial role in maintaining an inclusive culture in remote settings, facilitating engagement and mitigating the challenges posed by physical distance (Randel et al., 2018).

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Belongingness, identified as a fundamental human need essential for motivation (Maslow, 1954), becomes particularly crucial in remote work environments. It encompasses feeling valued for contributions, being connected and supported by colleagues, and actively participating in the organization's purpose (Kennedy, 2021). A positive and inclusive organizational culture enhances employees' willingness to engage with their work, especially during unexpected disruptions (Ashkanasy and Dorris, 2017).

However, remote settings often amplify social isolation, communication imbalances, and challenges in work-life integration, which can hinder belongingness (Attfield and Barth, 2021). Building and maintaining stable, supportive relationships through frequent interactions are critical in fostering a sense of belonging among remote workers (Baumeister and Leary, 1995). Many remote employees struggle with visibility and maintaining meaningful connections, leading to feelings of loneliness and isolation (Dery and Halfermatz, 2016; Yarberry and Sims, 2021).

Leadership plays a pivotal role in creating a culture where employees feel a sense of affiliation and belonging in remote environments (Kennedy, 2021; Pattnaik and Kesari Jena, 2021). Effective leaders establish communal bonds, strengthen relationships, and enhance engagement among remote teams. They also address potential social injustices that could undermine efforts to foster belongingness.

Organizational identification, which serves as a psychological link between employees and their organization, is crucial in dispersed workforces (Wiesenfeld et al., 1999). Strong organizational culture traditionally enhances organizational identification by instilling pride and shared values among employees. However, remote work poses challenges as it limits exposure to organizational values and beliefs, potentially weakening organizational identification (Bartel, Wrzesniewski, & Wiesenfeld, 2012). Therefore, remote work may lead to lower organizational identification due to diminished opportunities for cultural immersion and connection.

Furthermore, remote work can trigger identity threats among employees, influencing their work-related identities in various ways such as limited identity enactment, identity blending, and meaning loss (Bartel, Wrzesniewski, & Wiesenfeld, 2012). These identity threats prompt individuals to protect or reconstruct their identities strategically, particularly in response to experiences of meaning loss.

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In the same perspective, remote work presents unique challenges to organizational socialization, particularly during the onboarding process. New employees learn explicit and implicit norms, form social connections, and identify key networks of influence through interactions with peers and supervisors. However, the physical and temporal dispersion inherent in remote work makes it difficult for newcomers to engage socially and build relationships, leading to a weakened understanding of cultural norms (Raghuram, Garud, Wiesenfeld, & Gupta, 2001). Even long-term remote workers often experience increased isolation and a sense of disconnection from their organization due to reduced reliance on peers or supervisors for completing work tasks. As isolation grows, the communication and reinforcement of organizational culture diminish over time, resulting in lower organizational socialization and increased isolation.

Socialization to organizational values and norms is crucial for building a strong culture (Van Maanen, 1975). For newcomers, this process occurs during onboarding, while for existing employees, it involves continuous reinforcement from top management (Schein, 2010). However, in organizations with a significant proportion of remote employees, socialization can become problematic. Newcomers may struggle to build relationships with experienced members who are not physically present (Hinds & Mortensen, 2005). Additionally, remote work can impact an individual's visibility within the organization, potentially harming their career prospects. Effective socialization practices, including online peer-to-peer connections, virtual informal meetups, and inclusive events for both in-office and remote employees, can moderate the relationship between remote work and organizational culture, helping to mitigate these challenges.

Organizational culture plays a critical role in communicating goals and motivating employees to share knowledge. A positive culture fosters trust, encouraging employees to help their peers without fear of being taken advantage of (Golden & Raghuram, 2010). Informal interactions, such as water-cooler chats, enhance knowledge sharing by providing a common frame of reference and shared interpretive context (Davenport & Prusak, 1998). In remote work settings, knowledge sharing decreases because remote workers are less likely to experience the trust and interpersonal bonding necessary for sharing tacit and explicit knowledge (Golden & Raghuram, 2010). When remote workers are aligned with and committed to the same organizational culture, they are more willing to share knowledge, emphasizing the

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importance of maintaining a strong organizational culture even in remote environments.

Remote work poses significant challenges to organizational socialization, knowledge sharing, and the reinforcement of cultural norms. By implementing effective socialization practices and fostering a positive, inclusive culture, organizations can mitigate these challenges, ensuring that both remote and in-office employees feel connected and engaged. This approach will help maintain organizational commitment and enhance knowledge sharing, ultimately contributing to a more cohesive and productive remote workforce.

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Chapter 3 – Economic performance and innovation

Productivity

During periods of lockdown, remote working was the means by which businesses remained resilient, continued to operate and, ultimately, generated revenue. New working habits developed more widely and continued even after the COVID 19 crisis. Research has been able to take stock of these new ways of working, to understand in particular the impact in terms of work productivity for organizations and the conditions under which this model of work arrangement could be efficient.

A number of studies have concluded that teleworking is likely to lead to productivity gains. For instance, a survey led mainly over OECD countries (Criscuolo et al., 2023) shows that more than 60% of managers "believe the productivity of their workers increased because of telework." Another study led in France estimates an increase in productivity by 10% with a significant increase in the use of telework in the long term (Bergeaud et al., 2023). Overall, these studies show a positive perception of remote working, both on the part of workers, who find it a major source of satisfaction (like improved work-life balance with higher flexibility and autonomy), and on the part of managers. However, these results need to be qualified in several respects. For example, a study by MIT researchers in India finds that productivity of workers working from home is 18% lower than those in the office. In this study, we understand that while workers who prefer to work from home are faster and more accurate at baseline, they are also less productive at home than at the office.

Remote work provides autonomy and flexibility, which can help reduce stress and decrease employees' intention to leave an organization. However, it also brings challenges that can impact productivity and increase turnover rates. Organizational culture is crucial in fostering a sense of belonging among employees. Remote workers often feel "out of sight, out of mind" (Cooper & Kurland, 2002), leading to ambiguity in their relationship with the organization, reduced team spirit, and weaker attachment. This professional isolation can diminish their commitment to the organization, motivating them to seek other opportunities and potentially increasing turnover. Some remote workers even form stronger connections with client organizations they interact with frequently, influencing their career choices (Cooper & Kurland, 2002; Yang et al., 2021).

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Additionally, remote work can affect productivity due to challenges in maintaining organizational goals and performance expectations. Clarity and communication of individual performance goals can be compromised in remote settings due to fewer face-to-face meetings with supervisors (Marcoulides & Heck, 1993; Wang et al., 2020). This lack of regular interaction can weaken coworker relationships, reducing collaboration and team cohesion. Remote environments may also increase the risk of employees shirking responsibilities without immediate oversight, impacting overall productivity (Larson et al., 2020).

To address these challenges, organizations need to nurture a strong organizational culture that transcends physical boundaries. This involves fostering regular communication, setting clear performance expectations, and promoting virtual collaboration tools that enhance teamwork and engagement (Marcoulides & Heck, 1993; Gilson et al., 2015). By maintaining a cohesive culture that values and supports remote workers, organizations can improve productivity and retention, ensuring employees stay aligned with organizational goals and committed to their roles.

There are several enabling conditions for improving productivity with remote working. Most studies explain that it is the reduction in commuting time, work intensity, and longer working hours that enable worker productivity to improve through remote working (OECD, 2020; Barrero et al., 2021; Bergeaud et al., 2023; Criscuolo et al., 2023; Olsen et al., 2024). But all these works also state that it is highly dependent on the personal living conditions of workers (children, available space, affordable broadband and ICT equipment, etc.), on their digital skills, and their ability to separate their personal and professional lives. Remote workers need access to quality hardware and ergonomic solutions to boost productivity and well-being. It also depends on the worker's sense of satisfaction with remote working, which is not constant. For example, the feeling of isolation that remote working can bring is likely to have a negative influence on work productivity. Conversely, factors such as enhanced autonomy and self-management induced by remote working have a positive influence on productivity (Galanti, 2021).

Recent studies suggest additional strategies to support remote workers and boost productivity. Implementing structured daily check-ins, providing mental health support resources, and ensuring employees have access to necessary technology and training can significantly enhance remote work experiences (Felstead & Henseke,

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2017; Allen et al., 2021). Additionally, fostering a culture of trust and autonomy, where employees feel empowered to manage their workloads independently, has been shown to improve productivity and job satisfaction in remote settings (Contreras et al., 2020).

Productivity of employees working remotely is also influenced by an organizational component: the way in which the organization intends to organize teleworking (duration/number of days in the week). Research shows that the influence of teleworking on productivity is fairly positive, provided that the time devoted to teleworking is limited (part-time teleworking rather than full-time) (OECD, 2020; Criscuolo et al., 2023).

Other organizational aspects are likely to affect improvements in worker productivity, such as monitoring methods, and the capacity of managers to effectively engage and motivate remote workers. An overly strict method of control and a lack of trust can have a negative impact on the mental health of remote workers and, consequently, on their productivity. This requires a major shift in organizational culture toward a results-based management approach and trust-based relationships between managers and workers (OECD, 2020). These aspects can reduce the efficiency of organizations and increase the transaction costs associated with monitoring remote workers and asymmetric information. Lastly, the impacts of remote work on productivity are much more significant when it has the support of the workers and managers, when they are both trained for this work arrangement and the home environment is well-prepared (Bergeaud et al., 2023). A study reveals that companies have learned to work remotely more efficiently since Covid: “Five percent productivity boost in the post-Covid-19 pandemic economy is due to re-optimized working arrangements” (Barrero et al., 2021). It is for this reason that companies involved in remote working before Covid tend to have an even greater practice of this organization of work, and those which experimented with it during the lockdown have maintained this way of working.

Overall, the efficiency gains for organizations can stem from phenomena adjacent to remote working arrangements: reducing production costs through increased productivity, but also through savings on rent or investment expenses, as there is less need for workspaces or smaller spaces with flex office arrangements. Additionally, remote work can help reduce labor costs by providing access to a wider pool of

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workers, increasing the supply of skills, and improving the match between jobs and recruits (OECD, 2020).

Innovation management

Studies have explored the impact of teleworking on the ability to innovate. On one hand, a remote working setting can offer workers a new perspective for creativity, benefiting from a framework outside that of their organization. In a singularized context, they can exploit fresh perspectives and consider new ideas that they might not have had the opportunity to examine otherwise.

Working remotely can therefore encourage open innovation (Harhoff and Lakhani, 2016). Moreover, some studies based respectively in Germany or in Portugal have shown that firms that implement trust-based work practices or self-managed work schedules, including in the context of remote work, show higher product innovation intensity, and that the effects of remote work are generally positive in companies that carry out R&D activities (OECD, 2020).

On the other hand, numerous studies have explained the role of physical space in the innovation process (Magadley and Birdi, 2009), and the capacity offered by physical vicinity for interaction and knowledge flows (Amin and Cohendet, 2005). By reducing the number of physical interactions, remote working can hinder communication and the circulation of knowledge, which is a breeding ground for innovation.

Individuals have a strong influence on innovation's capacity of organizations through their mindset and the capabilities. From this perspective, we can understand that individuals (and therefore workers) have a greater or lesser propensity to adopt innovative behavior. The worker's work environment can also help to encourage this innovative work behavior. Garlatti et al. (2023) show that remote working can lessen the ability of worker to create when worker is experiencing two constraints at home: conflictual situations between work and family domains and social isolation. On the one hand the family requirements due to the continuous proximity steal some time to concentration and engage in creative activities. On the other hand, social isolation deprives workers of the reference points that enable them to evaluate their ideas, and gives them less confidence in their abilities and knowledge (they do not receive the approval of a peer, for example). There is less opportunity to generate ideas based on exchanges with colleagues.

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From another perspective, Olsen et al. (2024) are interested in the way in which innovations contribute to increasing the value of the employees involved in the innovation process. Taking the example of the evolution of the profession of journalism over the Covid-19 crisis, the authors show the extent to which journalists have had to be creative and introduce new services to increase paid audiences. They also put the light on how value of innovation through the radically changed in service system, was perceived among news workers. From the workers' point of view, remote working has reduced hierarchical distance and encouraged cooperation, as well as providing a new way of meeting people. The inherent well-being of workers has enhanced their role in producing information and creativity. Remote working has given people more equal opportunities to participate and have an impact on the information production process. Remote working has created value for workers by connecting people and creating sense in their production of information.

However, it is pointed out that the informal and collective process (such as the meetings around the coffee machine that help refine the press archives) is prevented by remote working and, in the end, there is less creative process, fewer articles produced thanks to the kind of collective process that used to produce hard-hitting journalism.

Remote working has significant impacts on collaborative innovation and creativity groups, though the academic findings are sometimes partial, contradictory, or even oppositional.

Bhatti et al. (2024) and Berchicci et al. (2016) highlight the positive impacts of remote working on collective dynamics. They argue that remote working enhances collective creativity by supporting work flexibility, facilitating knowledge exchanges, and providing access to diverse knowledge. Berchicci et al. (2016) specifically note the positive effects when SMEs exhibit strong individual and collective absorptive capacities during remote collaboration. Similarly, Bhatti et al. (2024) emphasize the benefits on collective creativity when management and digital platforms are adapted to new knowledge exchange dynamics, though they suggest that this adaptation process is relatively straightforward.

Conversely, other scholars such as Tonnessen (2023) and Olsen et al. (2024) argue that remote working inhibits collective creativity, regardless of the group profile. They highlight two main issues:

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1. The difficulty of knowledge exchange necessary for generating new visions and ideas about products and services. Virtual collaboration can hinder the interpretation of body language, leading to increased misinterpretations (Olsen et al., 2024). Additionally, utilizing creative methods in a virtual environment poses significant challenges, and the risk of misunderstandings is high. Facilitators find it challenging to establish a climate of trust.
2. The physical environment of remote workers can induce distractions, making it hard for individuals to isolate themselves from their immediate surroundings, thereby diminishing focus on professional projects and new ideas.

In a virtual context, the risk of reducing trust and hoarding knowledge tends to increase, especially when heterogeneous groups attempt to develop new collaborative projects (Yin et al., 2022). This can lead to the progressive exclusion of some individuals from creative projects. Hence, Yin et al. (2022) emphasize the role of inclusive leadership in managing creative projects in virtual environments.

Tonnessen (2023) provides an in-depth investigation of various creative projects, showing that interaction patterns change with remote working, leading to a reduction in tacit exchanges. He concludes that while remote working is generally viewed positively for sessions dedicated to evaluating creativity projects and sometimes for idea generation sessions with new forms of facilitation, face-to-face interaction remains crucial at the early stages of creative projects (e.g., redefining the question for exploration). Tonnessen (2023) underscores the importance of combining hybrid face-to-face and virtual interactions during the realization of creative projects.

In summary, while remote working presents opportunities for enhancing collective creativity and innovation, it also poses significant challenges, particularly in terms of communication, trust-building, and managing the creative process. Balancing virtual and physical interactions appears to be key in leveraging the benefits while mitigating the drawbacks of remote working in creative and innovative endeavors.

Remote working and the startups model

The new conditions created by remote working settings, with all the flexibility it implies, are becoming demands on the labor market, particularly for workers. Today's workers seem to want to decide when and where they work and what tasks they perform. This expectation of post-covid working conditions helps to improve job

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satisfaction. Flexibility in choosing when and where to work is becoming an essential motivating factor in the new era (Dunstan and Rai, 2023). Offering remote work attracts more experienced and diverse job applicants, including among start-ups (Hsu and Tambe, 2023) and facilitates the employee recruitment process (Akmalia and Gregorius, 2023).

A recent study (Dunstan and Rai, 2024a), indicate that empowerment, motivation, commitment, contribute to the success of new startup businesses. Startup managers who respect these values, create a healthier and happier working environment for the workers. Start-ups that have increased autonomy and flexibility in work arrangements have led to enhanced productivity: when employees are given more responsibility, their job satisfaction increases, which translates into better performance (Dunstan and Rai, 2024b). The studies conclude that start-ups need to think about employee satisfaction and sense of achievement in their work, while aligning this satisfaction with the company's operational objectives. This requires constant learning on the part of both employees and small businesses, to increase their collective capabilities. Workers of start-ups value less job security and wage than independence and responsibility. This partly explains why start-ups have a higher propensity for innovative performance than some large companies today (higher patent production): workers may be more motivated (Sauermann, 2018).

With regard to managing the Covid crisis within start-ups, one other study stresses that these unconventional forms of organization have a greater propensity for flexibility and agility, providing appropriate and rapid responses. For instance, start-ups demonstrate a greater propensity to develop their operations in digital environments, and foster effective and constant communication between team members, as well as between the company and other stakeholders (Mota, et al., 2022). The study also reveals the challenges that the start-ups analyzed in the sample have identified, including the need to promote efforts to developing better conditions for remote working and employees' well-being, and to do so learn to reorganize the structures of work and collaboration.

Moreover, flexible work arrangement and remote work settings are prompt to be beneficial for the business processes of startups by reducing operational costs (Akmalia and Gregorius, 2023).

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Finally, the values of start-ups (offering autonomy, based on trust, management by project, involvement, and the sharing of decision-making power between the company's stakeholders) coincide with the principles of remote working. Conversely, remote working is a way of deepening the management style of start-ups. Companies whose culture accepts high levels of internal change can be more resilient and consequently more successful, and this is what many start-ups demonstrated during the Covid-19 pandemic by being agile and adopting remote working with ease.

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Section 4 - Current and potential socio-economic transformations[13]

Introduction

The widespread adoption of remote working practices has introduced relevant socio-economic transformations in the organization of work, labour markets and mobility. While RW has been increasing since before the pandemic, the more recent surge has several implications that have been indentified in the literature. These concern, namely, the nature of jobs or the access to remote work in particular occupations. This has a clear impact in terms of labour markets, as individuals consider the possibility of providing remote work in relation to wages, location or firm complementary investments, but also in how organisations manage their workforce in relation to the access and use of remote work. In this regard it is clear that remote work has impacts in different forms of inequalities at work. The mobility changes induced by remote work, both in daily commutes as in territorial displacement, has also important environmental impacts, territorial dynamics and socio-economic impacts at community level that need to be considered by public policies.

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Chapter 1: Labour market[14]

Labour Market Dynamics

As highlighted by O'Rourke (2021), the pandemic experience of remote work, widely used then, albeit for a limited set of 'teleworkable' jobs, has established a new workplace model and contract between employer and employee. While employers must now ensure trust, flexibility and choice, employees accept autonomy with responsibility and productivity.

Felstead and Henseke (2017) analysed the growth of remote work, before the pandemic, considering three underlying theories: that this growth was the result from a shift towards a knowledge economy, from managers promotion of flexible working, or from a changing demographic of the workforce, favouring working arrangements better suiting employees' domestic and personal circumstances. The authors conclude that the change was not an artefact but could not be considered as a "spatial revolution". Furthermore, it is only partially explained by these theories. In fact, the results are unclear as to the distribution of benefits between employers and employees, as it finds evidence of extra work put in by workers, as well as greater motivation and satisfaction, but with difficulties in redrawing the line between home and work, an issue that became all too evident during the pandemic.

Indeed, Aleem et al.'s (2023) mapping of topics in the literature on remote work and the Covid-19 pandemic identify labour market dynamics as one of the research themes resulting from the topic-model characterization. In particular, the impact of remote work on the creation, change, and elimination of jobs emerges as a central issue, as analysed below. The authors highlight that little work has focused specifically on new jobs emerging as a result of this process (but considerations below on specific demand for interpersonal skills are not unrelated), and note the importance of the appropriate technological infrastructure. Distinct impacts at job level are the more visible dimensions of remote work related inequalities, which are expressed through gender, territorial or career related impacts, for example. The

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extent to which power relations are affected by the expansion in remote work is a final issue of analysis below, in reviewing labour market implications of remote work.

Pigini and Staffolani (2019) also find a wage premium for teleworkers in Italy, and Vij et al. (2023) in Australia. Moens et al. (2024) prepared an experimental research setup to test motivations on job choice. They concluded that the offer of the possibility to telework increased the attractiveness of jobs, and that the experimental participants were willing to give up an increase in wage for a greater possibility to telework, thus reflecting choices which are in line with the theoretical models discussed above (but without considering the possibility of changes of residence).

These conclusions also have wider implications for firm strategies. Sanati (2024) analyses the impacts of greater labor mobility on corporate leverage and investment and conclude that firms "firms that rely on skilled workers with high mobility anticipate high-value outside job offers for the workers more frequently. Therefore, they find it optimal to operate with lower leverage to preserve financial flexibility that gives them the ability to retain their workers against outside job offers. They also have lower responsiveness to investment opportunities and lower average investment rates" (p. 33). The extent to which, in a context of teleworkability, wages are a central decision factor in job mobility can be questioned and, in fact, the level of investment may be also of relevance to attract high skilled workers. Sanati's study points to potential wider impacts of remote work on job mobility and the capacity of firms to attract and retain high skilled workers. Soroui (2021) provides a complementary analysis, on the basis of qualitative research with a set of firms in one US state. She concludes that firms do use remote work to attract workers and that a significant number of remote workers turn these firms less dependent on local factors but create new opportunities of local reembeddedness, with new opportunities for firms economic interlinkages or workers connections with their local communities. The role of the firm in the organization of remote work is essential here, and in that sense different from that of freelancers and independent workers who may be more dependent on Co-Working Spaces (Boschma, 2005). Soroui thus concludes that "functional, organizational, and social factors shape remote work practices with heterogeneous effects on local linkages" (2021: 18).

Similar risks in view of the expected high mobility are also faced by localities that are promoting relocation incentive programs to attract remote workers. As Teodorovicz et al. (2024) show that such strategies can be successful. With a case

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study of the Tulsa Remote programme, they conclude that the bundle of incentives, directed towards attraction but also towards retention, adding community engagement initiatives and entrepreneurship support to the initial incentives focusing on a lower cost of living or support to housing, are central to the success of this program.

Remote Work, Technology and Skills

While remote work has a long history, the development of information and communication technologies in recent years, facilitating communication and data exchange at a distance, and in mobility, has been crucial for the rise in remote working practices. Among work from home enabling technologies, high-speed broadband connecting employers and workers is the key element securing efficient remote work (Andrews et al., 2018). Moreover, virtual private networks and virtual desktops applications were fundamental to secure the integrity and safety of firms' data and systems, namely during the Covid-19 pandemic when remote work spread quickly. Indeed, Bloom et al. (2021) examine US newly published patents to identify those patents supporting video conference, telecommuting and remote interactivity (those that mention "working from home", "telework", "remote work" or equivalent phrases), and conclude that the share of work from home technology more than tripled between January and September 2020, suggesting that great efforts were made throughout the Covid-19 pandemic seeking to improve remote work quality and efficiency.

In addition to the supportive communicational infrastructural, discussions on remote work and labour markets also engage with the literature on the impacts of technological change and employment with regards to the process of digitalization and potential impacts on access to remote jobs. The earlier work of Frey and Osborne (2017) on labour substitution has had particular impact, despite coming under criticism for considering the automation potential of occupations as a whole and not of the corresponding tasks directly. More dynamic approaches to the analysis of the implications of the skills set of workers on job access (and substitution) has considered the concrete task content and task substitution rather than the full occupation substitution effect (e.g. Arntz et al., 2016; Brynjolfsson, Mitchell, and Rock 2018; Acemoglu and Restrepo 2020). This is particularly relevant in relation to the analysis of remote work as it highlights the partial implementation of remote work, in hybrid mode, and the concrete skills required, rather than a whole occupation approach.

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Access to remote jobs depends on workers skills (Autor et al., 2003), occupational and industrial specialization (Jensen and Kletzer, 2010; Dingel and Neiman, 2020; Barrero et al., 2023), the organizational culture (Andrews et al., 2023; Crescenzi et al., 2022), and the extent of the dissemination of the technology (Brynjolfsson et al., 2019). Dingel and Neiman (2020) classify the feasibility of working at home for all occupations, seeking to estimate the number of jobs that can be performed from home. The authors find that 37% of jobs in the United States can be performed entirely at home, with significant variation across cities and industries. Moreover, the more remotable jobs afford higher earnings than those that cannot be done from home. While their approach has been criticized by Crescenzi et al. (2022), considering that their research overestimates the share of jobs that can be done from home by 50%, it is also clear that what is at stake in remote work is not necessarily fully remotable jobs but the possibility of developing part of the work remotely. Pereira et al. (2022) analysed the 'permeability' of jobs to remote work together with their digitalization potential and social skills quality, thus highlighting a systemic approach to understand remote workability.

This is reflected also at sectoral level, with implications on international activities. Jensen and Kletzer (2010), explore the fact that improvements in the technological infrastructure are enabling tradable services to be traded internationally. Exploring the principles of offshorability - low presential customer contact, high information content, and work processes telecommutable or Internet enabled, and conciliating geographical concentration metrics with task-based indicators, they identify the occupational groups with large shares of employment classified as tradable - business and financial operations; computer and mathematical occupations; architecture and engineering; legal; life, physical, and social sciences; and Office/administrative support. Barrero et al. (2023) research work-from-home intensity per industry in the first half 2023. The top-ranking comprises the Information sector - where technological multinationals like AirBnb, Meta and Twitter excel - rank first with 2.6 days per week, followed by Finance and Insurance; and Professional and Business sector, with, respectively, 2.3 and 2 days a week.

The establishment of remote work as a regular mode of work has raised new questions regarding possible impacts on the skill set of remote workers. In particular, considering the reduction of face-to-face interactions associated with remote work, Evans et al. (2024) analysed the potential reduction in the increasing trend, prior to the pandemic, in demand for interpersonal skills, in the Australian post-pandemic labour

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market. Analyzing descriptions in job openings they concluded, on the contrary, that there has been an acceleration in the aggregate demand for interpersonal skills.

While remote work induces new work practices and relationships, with a substantial reduction in interactions between co-workers and with greater isolation, remote workers and teams need to find different modes of managing interactions which continue to require important interpersonal skills albeit in different ways. Evans et al. (2024) note synchronous communication ceases to be the norm, with asynchronous communication, more sparse and more static collaborations becoming more relevant. While the interpersonal skills may be less important on a productive mode, these can become more important in support roles, brokering, team cohesion or in working and communicating with others. They conclude "At the aggregate level, we find that the longstanding trend of increasing demand for interpersonal skills has accelerated in the post-pandemic period. We also find that this acceleration has primarily been driven by accelerated demand for communication and collaboration skills. At the occupational level, we find a strong positive association between an occupation's propensity for remote work and the level of acceleration in interpersonal skills demand for the occupation, suggesting that these skills are increasingly important for remote workers." (p. 33).

Labour Markets, Remote Work and Socioeconomic Inequalities

The existing literature highlights the impacts of remote work on different dimensions of socioeconomic inequality, namely gender, ethnic and racial minorities, age and persons with disabilities, and territorial inequalities, living costs and the digital divide.

Gender inequalities

The literature examining the impacts of telework, remote work, or hybrid forms of work on gender inequality covers different processes through which gender inequalities are created or amplified. Some of the main processes include access to remote work, wage penalties, work-life balance and blurred boundaries between professional and household-caregiving duties, working conditions and work satisfaction, and the effects of remote work on health and wellbeing.

Research shows a heterogeneity of situations regarding access to remote work by different types of workers. Sostero et al (2023) present data regarding the prevalence of remote workers for European Union countries (EU 27) showing that

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women started to work remotely at higher rates than men during the COVID pandemic and are overrepresented in occupations with higher rates of teleworkability (45% of women compared to 30% of men). Similar trends of higher teleworkabiity or remote work adjustment were found in studies by Gallacher and Hossain (2020), in Canada, Hou et al (2023), and Gaduena et al (2022) in the Philippines. In other economic contexts, such as Colombia, women, ethnic and racial minorities and older workers are less likely to be working from home (Astorquiza-Bustos and Qintero-Peña, 2023). On the other hand, studies have shown that the US remote gig economy exhibits a larger presence and/or more opportunities for male and younger workers with higher levels of digital skills (Fiers and Hargittay, 2023; Stephany et al, 2020). Researchers highlight the importance of a well-developed technological infrastructures and organizational and local policies to sustain a more equal access to remote work (Dettling, 2017; Hou et al, 2023; Vij et al, 2023; Soroui, 2021).

Although there is not a consensus in the literature, studies have found evidence for a wage penalty for women who work from home or who transition to remote work positions (Kouki, 2023; Cetroulo et al., 2022). A gender pay gap was also found among workers in two crowdworking platforms in Germany, where working fathers obtained higher hourly pay than mothers, and women and men with no children (Abendroth, 2020). Pabilonia and Vernon (2022) found that in industries and occupations where remote or hybrid work is more prevalent, mothers who work from home present a wage gap compared to mothers working in the office. Both cases point to complex interactions between gender, family context, and career paths.

One of the potential benefits of remote work is the capacity to improve work-life balance, especially for workers with caregiving responsibilities. While this has already been largely addressed in Section 2, on gendered practices and routines, it is relevant to complement these here by noting how the literature highlights that women have a higher risk for blurred boundaries between personal life and work and the work-related impacts (Sostero et al, 2023; Adams-Prassl et al, 2020; Cetroulo et al 2022; Blazquez et al, 2023, Pabilonia and Vernon, 2022). In the blurred division between the professional and household or family spheres, remote work can also worsen working conditions, decrease satisfaction with work, satisfaction with family, subjective wellbeing and increase levels of stress, particularly for women (Romens et al, 2024; Mohring et al, 2021; Vij et al, 2023; Song and Gao, 2020). Romens et al (2024) suggested evidence for worsening working conditions for mothers, filtered by social class and

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available social support, while Mohring et al (2021) point to higher decreases in family satisfaction and work satisfaction for mothers, compared to fathers.

Ethnicity, Age and Disability as factors of inequality

Remote work has mixed impacts for ethnic and racial minorities, age groups and persons with disabilities. Persons with disabilities may benefit from wider acceptance of alternative workplace structures and workplace accommodations by workers and the public in general. The added flexibility and accessibility associated with remote work facilitates disability management which may potentiate work satisfaction and performance (Schur et al, 2020, Ameri et al., 2023; Swart et al., 2023). However, remote workers with disabilities still suffer from wage disparities (Schur et al, 2020) and a tendency to occupy less advantaged occupations and sectors of activity (Ameri et al, 2023). Lake and Maidment (2023) contend that even though telework provides important opportunities for workers with disabilities, the invisibility of working from home should not prevent the need for ongoing efforts from organizations and governments towards a more inclusive workplace, creating opportunities for professional development, normalisation of disability and accessibility needs in all workplace.

Studies report a variety of work experiences and outcomes for ethnic and racial minorities. Research has shown that ethnic and racial minorities can exhibit lower rates of accessing remote work positions in specific countries steaming from overrepresentation in occupations and sectors of activity with reduced teleworkability (Astorquiza-Bustos and Quintero-Peña, 2023; Stephany et al, 2020, Ewers & Kangmennaang, 2023). Furthermore, less-educated and older workers also exhibit similar reduced patterns of access to remote work (Astorquiza-Bustos and Quintero-Peña, 2023). Fiers and Hargittai (2023) suggest that even though higher rates of minorities entered the gig economy in the US during the pandemic, it is possible to observe a pattern towards younger workers, digitally savvy and from more privileged backgrounds. Research has shown that disadvantaged workers - such as minorities – experience more negative outcomes in remote work, such as restricted autonomy and lack of control over work tasks (Ewers & Kangmennaang, 2023). Interestingly, a study has shown that remote work opportunities attract a more diverse pool of applicants in terms of ethnic-racial minorities and women (Hsu & Tambe, 2024).

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Age offers a third sociodemographic factor through which inequality is constructed in access to and in the experience of remote work. On one side, older workers exhibit, on average, lower levels of technological proficiency which limits their ability to adjust to technological requirements regarding remote work and also tend to participate at lower rates in the remote gig economy (Fiers and Hargittai, 2023).

However, Sostero et al (2023) report that among European workers, higher levels of income and higher levels of education are the most important factors associated with teleworkable occupations. Age group distribution by teleworkable occupations does not show significant differences: 65+ workers show a slightly lower presence in teleworkable occupations, while those in the age group 30-49 show slightly higher rates, compared with all age groups. Interestingly, younger European workers constitute the age group with weakest presence in teleworkable occupations. This age distribution seems to suggest that access to remote work positions may also increase with career progression and work experience. In fact, some dimensions that may impact negatively younger workers is the need to develop a professional social network and invest in career advancement, which may incentivize these workers to remain onsite (Hsu & Tambe, 2024). Ewers and Kangmennaang (2023) present data of the remote work experience of US workers, during the pandemic, and observe that older workers report having lower levels of technostress and life disruption, compared to younger workers.

Power Relations in the Workplace

Since the 1990s, remote working has appeared as an enabler of contradictory effects and 'moral ambiguities' (Thompson & Molnar, 2023) in a wide variety of work contexts. A brief review of the most recent literature allows us to map out a set of issues that are relevant to analysing power relations in the workplace, and which relate to various aspects that are typically the subject of workplace dissent and of workers organised struggles. These include issues relating to working time and its (de)regulation, reconciling private and family life with professional life and the set of appropriate boundaries in the digital work environment, the exercise of control and supervision and the implications of its 'transposition' to digital media (algorithmic management), sociability in the workplace and the reconfiguration of labour solidarity.

In order to systematise this information, the following paragraphs covers the available literature (on Zotero), as well as more comprehensive theoretical references, under some 'paradoxes of remote working', each relating to contradictory

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effects of new forms of work organisation. As de Vaujany et al (2021: 677) put it "organizing appears more paradoxical than ever".

The autonomy paradox

The most recurrent contradictory effect attributable to geographically dispersed and temporally diffuse ways of working is the paradox of autonomy. Although often associated with the work of Maznaniam, Orlikowski and Yates (2013) on the effect of the use of mobile ICT devices, the paradoxical effects of the spatial-temporal dispersion of work have been documented in empirical studies since at least the 1990s, when Huws (1996) documented the same effect among self-employed people who worked from home. The paradox is given by the fact that an increase in autonomy brought about by the spatial relocation of work (and, in the second case, also by independent work) actually seems to produce greater subordination of the worker to the demand for their work, blurring the boundaries between working and non-working time. Recently, Cook (2018) names this paradoxical effect as a "freedom trap". Whether in a situation of effective independence (own-account workers, Huws, 1996) , or economically dependent independent work (false self-employment) (Sewell, 2015) or legal subordination (employee), the provision of work in remote, digitally mediated forms projects onto the new work context the high 'moral-authoritarian normativity' (Rosa, 2013) of the typical organisational context, increasing practices of self-discipline and subjective control (Thompson & Molnar, 2023; Cook, 2018), which can be problematised under a Foucauldian tradition of labour studies (e.g., Vallas & Christin, 2018; Flemming, 2014; Vallas & Cummins, 2015), showing it results in an effective decrease in the degrees of autonomy and self-determination experienced by workers. In practice, the more autonomous the work context, the less autonomy workers seem to enjoy.

The productivity paradox(es)

There is more than one contadictory effects of remote on productivity. The best-known productivity paradox is based on the evidence, recently confirmed by a 'back to the office' movement, that despite the real and anticipated productivity gains offered by teleworking, employers (public and private) resist its widespread adoption (Ding & Ma, 2023; Ruth & Chaudry, 2008). Although studies showing positive effects of teleworking on productivity abound (e.g., Criscoulo et al., 2021; Kazekami, 2018; Ruth & Chaudry, 2008), questions remain around the measurement of worker productivity. As Kazekami (2018) and others highlight (Rebelo et al, 2024; Samek Lodovici et al.,

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2021; Hoornweg et al., 2016), the effect of teleworking on productivity cannot be dissociated from work discretion. This concept, which refers to a higher level of autonomy in the management of working time, again raises the question of the paradox of autonomy and of the blurring of temporal boundaries between working and non-working time, thus leaving the question of whether productivity gains are due to an intensification of the pace of work (more work product in less effective working hours) or to longer effective working time (more product derived, then, from more hours of effective work) (Rebelo et al, 2024; Samek Lodovici et al., 2021). The problem thus brings telework back into the scope of the Marxian labour value theory: is remote work a driver of an increase in absolute or in relative surplus value, or both? In any case, as is also the case in the Marxist problematisation of the paradox of autonomy, remote work appears to be hypothesised as an inducer of more surplus value and, to that extent, of overexploitation, insofar as it can raise the labour exploitation levels above the average of the economy or branches of the economy. This thus renews old Marxist-inspired research questions about the effects of socio-technical innovations on the labour process and on the relationship between labour and capital (e.g., Marks et al, 2024).

The paradox of bossware

One could name this the "displacement paradox" to describe the double and contradictory movement of the displacement of the middle layers of work hierarchies for its substitution for employee monitoring software – or, as Thompson and Molnar (2023) put it – "bossware", whose insidiousness and ubiquity of its supervisory capabilities pose new concerns surrounding the flexible and autonomous work environments. The paradox lies in two assumptions: one, is the displacement effects described by Harry Braverman (1998) in his analysis of the impact of technology and scientific management on the collective labourer. The once skilled productive labourer, rendered abstract labour (by the disqualification of the work processes and tasks), has necessarily moved to other less qualified activities, suffering a social and subjective disqualification resulting from its assimilation into technology (dead labour). This sociohistorical process, which used to be led by management, now affects also skilled workers in organisational and industrial design and management positions who, at the time, led the development and use of technological and organisational innovations that negatively affected direct workers (de Vaujany et al, 2021). The introduction of digital mediation and artificial intelligence in software designed to monitor and supervise working hours, performance levels and objectives, as well as to directly exercise the employer's disciplinary power once delegated to

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these layers of direct and middle management, has made these same layers of the capitalist organisation hierarchy redundant, displaced and disqualified by "bossware" (e.g., Wood, 2021; Dixon & Hong, 2020). But this is not the only paradox associated with bossware. If the former is related to a dynamic of social recomposition whose contribution to the hollowing out of the middle classes, and its socio-economic consequences, the contradictory and ambiguous nature of the relation between an infra- and superstructure of control and supervision, the efficacy of which is embedded in the practices and dispositions of individual social agents (in Bourdieu's words), is no less pertinent to public and academic debate. The almost 'prosthetic' nature of the new digital mediation technologies raises the corporeality, subjectification and elusiveness of control and supervision to a level totally unprecedented in human history. While it seems certain that technology and neoliberal ideological inculcation contribute to this phenomenon, shouldn't we question the effects of the disappearance of the 'agents' of control and supervision? These are questions debated by, eg., de Vaujany et al. (2021) and Resch et al. (2021).

The "closer at-a-distance" paradox

Spatially dispersed work raises new questions concerning the workplace sociability, the formation of solidarity among workers and the copresence as an essential mediator for collective action. In its genesis, the paradox refers to the "paradoxical phenomenon of feeling close to geographically distant colleagues", as it is treated by Wilson et al. (2008) and, more recently, by Osler (2020) and Hafermalz & Riemer (2020). Wilson's et al. (ibid.) model of perceived proximity and Zhao's (2003) notion of copresence as a "sense of being with others" surely contribute to problematize the notion of copresence in dispersed work environments[15], as well as the importance of communication and the sense of identification to the formation of close ties in the work environment, but the question of the contribution of these (communication and identification practices) to collective action and its new prefigurative forms (such as digital organising and digital trade unionism) remain a field of research to be further explored Some insights might, nevertheless, be offered by existing recent research. For example, although Costa e Carneiro (2021) find Portuguese and Brazilian trade unions lacking behind the use of digital platforms and digital media to communicate its actions and vindications with union members and a broader public, other research finds that teleworkers show, on average, a higher level

[15] A constructivist reconstruction of the notion and meaning of co-presence can be found in Gragher et al. (2017).

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of union membership than non-teleworkers (Kamerade & Burnchell, 2004). Recent research on digital platform labour also showed that other digital workers are finding not only new ways of organizing and taking action for their rights, as they are turning to more traditional trade unions as a form of participation (e.g., Jolly, 2018; Ledonvirta, 2016). Therefore, some research questions should be asked in this regard: for example, to what extent do the new communication and identification practices in the dispersed work become drivers of collective action and organisation? What factors contribute to this step? What forms does this action and organisation of dispersed workers take? What strategies of struggle do they use? Do the traditional explicatory variables (gender, age, professional status and occupation, for example) act in the same way to explain unequal trade union membership when the traditional workplace is spatially dispersed and digitally mediated? What factors are mediating the leap from informal digital social groups to a more formal and institutional form of workers' struggle?

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Chapter 2: Mobility and Environmental impacts

Introduction

Remote working (RW) directly affects spatial mobility and environmental issues. Changes in spatial mobility practices and environmental implications may happen according to the specific features of remote working phenomenon embedded in different social and cultural contexts. Acknowledging the strict integration between these two streams of research, this chapter aims to study both the effects of RW on spatial daily mobility and on environmental emissions in two different, yet complementary, sections: Socio-spatial mobility and Environmental Impacts.

Socio-spatial mobility[16]

Spatial-temporal patterns of work

Remote Working increases spatial and temporal flexibility in the labour market and has causal relationship on several urban and social issues: housing demand (Nilles, 1991, Tayyaran et al., 2003), travel patterns (Mokhtarian, 1991, Kim, 2016) and social interactions (Demerouti et al., 2014). It thereby affects urban form, air quality, physical and mental health, and overall quality of life (in Chakrabarti 2018).

The daily use of ICT in the labour market allows not only a new form of spatial and temporal organization of work. It can be substitute or complementary to physical access to work (Mokhtarian and Salomon, 1997, Mokhtarian, 2002, and de Graaff and Rietveld, 2007 in (Cavallaro & Dianin, 2022) thus providing access to work opportunities to a more diversified plethora of people in different context and circumstances. Following this perspective, the unequal distribution of ICTs can exacerbate disparities to virtual access to opportunities (Jakobi, 2014 and Patra and Das,2014 in (Cavallaro & Dianin, 2022).

The socio-technical assemblages of mobility (and immobility) of people with digital spaces, defined by de Souza and Silva (2023) as “hybrid spaces” are social environments lived by many people. Connection to the Internet via a mobile device allows people to connect with digital information while being mobile in physical spaces. In this sense, hybrid spaces provide a new form of virtual mobility. However,

[16] Draft: Patrizia Leone; Alessandra Landi (UNIBO). Further comments, revisions and adjustments: Tiago Santos Pereira (COLABOR); Zilvinas Martinaitis (VA)

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this does not mean that mobility is given and equal to everyone (de Souza and Silva, 2023). A focus on inequalities should be better explored when it comes to the access and the use of Remote Working. While, theoretically, it can reduce the urban/rural divide and the isolation of rural areas, a lack of digitalization access and adequate infrastructures can lead to a growth of urban/rural differences (Cavallaro & Dianin, 2022).

The social practice of performing regular work in many locations is still a minority, even if it is substantially increasing over time. In the UK, those working in a variety of different locations increased from 17% in 2001 to 20.4% in 2012 (Felstead and Henseke, 2017 in He e Hu, 2015). Despite what can be generally perceived, Ojala and Pyöriä (2017) in their 2015 European study, found that multi-location occupations were most prevalent in traditional industries (agriculture, construction and transport), while knowledge-intensive occupations were still predominantly located at employers' premises (He e Hu, 2015).

However, the growing process of the use of ICT in industrial and service sector triggers a new socio-spatial reorganization of work. This new pattern of working, includes the use of coworking spaces and of the city at large (cafés, public transport etc.) and has become a new style of working that may affect the reconfiguration of daily mobility and urban land use. Home-based and hybrid Remote Working might have impacts on land use patterns, commuting, and residential location choice, particularly for remote workers who tend to have longer commuting distances than other workers (Melo & de Abreu e Silva, 2017).

This section explores the effects of Remote Working on the daily patterns of mobility triggered by this new form of work, and its implications for cities. It provides a description of the multiple impacts that Remote Working has on the spatial and temporal organization of work, daily mobility, inequalities among different segments of populations, residential choices, and satisfaction and well-being with communities. Before illustrating these aspects, I shortly introduce the multiple social dimensions on mobility.

Uneven mobilities

Beyond the implications on transport and urban planning, daily mobility is a social phenomenon and a cognitive tool to understand urban transformations and

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changes in society. How people move, under which circumstances, and related meanings and practices are a social and political issue.

Mobility conditions play a main role in shaping inequalities that affect particularly vulnerable – and low-income populations - with a stronger effect in large metropolitan areas (Chiquetto et al., 2022). Literature shows that mobility is irregular and differential according to social factors, like race, gender, and class. How mobility is redistributed is conditioned by, and in turn may reinforce, existing inequalities. Tim Cresswell (2010) addresses these differential and uneven mobilities under what he calls the "politics of mobilities". "Capital of mobility" (Kaufmann 2002; Kaufmann et al. 2007), "network capital" (Urry, 2007), "potentiality of mobility" (Orfueil, 2004) can be useful tools to understand between mobility projects – or social mobility- and mobility practices as movements in space. These concepts recall the need of the accessibility that depends on the available options, conditions to access, human competences and cognitive appropriation from territory to human behaviors. Mobility is then intended as a combination of a pluralism of resources and economic, cultural and social capitals.

This perspective on the redistribution of mobility can be fruitfully applied to a broader analysis of remote work and social inequalities (Xiang, 2022). Fatmi (2020) found that during the Covid-19 pandemics, higher income households were predominantly active in Remote Working while lower and middle-income groups were more involved in leisure and other activities, such as sleeping. The kinetic elites stopped moving and worked remotely, while "essential workers" had to keep moving to survive (de Souza and Silva, 2023). This reflects issues of power asymmetries and uneven mobilities due to a different access to digital technologies, depending on the socioeconomic status.

Income level and job types affect telecommuting and mobility patterns (He & Hu, 2015). Low-income populations usually have different patterns of daily routines and time use (Roy et al., 2004, Grieco, 1995) because of individual and household constraints, time budget, limited access to ICT, and a greater charge of family responsibilities. They may use time saved by telecommuting to earn more money, other than on non-work related activities (Roy et al., 2004, Hamer and Marchioro, 2002). The effects of Remote Working on travel patterns of low-income groups have instead rarely been investigated.

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Research on the space-temporal dimension of Remote Working concerning gender is also still very limited. Rosenthal and Strange, 2012 (in (Burchell et al., 2021) point out the importance of understanding the social segmentation of work, as different workplace locations, could be associated with different labour market opportunities, and in turn have an impact on the empowerment of women in society.

Results from a study of (Burchell et al., 2021) from the 2015 6th European Working Conditions Survey, which interviewed c. 44,000 workers in the EU28 and affiliated countries, suggest that, among urban residents, 30% of women and 54% of men, work in multi-locations. According to Felstead and Henseke, 2017 (in (Burchell et al., 2021) women seem to be underrepresented amongst remote workers in the UK in numerical terms. Among genders, women mainly or exclusively work in their homes. This can be related to the greater responsibility for childcare, which force them to have less flexible daily schedules due to the fixed hours of school and care responsibilities. It is also suggested that women are more likely to work at home to combine domestic work and child care, with productive work (Hilbrecht and Lero, 2014 in (Burchell et al., 2021).

Men, in contrast to women are much more likely to work in multiple types of workplaces. It can then affirm that this new modern form of work is quite "gendered" and dominated by men's work. This differentiation is also related to the job status: those who have spatial-temporal flexibility (mostly men) have a higher occupational status than workers (mostly women) who spend most or all of their working time at home. However, the greater physical mobility of men, is not a priori a factor of gender inequality and an indicator of well-being (Burchell et al., 2021).

Future research should better understand the implications for inequalities between different segment of population: between income groups, employer and employee, migrant workforce, local population, and between genders. The very most of the research does not consider specific groups of households, namely do not differentiate between single workers and families with children, level of education, class, and origin. In addition, research should enlarge the perspective to a variety of workers, including lower-status workers or non-ICT workers.

Spatial mobility practices of Remote Workers

To reduce pollutant emissions, the shift towards more sustainable transport modes, including public transport and active mobility focuses on multiple measures,

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including a decrease in mobility demand, a modal shift towards collective and active transport modes, an improved energy efficiency of new vehicles, higher load factors, and the use of low-carbon technologies. However, in the current phase, the efforts to reduce emissions from transport are not enough to achieve the global targets (European Commission 2019).

It is well known that a large share of daily trips in urban areas comprise work commuting, leading to congestion and pollution in urban areas, especially during certain periods of the day (Tang et al., 2011 in Caulfield & Charly, 2022). Modifying the temporal and spatial patterns of work trips (Choi and Ahn, 2015), the organization of work (Chakrabarti 2018), the diversification of workplaces and time schedules are possible solutions to reducing road congestion. Beyond the effects of GHG emissions and air quality, the multiple impacts of heavy traffic on daily life must be considered, such as mental health, productivity and financial losses. This results in an overall decreased quality of life, which can be strongly mitigated by decreasing the distance between housing and employment (Chiquetto et al., 2022).

A large set of literature on Remote Working focuses on the commuting and spatial patterns of the workplace in firms and in the home (Kim et al., 2012; Mokhtarian et al., 2004; Ory and Mokhtarian, 2006; Zhu, 2013 in (Burchell et al., 2021) and on commute and residential locations (Mokhtarian et al., 2004; Ory and Mokhtarian, 2006 in (Burchell et al., 2021).

Literature shows how the travel daily patterns associated to Remote Working increases individual autonomy and flexibility (Harpaz, 2002) and can have positive effects to avoid traffic congestion, save commuting time, and optimize trip scheduling to achieve a better work–life balance. For some authors, Remote Working can be used as a considerable strategy to reduce travel commuting and emissions (Caulfield, 2015; Tang et al., 2011; Zhang et al., 2020) as telecommuters rely more on public transportation than the average (Ravalet & Rérat, 2019) and, by consequence, mitigate the negative effects of heavy traffic in large cities.

However, as a post-COVID effect, a possible prolonged fear of contagion, and changing lifestyles, may lead to a decrease in public transportation and an increase in private car trips meant for work commutes and activity patterns (Chalabi & Dia, 2024). This could interfere with the strategies taken to ensure carbon reduction and sustainability. Hence, there is a need to reinvestigate the future of Remote Working

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as an alternative to work from home and work from office (Caulfield & Charly, 2022) in case of shock and post-shock scenarios.

Telecommuting can, then, reduce the overall number of trips and annual vehicle-miles-travelled particularly during peak periods, hence producing positive environmental outcomes (Chalabi & Dia, 2024, Kim et al., 2015, Mokhtarian and Varma, Choo et al., Helminem and Ristimakis, in Paköz & Kaya, 2023, Balbontin et al., 2024). Mokhtarian et al. (2004) and Nilles (1991) in Kim, 2016) stated that although the commuting distance might increase due to the change in the residential location, the frequency of telecommuting is enough to offset this increase.

In contrast, other studies do not reveal any direct effects on the rise or reduction of distances home-work (Soubils et al., 2024, Hook et al. in Paköz & Kaya, 2023) and consider that the effects on individual travel by remote workers are still uncertain (He & Hu, 2015)People engaged in remote work tend to travel long distances for personal reasons and non-commuting travels (Chalabi & Dia, 2024) (Paköz & Kaya, 2023, Balbontin et al., 2024, Melo & de Abreu e Silva, 2017) and "additional off-peak recreational and social trips by car" (Lachapelle et al., 2017 in Chakrabarti, 2018) creating complex travel patterns (Cerqueira et al., 2020). Chakrabarti (2018) also warns that remote workers can drive more miles to work in co-working spaces and other locations (coffee shops, libraries, parks) in telecommuting days and also make the car available to other household members for other personal activities. De Abreu e Silva and Melo in a study made before the Covid-19 pandemic, using data from NTS in Great Britain, confirm that Remote Working increases weekly miles traveled and the use of the car, although reducing the number of commuting trips. Ravalet e Rérat 2019) in a study of approximately 7,500 workers from the 2007 Chicago Regional Household Travel Inventory studied the difference between low-income and high-income workers and found that in both cases Remote Working is associated with more total trips for work or non-commuting reasons. Particularly, telecommuters are expected to conduct more out-of-home activities, thanks to a greater space-time flexibility.

Furthermore, the tendency to live further away from their workplaces compared with non-telecommuters (Paköz & Kaya, 2023, Chakrabarti, 2018, (Ravalet & Rérat, 2019) and the long commute distances by teleworkers also increase car use and CO_2 emission levels (De Abreu e Silva and Melo, 2017 and Cerqueira et al.).

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To sum up, while Remote Working can be associated with fewer commuting trips, it is not necessarily linked to a lower demand of travelling by car for other out-of-home activities. Remote Working may then increase travel, and travel-related energy consumption and emissions, for personal non-commuting reasons compared to non-telecommuters (Zhu, 2012, and Zhu and Mason, 2014 in Chakrabarti 2018, He and Hu, 2015, Kim, 2016).

One way to confirm whether Remote Working would lead to a change in the number of trips is to collect multiple-day (e.g. a weekly travel diary) data and consider household-level travels (Balbontin et al., 2024). Furthermore, research should examine the impact of telecommuting by income categories to highlight disparities in accessibility to this new form of (virtual mobility) and unequal advantages that Remote Working can lead to different social categories.

Use of time

The average travel time to work can reduce (Caulfield & Charly, 2022, Kim & Shimizu, 2022) especially for those who should travel longer distances to workplaces (Kim & Shimizu, 2022). This also lead to a shift in the time at which employees need to leave their homes (Caulfield & Charly, 2022) changing temporalities of everyday life, especially by adapting to life without work-related travel, new and flexible routines (Thulin et al., 2023,Tremblay and Thomsin, 2012, Sewell and Taskin, 2015 in (Moeckel, 2017). Time saved on commuting may be used for additional non-work trips or longer trips, often in the off-peak hours for all household members (He and Hu, 2015).

Active mobility

The spatial temporal flexibility allowed by Remote Working can free up time for recreational activities or, more in general, activities near home (Saxena and Mokhtarian, 1997) and it is possible that on telecommuting days, remote workers walk, use bicycle or ride public transit. In a study made by Chakrabarti (2018) on the effects on physical activity by Remote workers, the author argues that RWA can lead to higher levels of active mobility, including exceeding the recommended 30 minutes of daily physical activity, since people allocate part of the saved time in active travel. In their study in the city of Dublin, Caulfield & Charly (2022) found a 31% increase in the use of active modes of transport including cycling and walking for work trips, a significant decrease (23%) in the use of cars for work commutes and an 8% increase in the use of public transport.

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Policy makers should then consider the effect of RWA on the physical activity, thus on public health, for a careful city planning. Dense communities with mixed land uses including coffee shops, libraries and pubic open spaces can eliminate the need for driving and thereby increasing physical activity.

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Environmental Impacts[17]

The literature on the environmental impacts of remote working has grown in the last few years, linked to the quick diffusion of this working arrangement due to the COVID-19 pandemic. Specifically, the impacts of remote working on energy consumption, emission reductions, traffic, air quality, and low-carbon energy transition have been analyzed. The results are non-conclusive, due to the heterogeneity amongst the studies in terms of population samples, analytical framework, methodology used, parameters considered, and possible omitted variables (Roberto et al., 2022).

The mobility and transport sectors are one of the largest emitters of GHG emissions. It covers approximately 23% of global energy-related CO_2 emissions (Sims et al. 2014). Emissions from mobility and transport in the EU are expected to continue to decline until 2030. Daily mobility of inhabitants has a significant effect on CO2 emission and energy consumption in the city (Noussan & Jarre, 2021, Tang et al., 2011 in Caulfield & Charly, 2022). The environmental gains result mainly from reduced commuting: households that telework can travel fewer miles and make fewer trips than those that do not (Stermieri et al., 2023b).

Looking at the energy-related effects of remote working, the energy balance considers the savings from less commuting as well as the consumption related to changes in (a) the teleworker's and other family members' non-work travels, (b) the workspace's size and occupancy, and (c) the location and occupancy of employees' houses. Many papers highlighted that working remotely results in a net decrease in energy consumption and/or emissions (Hook et al., 2020). The main causes of these advantages are the cessation of commuting, the ease of traffic, the resulting decrease in automobile emissions, and the decrease in office energy usage.

Moreover, remote working can be a promising tool for urban planning and development, focusing on reducing traffic volume and improving air quality (Giovanis, 2018). Indeed, for the Swiss case study, remote working reduced commuting demand by 10%, and the savings in transport expenditure can foster investments in efficient

[17] Draft: Luca Alfieri, Dimitris Manoukas, Ilaria Mariotti, Federica Rossi (POLIMI). Further comments, revisions and adjustments: Patrizia Leone (UNIBO); Tiago Santos Pereira (COLABOR); Zilvinas Martinaitis (VA)

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and clean residential technologies to compensate for the increased residential energy demand (Stermieri et al., 2023a).

Other studies confirmed the results: remote working could play a role in reducing energy consumption and emissions, specifically for workers who face the longest commuting distances (see Noussan and Jarre (2021) for the case of Lombardy region (IT)).

As concerns the relationship between digitalization, remote working and their impact on emissions, several papers found a significant negative impact on CO2 emissions, thus facilitating the transition to a low-carbon society (Liu et al., 2023; Morfeldt et al., 2023; Cassetti et al., 2023). Specifically, it is the combination of advanced mitigation technologies and behavioral changes (including remote working to reduce commuting) that could reduce gas emissions. For example, in Australia, it has been estimated that teleworking 1.5 to 4 days per week can reduce by 1.21 to 5.76 MT CO2 eq. per year (Navaratnam et al., 2022). Therefore, also hybrid working could help reduce carbon emissions (Chafi et al., 2022).

However, a deep and broad sustainable food, fashion, and lifestyle changes - including remote working - will be required to reach carbon neutrality (Khanna et al., 2023).

Despite the above-mentioned positive effects on the environment, the literature has also highlighted some negative impacts. Indeed, new patterns of work and living could offset these savings (Chafi et al., 2022). For example, hybrid working may also promote increasing expenditure on office supplies and furnishings to keep functional workplaces at home and in the office. Additionally, it necessitates using more energy at home, such as raising the interior temperature of the flat (Villeneuve et al., 2021; Chapman, 2007). Another unintended negative effect is a possible rise in car ownership and use among the many workers relocating from cities to the countryside (Chafi et al., 2022).

The so-called "time rebound effect" was also highlighted in many studies (Stermieri et al., 2023b; Cerqueira et al., 2020; Bieser et al., 2021; Fu et al., 2012): since remote workers cannot combine other activities (like shopping) with their commute, they make more non-commuting trips.

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Using a structural equation model, Cerqueira et al. (2020) estimated the rebound energy impact of the increase in non-working related trips. Compared to a person who does not telework, it has resulted in an increase of 20 kg in CO2 emissions due to increased fuel consumption and transportation demand. Moreover, the savings from reducing commuting are nullified if the annual household energy usage exceeds 1212 KWh (Guerin, 2021). Looking at the final energy balance, the reduction in commuting costs balanced the rise in residential energy consumption, resulting in only a 1.8% decrease in the US's overall energy consumption (Sekar et al., 2018). These results are confirmed by the experts in a Delphi survey: not all experts agreed that energy consumption will decrease in the upcoming decade thanks to remote working and digitalization (Angelidou et al., 2022).

Finally, by studying Romania's transition to a green economy, Mihai et al. (2021) highlighted that remote working has shifted some of the burden of addressing green economy concerns from businesses to employees. For example, managing employee waste during working hours, transferring energy consumption to employees, and consuming other resources.

In conclusion, we can state that more research is required to evaluate the net environmental impact of remote working, considering both reduced commuting emissions and increased energy consumption from digital infrastructure (Liu et al., 2023).

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Chapter 3: Community[18]

This chapter focuses mainly on effects of temporary location of remote workers, particularly evidenced in the experiences of 'digital nomads', while the following chapter, on 'Reshaping Territories', focuses on the effects of more permanent practices of remote work, namely related to residential choice, urban and territorial organization and local economy impacts.

The settlers have become 'involuntary nomads', belatedly recalling the message they received at the beginning of their historical travels and trying desperately to recover its forgotten contents which - as they suspect - may well carry the 'wisdom necessary for their Future' (Bauman, 2000)

This section looks into the main stakeholders of the destination communities and the ways they understand, perceive, and interact with the phenomenon of remote work and digital nomadism. Our aim is to address the phenomenon through the supply side, looking into the strategies employed by the local communities (grassroots communities, local populations, movements), hospitality industry (travel, accommodation, coworking/coliving, retreats, healthcare) in order to accommodate the needs of the incoming nomadic flows and remote workers. It wishes to lay the foundations for a deeper understanding of how local communities understand and accommodate Remote Working communities (hereafter RW communities) lifestyle habits and consumption patterns. It maps the local stakeholders that vary from traditional hospitality players like hoteliers and restaurants to emerging ones like coworking and coliving actors, as well as AirBnb and sharing economy providers. Then, it interrogates to what extent these RW communities demonstrate exclusionary/ inclusionary social practices of consumption. This is discussed in relation to the local ecosystems and their degree of development and maturity – as some destinations look well developed whereas others are forced to service expansion and infrastructure development.

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Remote Working communities

The phenomenon of remote work and digital nomadism is located at the crossroads of labour flexibilization, precarity, and displacement of work that led to the emergence of "leisure – oriented mobilities" (Alexandri & Janoschka, 2020) or "lifestyle – driven migration" (Janoschka & Haas, 2013). The fact that work has lost its centrality which it was once assigned in life has given rise to an emerging free-floating workforce that feels detached – or even fully unattached from the linear path of social obligations and long-term connections. The perks of full-time employment that promise a secure way of living that allows long-term planning, home ownership, and childrearing do not seem very appealing anymore. Instead, academic debates have linked this emerging workforce on the move with a hedonistic enjoyment of life, as it expresses a particular escapism which has its foundations to a radical reclaim of working time and place as labour becomes largely self – managed and self – organized. This temporal independence gives a feeling of superiority to these tourists-workers that is being exercised in countries with lower cost of living.

So far, it is well captured in the literature that spaces and places have been converted to destinations to accommodate incoming flows of digital nomads and remote workers resulting into making neighborhoods accessible to transnational1 consumption (Alexandri & Janoschka, 2020; Janoschka & Haas, 2013). Those working for higher wages in developed countries of the North are seen to relocate themselves in countries with considerably lower cost of living while working remotely. These incoming flows of tourists-workers practice their economic superiority searching for lower cost of living while working remotely (Holleran, 2022). These ephemeral residents take advantage of their privileged nationalities (Mancinelli, 2020) and therefore, passports, travelling visa-free to affordable destinations that offer access to new forms of consumption. This leisure driven migration is primarily facilitated by digital platforms while state initiatives such as the Digital Nomads Visa came belated to boost an already established transnational mobility.

Over the last few years, the places that have served as destinations seem to differ significantly. During the pre-Covid-19 pandemic era, exotic locations like Bali, Phuket Islands, Marrakesh, Goa, Koh Phangan previously hosting bohemians, hippies and New Agers (D'Andrea, 2007) were very much occupying the popular imaginaries of digital nomads who were portrayed to work from their yoga retreat while drinking a *piña colada*. The Covid-19 pandemic outbreak gave rise to less tropical and glamorous but equally cheap destinations for digital nomads in Europe.

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Mediterranean countries with heritage architecture and ancient charm that have served for years as popular summer destinations for those who reside in the wider Global North emerged as promising destinations. The phenomenon of "workation" – a trip to tourist location while still working – seems to consolidate the growth of remote work travel within the EU.

Literature connects the impact of this new form of tourism with transnational gentrification (Alexandri & Janoschka, 2020) as this lifestyle – driven migration has led to rising costs and 'poshification' (Sigler & Wachsmuth, 2020) of living. Likewise, entire neighborhoods are under transformation to accommodate the unfolding needs of this transnational class of ephemeral residents. Looking into their consumption patterns, research indicates that these ephemeral residents constitute a privileged class of consumers that contains "a dimension of countercultural and alternative lifestyle" (Toivanen, 2023). In fact, the rejection of time and location bound work has been paralleled with the end of corporate managerial control that has been historically structuring work-lives. Career paths and lifestyle choices are much more driven by a neoliberal ideology of entrepreneurial freedom (Mancinelli, 2020; McGuigan, 2014). For that reason, the celebratory accounts of digital nomads portray them as the epitome of freedom which is powered by digital and portable technologies. Echoing the euphoria of the Digerati, the new model worker of technocapitalism era (Fisher, 2008) of the early 2000s, these ephemeral residents are seen to navigate the labyrinth of liquid modernity as Zygmunt Bauman (2000) described. In a world of universal flexibility, precariousness becomes structural, penetrating crucial conditions of contemporary life. Within this volatile and unstable context, bonds and ties are ephemeral yet to be consumed, resulting into a monadic individualism.

The influx of individuals who coalesce the dual identity of tourist – worker to destinations has opened a discussion regarding the infrastructures provided by the local stakeholders and surrounding communities. This discussion is very much revolved around the increasing number of services and infrastructures that are tailored to RW communities, overlooking the ways such communities interact with their local surroundings whose relations with the space is very much mediated by consumption. The section below provides an overview of the key entry points of RW communities to the destination communities' services and infrastructures.

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Destination Communities and Infrastructures

According to recent studies, the duration of stay of many tourists – workers is largely determined by their tourist's visa (Mancinelli, 2020). If they wish to extend their visitation, they mostly employ ways to bypass the laws and regulations in creative ways like exiting the country for a few hours so the visa would be renewed eventually. For the majority of these ephemeral residents, their presence remains below the radar of the local authorities as they keep everything in their countries of residence (permanent home address, registration of their businesses). Especially, for EU passport- holders is common to navigate within this grey area that allows them a mobile lifestyle. Taxation issues rarely occur and most of the times are resolved through consultation from their country of residence (Toivanen, 2023). These arrangements already pave the way for services and infrastructures that market-based tourism can accommodate, and the nation-state cannot fulfil (Chavaria, 2024; Toivanen, 2023). However, empirical studies (Mariati et al., 2023) suggest that the growth of tourist destinations is achieved through the involvement of different stakeholders such as hotel owners, travel agencies, tour operators, as well as local communities.

It seems that there is a consensus around the fact that RW communities cultivate a relationship with their local surroundings primarily through their ephemeral modes of consumption. Many studies suggest that it is much more accurate to understand them as "short-term locals" instead of long-term tourists (Chavaria, 2024, 12) as their consumption patterns might be closer to those of the local residents. In fact, it is very common for these individuals to finance bootstrapping and save money while travelling to inexpensive locations off season. Their constant move is seen to even secure access to better healthcare insurance.

The entry points of these individuals are, at first, digital touchpoints that allow them to gather and crowdsource information regarding specific locations. Digital nomadism and the emergence of RW communities are primarily "a digital/ online phenomenon" (Bonneau & Aroles, 2021; Hannonen et al., 2023; Nash et al., 2018) in a sense that their worklife is facilitated and exist through technology. Online platforms play an active role in the identity making process of digital nomads (Bonneau et al., 2023), the crafting of their digital personas (Jiwasiddi et al., 2024; Miguel et al., 2023), as well as the ideal destinations (Miguel et al., 2023). RW communities have developed online tools in the form of websites, social media groups, telegram chats that help them to connect and socialize with their peers. They serve as a reference

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point for people on the move, covering a wide range of topics including job opportunities, socialization, and digital nomad locations. Websites like Nomad List are popular serving the first connection point with the interested individuals. The content is being updated constantly in the form of ranking lists and recurring online/ physical meetups that connect nomads from all over the planet. Destinations are constantly enriched with more updated data regarding the cost of living, internet speed, and the weather. As a tool, it coalesces all the functions that Kayak, Lonely Planet, and closed Facebook groups have. All the information is backed up with organic content from fellow nomads as well as statistics regarding the weather. Along with websites with tailor made content for nomads and people on the move, social media groups – especially closed Facebook groups - and telegram channels serve equally well these individuals gathering insider knowledge and connect with their peers. These entry points that are entirely digital construct the soft, immaterial, infrastructure for RW communities influencing how individuals perceive these tourist destinations.

What needs to be explored further is the role of administrators of those groups as well as the most active members and contributors. It seems that through these closed groups in social media, experienced nomads, expats that they have stayed for some time at the destinations or even permanently relocated, have emerged as a source of reliable information. Through their engagement in discussions they demonstrate their valuable knowledge which is coupled with a basic command of the local language, a good understanding of the cultural context, and substantial experience of living in a specific/multiple destinations. What needs to be researched is whether this emerging category of prime nomads activate entrepreneurially by running their own hospitality businesses, bypassing the traditional local stakeholders in destinations that are not very well developed.

Traditional stakeholders may include businesses that cater to tourism such as hotels, restaurants, yoga retreats, agrotourism, STRs, transportation companies, as well as municipal and regional authorities. Studies suggest that digital nomads stay primarily to Airbnb short term rentals (Thompson, 2021). However, traditional players are seen to be aware of this new customer segment and thus, they incorporate to their offerings what they think of the usual digital nomads' requests - to name few: high speed internet connection, designated workspace. At the same time, a variety of products such as yoga retreats, healthcare programs, and excursions have been designed to accommodate RW communities' lifestyle.

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Coworking & Coliving Arrangements: Seeking for a sense of belonging + meeting points with diverse RW communities

What seems to be a focal entry point for RW communities and digital nomads is the coworking/coliving spaces (Jiwasiddi et al., 2024). Coworking scene has grown rapidly during the last decade and within different dimensions (Avdikos et al., 2022). The crisis intensified the precarious conditions of freelancers and remote workers which gave birth to a number of shared offices, coworking spaces, and collaborative workspaces. COVID-19 gave rise to "Covid-19 pandemic nomadism" – a movement of remote workers working in any sector that relocated during the Covid-19 pandemic in search for better, more affordable, living conditions. The continuous flow of high skilled workers from the Global North was channeled to the city through coworking spaces which were seen to accommodate their needs – a place to work and to socialize (Ciccarelli, 2023).

Coworking spaces during the Covid-19 pandemic started to host long-stay visitors from the countries of the Global North. Attracted by the affordable housing and the lower cost of living in destinations within the EU, the Covid-19 pandemic nomads moved to Mediterranean cities in search of a better quality of life. Many of them found themselves thrown into forced remote work, trapped in tiny apartments without proper workspace and access to modes of urban consumption. Athens, among other Mediterranean cities, emerged as the ideal destination where remote work can be combined with weekend excursions to nearby holiday destinations. While Covid-19 pandemic nomads have been primarily foreigners, we have also observed remote workers whose basis is abroad to return to their country of origin. Coming back to their country of origin allowed them to reduce their expenses as they were now based in a much more affordable country and they were even back in their family house. For both segments of corona nomads, coworking spaces acted as an entry point to city life's consumption. These ephemeral residents raised the monthly passes in such spaces which also introduced daily passes to accommodate the needs of these workers on the move, as well as socialization activities such as pub crawls (Pettas and Avdikos, 2023).

Coliving spaces are now springing up in destination communities promoting an alternative living arrangements for the nomadic flows of RW communities. While coworking during its infancy emerged as a bottom – up practice, coliving has been a market response to the structural crisis of housing affordability (Bergan et al., 2020). Coliving brands provide a carefully curated space for millennials to live and work in.

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Following the all-inclusive logic, it is heavily marketized towards a hyper mobile creative workforce who seeks for a 'like – minded' community of "for – ever travelers, break – takers, and staycaters". Selina, a global player in hospitality services, advertises itself as the ideal destination:

Whether you're a digital nomad, a travel-addict, an adventurous backpacker, or a surfer looking for paradise, you've come to the right place. From global cities to urban hubs, remote destinations, and off-the-grid destinations, develop a deeper connection with the world when you stay at Selina. 2

Unlike, the traditional hospitality players or the sharing economy, coliving arrangements, flat sharing facilities and the like, provide shared amenities like kitchen, wellness–yoga areas, and workspace. Coliving brands like Selina organize recreation activities like trekking, rappeling, surfing, or gallery tours aiming to cultivate a sense of community which is organized very much around leisure and fun. Moreover, Selina has introduced curated packages that include a number of stays in Selina facilities in various destinations. That way, they facilitate digital nomads flows, channelling consumption in the specific locations while transforming these individuals into "package tourists" in search for well-prepared itineraries.

The influx of remote workers and digital nomads to destination communities has led to various transformational changes. So far, the ways these individuals interact with the local surroundings is a relatively under searched topic. Empirical studies suggest that RW communities lack of meaningful engagement with local communities (Thompson, 2021) or tend to create social bubbles that have minimum interaction with the local communities (Jiwasiddi et al., 2024). It seems that they attempt to create connections and socialize with other individuals that use similar services such as the coworking/coliving arrangements. Coliving and coworking spaces seem to constitute the critical mass, "the existing societal fabric" (Hannonen et al., 2023) that demonstrate higher levels of involvement with RW communities.

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Chapter 4: Reshaping territories[19]

Digitalization allows works to be released from a specific location, because digital work can be performed from any site equipped with a web connection. Thus, the physical proximity of workers and employers, someway, becomes something unnecessary for firms' organization of labor. Anyway, as Donnelly & Johns (2021) argue, «this does not render geography obsolete». Even if digitalization allows for work to be "split" from specific, physical locations, «people still have to 'meet' somewhere, even in virtual spaces» (2021, p. 89). The authors offer a geographical perspective on human resource management, to understand how work tends to retether in new locations, after being eradicated from physical ones. Internet causes the "spatial unfixing of work" (Flecker & Schonauer, 2016; Graham et al., 2017): work is globalising, building around distanced relations instead of localized and physically-proximate relations, with new, unequal, geographies been drawn (Jones, 2008). Even the dichotomy of "local" and "global" is redefined by dynamic working activities taking place in many abstracted "spaces", across different, interconnected and interdependent geographical scales (Donnelly, & Johns, 2021).

The growth of RW has affected the geography of work, residential location choices, and mobility at urban, suburban or regional levels, thus having an important impact on territory and cities. In this chapter we address the spatial implication of RW focussing on the potential impact on cities and territories. Among the many effects remote working can have on urban areas, the most important are: effects on residential mobility and land use and on urban economies.

Effects of Remote work on residential mobility and land use

Residential location choices could change when employees have the opportunity to work remotely: they could opt to move within and between different cities, for example moving further away from historic city centres, maybe in peripheries or toward inner areas. This change in residential location choices could

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have important implications on land use patterns and contribute, for examples, to urban sprawl.

Three different scenarios are presented in a recent study about the effects of RW in a big city like Milan (Biagetti et al., 2024): (i) The Gentrified City, which occurs when knowledge workers live near their centrally located workplaces, driving out lower class residents; (ii) The "Doughnut City", which predicts greater growth in the suburbs and hinterlands around big cities - occurring when a potential pool of knowledge workers leaves the city and relocates to a suburban area if permitted to work remotely (e.g., New York and San Francisco; see Barrero et al., 2020); and (iii) The Intermediary Cities, which occur when some remote workers relocate to secondary cities, thereby diminishing territorial disparities.

A study in Paris shows that 40% of people who change their residential location would have not considered this option if they were not telecommuters (Soubils et al., 2024). In this perspective, many studies confirm a possible risk for Remote Working to cause urban sprawl and live in suburban areas of large cities (Larson and Zhao in Paköz & Kaya 2023, Melo & de Abreu e Silva, 2017; Moeckel, 2017). Ory and Mokhtarian, 2006; Vilhelmson and Thulin, 2016) have found in a pre-COVID study that even though teleworkers cannot be considered a uniform group, there is a positive association between being a teleworker and having suburban living preferences Furthermore, when Remote workers are moving from the office to less congested suburban areas or smaller cities, they leave offices empty in many metropolitan areas, leading to a major risk for large cities, as it impacts their structure (Biagetti et al., 2024). Althoff et al. (2022), analyze the distributional effects of the transition to remote work in US cities, identify two processes: 1) densest cities will suffer the most, because they employ the largest amount of workers that can transit to a more remote work but, at the same time, they represent the most expensive place to live. When geographical proximity to workplace becomes less important, they are expected to lose population. In a similar way, Delventhal et al. (2022) found that residents moved to peripherical areas, traffic congestion eased, and average real estate prices fell, with a decline in downtown locations and an increase in the outskirts.

Despite these potential scenarios, some studies highlight that Remote Working seems to have a partially limited effect on residential location preferences (Kim, 2016) compared to other aspects related to the quality of life (Muhammad et al., 2007; Ettema in Paköz & Kaya, 2023) or it is a determinant factor only when other

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circumstances are equal (Larson and Zhao in Paköz & Kaya, 2023, (Soubils et al., 2024). Relocation choices may include other aspects: a larger indoor space, outer space and a relaxing daily life. Priority is given to quality of the social and physical environment and proximity to services (Paköz & Kaya, 2023), allowing to spend more time for social interactions and leisure activities in their neighborhood (Kim & Shimizu, 2022). In sum, there is a growing demand for a type of living in their communities, with accessibility and involvement in community activities (Larson and Zhao, 2017). Furthermore, the choice to relocate is not taken at individual level but involve all members of a household. Therefore, it is not driven by the sole proximity to the workplaces, especially in the case of dual-career couples (Deding et al., 2009 in Ravalet e Rérat, 2019).

Similar conclusions have found by other empirical studies revealing that long distances driven by remote workers don't necessarily mean that they live in suburban areas. On the contrary, flexibility to choose their residential locations (Zhu, 2013) can push telecommuters to more centre-oriented places (Kim et al. 2012). Additionally, remote workers living in suburban areas does not mean an emergent phenomenon of residential dispersion. This tendency is mainly due since jobs allowing remote workers are more concentrated in the suburban areas (Kim, 2016).

Kim & Shimizu (2022) focus their attention to neighbourhood satisfaction, showing how this plays a crucial aspect of residential mobility. Regardless of the centrality of areas where people live, priority is given to the satisfaction of the neighbourhood and community. People still prefer walkable areas with a higher geographic accessibility to amenities among the noncentral areas (Kim & Shimizu, 2022). Territorial policies should improve neighbourhoods for multi-use purposes, geographic accessibility to services (Kim & Shimizu, 2022) improve the quality of life in the city and keeping urban growth under control (Paköz & Kaya, 2023, Chiquetto et al., 2022).

Processes of re-territorialization are strictly intertwined with economic factors affecting labour, productivity, wage, housing prices, consumption and other specific urban transformations.

Bond-Smith and McCann (2022) examine how the RW and hybrid work revolutions have affected the cities' performance and geographical architectures. To explain RW behaviour and its impact on city performance, the authors offer an

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analytical framework that centres on the importance of commute frequency. They discover that the ideal frequency of commuting is inversely correlated with travel expenses plus trip time and positively correlated with the opportunity costs of less frequent in-person interactions. The "donut effect" theory is further supported by the data. The authors state that the reduction in the frequency of commuting makes larger cities, and their hinterlands more desirable, despite longer commuting distances. In addition, inter-city effects occur giving rise to an inter-urban 'shadow' (Cuberes et al., 2021) effect. Therefore, it can be stated that the results imply enhanced productivity of larger cities over smaller cities.

Brueckner and Sayantani (2023) extend an earlier model on the territorial impacts of the increase in remote work, namely in intercity dynamics. Assuming two main defining factors, productivity levels (namely in teleworkable jobs) and local availability of amenities, they conclude that wage and housing prices tend to equalize, while population and employment are inversely dependent on productivity. Cities with higher WFH productivity will see the population working in teleworkable jobs decreasing, with more workers settled in less expensive cities, and a corresponding reduction in housing prices, but an increase in employment (partly remote). On the contrary, cities with greater amenities function as attractors, increasing population even if employment decreases. The increase in digital nomads, or touristification processes, would be indirect examples of such impacts, with factors affecting the location and conditions of remote and non-remote jobs, although the analysis focuses on permanent rather than temporary labour contracts. While the conclusions do seem to find some empirical evidence, it must be noted that the model does not consider differentiation between fully remote and hybrid work experiences. Althoff et al. (2022) reach similar conclusions. Taking a deeper look at the intricate dynamics between these different dimensions, they note in particular the interdependency of teleworkable high-skilled jobs and non-teleworkable jobs, as the latter depend strongly on local consumer services demand, which may see a decrease if high-skilled workers move to other locations. 2) the transition will have an heterogenous impact on workers, with high-skilled ones gaining flexibility in their residential choices, while less educated service workers -depending on local consumer services demand- could suffer from this shrinkage in service

Similar conclusions, but through empirical studies at the intracity level, are reached by Gupta et al. (2022) and by Bloom and Ramani (2021), with the latter discussing a 'donut effect' created by the outer movement of households and

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businesses from the city centre into suburban areas, with impact in the housing prices in suburban areas. This has been particularly acute in the largest cities. Bloom and Ramani note, however, that the relocation trends they observe within cities are not similarly reflected in between-cities moves, hypothesizing that this may be due to the onset of hybrid work, which favours the possibility of relocation which is compatible to commuting to work rather than from more distant relocations (cf. Bloom et al., 2022). Irlacher and Koch (2021) identify a wage premium on teleworkable jobs in Germany, and a regional difference in the distribution of these jobs, but the analysis is based on the characaterization of existing jobs rather than on change of job.

Given that at this stage results are not homogeneous on the territorial effects in cities induced by Remote Workers relocation choices, Kim (2016) concludes that, even if in the short term the residential location is not determined by the option to telecommute and there isn't a high risk of urban sprawl, in the long-term perspective, policies encouraging Remote Working should plan appropriate measures to tackle with this risk in metropolitan areas.

To gain a more in-depth understanding of the choice of residential mobility and possible effects on suburbanization, there is a need to analyse details like housing supply and rise in housing prices, neighbourhood factors, internet access, population density or specific urban components (Paköz & Kaya, 2023). Other social categories of analysis, like social interactions or geographic accessibility to neighbourhood amenities, for example—should be prioritized to increase satisfaction and relationship between neighbourhood, walkability and satisfaction (Kim & Shimizu, 2022).

Effects on cities' economy

Altthoff et al (2022) consider the geographical implications in the increased adoption of remote work practices, including the exit of significant amounts of workers from larger cities to suburban areas, smaller cities and even rural areas in search of larger residential spaces and lower real estate prices. A negative consequence of these type of population flows is the weakening of larger cities´ consumer economies and respective workers dependent on these economies. On the other hand, the exit of remote workers from larger cities may diminish pressure on the housing market, thus decreasing prices on residential and office real estate. Conversely, an increase in housing demand in less dense areas may bring about price increases in local housing markets with consequences for local dwellers, as well as changes in local economies. Similar patterns can be configured in the case of remote

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workers who move to less expensive countries. Gottlieb et al. (2022) emphasize the amplitude of the digital divide in less developed economies, which hinders poorer regions from further economic development. Remote workers' internal migration into poor and less resourced communities may offer opportunities to reverse geographical disparities (Sitaraman et al, 2021).

Besides, RW in cities creates a new wage inequality between skilled and unskilled workers (Gokan et al., 2022). Skilled workers can work from home, while unskilled workers are employed in physical-based occupations. This leads to a decrease in demand for local consumption services in city centers, resulting in a decrease in unskilled workers. Additionally, reduced commuting costs for skilled workers encourage them to move to smaller cities with more affordable housing. COVID-19 has also accelerated online shopping, further reducing workers' ties to urban centers and causing further wage inequality.

Similar to internal migratory flows of remote workers, digital nomads may be seen as external vehicles for development of local economies and local labour markets, for instance supporting the development of coworking spaces and networks of entrepreneurs and professionals (Tomaz and Henriques, 2023). However, digital nomads may be also seen has increasing pressure on local housing markets causing price rises and accelerating the rate of gentrification (Pettas and Avdikos, 2023; Reuschke and Ekinsmyth, 2021; Tomaz and Henriques, 2023) and causing spillover effects over adjacent housing markets (Howard et al., 2023). Therefore, there is a need to develop measures that potentiate the benefits of remote workers and digital nomads on local communities as well as mitigate potential negative effects on housing markets and local communities' cost of living.

At the same time, the decrease in demand for office spaces can have a disruptive effect on the economic activities relying on commuting workers. Impacts are also expected on the real estate market, with firms vacating some of their buildings because of reduced space needs, residential land rents decreasing near the business districts and people reassessing their housing needs, increasing the demand for larger houses or apartments on the outskirts of many big cities (Kyriakopoulou & Picard, 2023).

At the same time, «a more hopeful implication is that the transition to remote work could alleviate the pressure on big cities' housing markets» (Althoff et al., 2022,

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p. 9), reducing rents in city centers. Two factors contribute to this reduction: first, the decline in demand for residential real estate in core locations; second, the reduced demand for on-site office space from workers who telecommute (Delventhal et al., 2022). As Althoff et al. (2022) suggest, this positive effect on housing market is largely dependent on the drivers of urban concentration, whether they are connected to production or to the quality of life a city can provide: benefits of remote working can be expected mainly in the first case, while other «large and consumption-rich cities like New York are likely to continue to thrive» (page 9).

Impacts on rural areas

Geographic disparities in the distribution of remote work emphasize the importance of well-developed technological infrastructures in urban areas, in detriment of rural and suburban areas (Dettling, 2017; Gallacher and Hossain, 2020). Therefore, one of the main requirements for the increase of remote workers in smaller cities and rural areas is the development of a sound technological infrastructure.

The term "digital divide" refers, in general, to «the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities» (OECD, 2001).

Both "access" to Internet and "skills" indicators can be referred to the urban-rural divide, being disproportionately registered in urban areas. In 2015, a report from the European Parliamentary Research Service found that only 25% of the rural population had access to fast speed broadband, while its availability was 68% for the overall EU population (Negreiro, 2015). More recent data shows that by 2021, the 93% of households in urban areas have a broadband internet connection, while in rural areas the percentage drops to 86% (with the gap narrowing in the last decade) (Eurostat, 2023). Davies (2021) highlights how the urban-rural gap in Internet and ICT access cannot be considered a mere consequence of the different geographical spread of digital infrastructures, with socio-economic variables (including income, education and sector of employment) playing an important role in shaping high-speed internet use. Thus, urban-rural high-speed gap would be determined mainly by differences in income and education levels (Whitacre & Mills, 2007). Regarding digital skills, a composite indicator has been created by Eurostat, covering a range of activities: - information and data literacy skills; communication and collaboration skills; digital

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content creation skills; safety skills; problem-solving skills. For 2021, the indicator shows that 82% of the EU population aged 16–74 years living in cities had above basic digital communication and collaboration skills, while those living in rural areas had a lower share (71 %) -a pattern that was repeated for all five areas covered by the composite indicator (Eurostat, 2022).

Covid-19 pandemic has had two main effects: on the one hand, it has «drawn attention to the advantages of living in rural areas, notably the affordability of single homes with larger indoor spaces and access to private outdoor areas» (Tomaz et al., 2022, p. 123); on the other hand, remote working was identified by governments and health authorities as one of the most important measures needed to slow the spread of the virus. The intertwining of these factors has brought a new attention to the opportunities that remote working can open for rural areas.

Gurrutxaga (2021) found an increase in rural population in 13 out of 17 Spanish regions and a rise in rural population share in 14 regions in 2020. Few studies have explored the case of Italy, with Di Matteo et al. (2022), and Mirabile and Militello (2022) investigating 'South Working', i.e., the moving of remote workers to Italian southern and inner areas while working for companies based in northern big cities or abroad.

Wall and Crowe (2024), focusing on coworking spaces, underline how remote working can be seen as a mean to sustain rural communities, both by encouraging people to remain in or relocating to communities suffering population decline. Moreover, those areas can benefit from new employment opportunities and the presence of «a skilled workforce that contributes to the diversification and dynamization» of local contexts (Tomaz et al., 2022, p. 133).

The adoption of remote working, increased during the Covid-19 pandemic, could potentially impact the spatial distribution of employment opportunities, benefiting rural areas workers and employers (Davies, 2021): engagement in remote work enables workers to access works they otherwise could not due to excessive travel distances; moreover, «addressing place-based barriers, ICT-supported remote working may provide rural businesses with an avenue to employ workers who are permanently based in places that offer employees their desired lifestyles with employees only having to travel to the rural community occasionally, or indeed never» (ibid., p.148).

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However, Tomaz et al. warn against the idea that this "rediscovery" of rural areas during Covid-19 will lead to a long-term, significant revival of rural areas. Even if the discourse has been structured around a "back-to-the-borgo" mantra (Graziano, 2024), it is not sure whether a process of "outmigration" of urban dwellers towards rural areas will consolidate in the future and the concrete effects it could have on rural areas development trends; moreover, it is highly probable that some territories will prove to be more attractive for urban dwellers than others, with diversified development opportunities in different rural areas, within and across different metropolitan regions. Mariotti et al. (2023), similarly, highlight how in the literature «there is little evidence for the socioeconomic effects of new working spaces in urban regions – or in peripheral areas».

Coworking Spaces and Remote Working Benefits for a Territory

RW allows knowledge workers to work outside the office (second place) preferring the home (first place) and/or third place (Oldenburg, 1999, 2020). Third place is an umbrella term including (i) collaborative spaces (e.g., coworking spaces and smart work centres); (ii) makerspaces, fab labs, open workshops; (iii) other new working spaces (hackerspaces, living labs, and corporate labs); and (iv) coffee shops and public libraries providing formal and informal spaces for working (Mariotti et al., 2023a).

Collaborative Spaces (CS) are characterised by a "sense of community", which is considered a core mechanism to achieve a high frequency of collaboration and supportive interactions (Garrett et al. 2017; Waters-Lynch and Potts 2017; Spinuzzi, 2012; Spinuzzi et al. 2019). Users of CS exploit proximity measures a là Boschma (2005), which promote collaboration, knowledge sharing, and networking, and lead to increased productivity and the generation of new ideas and provide chances for professional development or networking events with potential clients or business (Mariotti, Akhavan, 2020).

During the Covid-19 pandemic knowledge workers started working everywhere: from home, third places, hotels, etc. (Eurofound, ILO, 2017), therefore there has been a surge of CS in peripheral and rural areas. Indeed, as Gandini and Cossu (2019) stated, coworking spaces experienced three waves: (i) initiatives launched as a reaction against the rising volatility of the labour market and informality of freelance professionals (a sort of antidote to job insecurity and precarity); (ii) entrepreneurial motivated coworking brands and their small community-led counterparts that were

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pushed out of the cities by the big players (Avdikos & Papageorgiou, 2021); (iii) resilient spaces in non-urban environments, blending business logic with social and political dynamics, and fostering social innovation and knowledge exchange platforms.

Several examples of the attractiveness of peripheral and rural areas towards CS also hosting remote workers and digital nomads have been described in the edited book by Akhavan et al. (2023), with a focus on Italy (Mariotti, Lo Russo, 2023), France (Leducq, Demaziere, 2023), Hungary (Balint et al. 2023), Germany (Holzel, Vogl, 2023).

Tangible results of CS that relate to RW are increased productivity (Mariotti, Di Matteo, 2023), flexibility and work efficiency and relational opportunities at personal and professional levels (Dell'Aversana, Miglioretti, 2024), enhanced creativity and innovation arising from professional networking opportunities (Merkel, 2015), skill development and learning, improvement in work-life balance issues, enhancement of job satisfaction and well-being (Akhavan, Mariotti, 2023), growth of the business, informal knowledge exchange, and a potential rise in income (Clifton et al., 2022; Mariotti, Akhavan, 2020).

The economic impact of CS on the local ecosystem is also important, as they attract remote workers, entrepreneurs, and freelancers who may contribute to the local economy (Biagetti et al., 2024b; Mariotti, Lo Russo, 2023; Boshwort et al., 2024).

Several CS also offer training to young people and NEETs to retain and attract talents, through exploiting rural-urban networks, as for instance in the case of Connected Hubs in Ireland and Triers Lieux in France (Bisello, Litardi, 2024; Mariotti, Sasso, 2024; Manoukas, Mariotti, 2024). Besides, CS and in general third places can be 'cradles' for the development of startup entrepreneurship, intervene in public policies, become agents of social and political action, and platforms for interaction with the neighborhood (Merkel, 2015) by creating networks and promoting social action as 'pressure groups'.

Potential benefits of CS in terms of reducing commuting distances and related opportunities for local interactions can support and promote this concept along with the benefits of remote working. Notable environmental impacts include commuter traffic, leading to less traffic, and CO2 emission. Indirect economic effects include more regional job offers, through extended periods of stay close to the CS, and hence, more time for engaging with local businesses. CS can serve as community hubs and

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help foster collaboration and socialization among remote workers and locals. The existence of CS would aid in revitalizing rural areas by helping to fill the vacant properties, and increasing property values. RW from CS can retain local talent residing in rural areas and diversify the economy at the local level. Besides, CS in rural areas has the potential to become a real revitalization driver for rural areas: it can attract new residents, promote economic growth, provide knowledge exchange, and foster social integration (Avdikos, Merkel, 2020; Ciccarelli, Mariotti, 2024; Rex & Westlund, 2024). On the other hand, important negative aspects of the development of CSs in rural areas include the absence of coworker networks that are not yet fully established in the periphery. CSs located in rural areas could suffer from low space demand. Also, the need for digital infrastructure and easier access to education, health, and mobility, common issues faced by peripheral communities, might set more barriers to their development and operations in such areas (Mariotti et al., 2023c). Finally, rather than seeking to integrate into the community, may pose a threat to the locals, who may perceive the influx of newcomers as an "invasion of urban hipsters" (Ciccarelli, Mariotti, 2024).

Policies promoting CS in urban and rural areas to enhance near-working

Policymakers in Europe have recognized the importance of allowing public administration personnel and private RW to work in CS in urban, peripheral and Avdikos and Papageorgiou (2021) describe, between 2009-2014, CS became part of supply-side employability policies and structural funds were allocated to ease the transition of youth into labor markets and especially to fight the southern brain drain which was connected to the economic crisis and austerity policies. By doing so, CS gradually enlarged with the support of EU-funded programmes such as Creative Europe, COSME, the EIC Accelerator, the Programme for Employment and Social Innovation (EaSI), the InvestEU programme, and the Digital Europe programme, which have been available to start-ups and individuals working in the fields of creative industries, innovation, and entrepreneurship. At the same time, large multinational corporations started to offer “coworking as a service” bringing the practice back into a mainstream, ‘neo-corporate’ model of flexible work in post-recession, urban knowledge economies (Dell’Aversana, Miglioretti, 2024).

The availability of public support largely explains the remarkable resilience of rural coworking spaces during the COVID-19 period. With low running costs, in terms of salaries, real estate, or maintenance, they managed to maintain some of their core

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activities thanks to sharing space and staff between different functions (Tomaz et al., 2021). Within the rural context, a key aim of digital hubs is to improve access to, and use of, digital technology for residents and businesses, thereby making rural living a more viable proposition (Bosworth et al., 2023).

In Italy, the Emilia Romagna region, and the cities of Milan (Milano Strategia di Adattamento) and Bologna (Smart Bo project) allowed public administration employees to work from home in CS in urban, and non-urban areas (Mariotti, Tagliaro, 2024). Besides, SouthWorking initiative in Southern Italy aims to encourage RW in peripheral and rural areas. The initiatives offer training programs, mentorship, networking opportunities for remote workers, assistance when searching for workspaces, and accommodation options in the countryside (Mariotti et al. 2023b; Bisello, Litardi, 2024; Mariotti, Sasso, 2024; Manoukas, Mariotti, 2024).

In France, the National Association of Third Places, "Tiers Lieux," is supported by the French government in its efforts to develop NW and reduce traffic, pollution, and urban commute. It has the objective of providing to remote workers a professional environment, network access, and also resources and support services. The French government has been very active regarding support for third places through funding and policy measures that encourage teleworking within rural territories and peripheral spaces.

As part of the Rural Development Policy 2021–2025, the National Connected Hubs Network in Ireland facilitates RW in rural regions by making it simpler for enterprises or employees to relocate from large urban locations to rural areas. It is a network of about 320 hubs that can be assimilated to CS spread across rural areas (Mariotti, Sasso, 2024).

In Portugal, the National Network of Telework and Coworking Spaces in the Inland Territories aims at consolidating economic and social development in these regions through the creation of employment opportunities, fostering collaboration, and stimulating innovation (Bisello, Litardi, 2024). In Southeast Estonia, Kupland network focuses on the development of coworking spaces to be established in rural areas (Bisello, Litardi, 2024).

The Rural Enterprise Hubs in the United Kingdom is an initiative promoted by the Government to provide coworking spaces and business support centres in rural areas

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(Bisello, Litardi, 2024). Digital Villages ("pueblos digitales") in Spain represent a new trend in attracting remote workers in search of rural experiences in the thinly populated areas of the country. On average, these places offer more affordable prices regarding housing and coworking spaces than big cities, all with high-speed connections to the internet (Bisello, Litardi, 2024). Finally, remote Work Grants and Digital Nomad Visas indirectly support coworking spaces across Europe and internationally.

Occasionally, private organisations launch comparable initiatives. As presented by Mariotti and Tagliaro (2024), in Italy, the Milano Smart City Alliance, a public-private cooperation between the Milan Municipality and private businesses, promoted short commutes from people's homes to their workplaces for at least a few days a week; the partnering organisations open their offices to the staff of other local businesses. At the corporate level, Unicredit in Italy introduced a novel corporate real estate approach in 2018 that allowed staff members to work from scattered hubs, such as head offices or branches nearer to their homes, for the majority of the workweek. In this manner, it would be possible to relocate 90% of office space outside of city centres, saving 19 kilometres and 45 hours. As described by Bisello and Litardi, the Bank of Ireland, in July 2022, opened 11 new hybrid working hubs in Dublin, Kildare, Louth, and Wexford, adding to the four that it had already opened before the start of the Covid-19 pandemic. Besides, Eurobank in Greece implemented a new hybrid programme in 2022, and in 2023 it opened two additional hubs.

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Section 5: Critical findings and Conclusions[20]

REMAKING Literature Review provides a critical appraisal of the existing research on Remote Working. The purpose is to get a deep understanding of the phenomenon, identify any gaps in the research to inform the research questions and outline future research directions.

In line with project objectives, RW has been considered in relation to their implications on subjective living and working conditions, business organization models, economic, social and territorial effects.

The findings of the review will feed into the activities of WP2, WP3 and WP4 to frame the qualitative research with new insights and research trajectories to apply to the case-studies across territories.

The analyzed studies comprise a total of 516 publications, yet more than half do not address remote work through a territorial lens. Specifically, only 9% and 2% consider urban and rural contexts, respectively. Despite the literature emphasizing the importance of geographical factors in understanding remote work phenomena, this gap is evident in the results summarized below.

A significant 83% of the studies lack a gender perspective, revealing a broader oversight regarding gender dimension and social inequalities. Although some research suggests that these issues warrant deeper exploration, they remain largely neglected, particularly concerning labor market dynamics, the emerging organizational models of work, well-being and gender equality.

Furthermore, when examining sectors and occupations, only a small fraction of contributions delves into remote work through inter-sectoral and occupational perspectives. More than 87% of studies do not analyze these dimensions, even though recent findings indicate that sector characteristics play a crucial role in enabling or constraining remote work practices, depending on how adaptable various professions are.

From a methodological standpoint, over half of the studies employ quantitative approaches, with just 17% utilizing qualitative methods to uncover the diverse impacts and nuances of remote work. Additionally, while many analyses focus on work-from-home models, other forms of remote work arrangements, such as hybrid models and the emergence of digital nomads, receive limited attention. However, it has to be

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investigated whether hybrid arrangement is something completely different from 'usual' work from home model: intensity differs, but are these distinct models?

In the following sections, we will present a summary of the key findings from each thematic chapter to highlight potential future research trajectories, particularly in the context of territorial case studies.

Key findings Section 1: Origins and diffusion of the phenomenon: Shocks and Megatrends

The literature review has approached remote work through the perspective of the current structural transformation of the economy and society driven by globalization and technological advancements. Over the past decades, these forces have reshaped production and labor landscapes, leading to profound shifts in how and where work is conducted. Precisely, globalization has intensified the international division of labor, with knowledge-intensive activities gravitating towards major urban hubs while more labor-intensive roles were outsourced to regions with lower costs. At the same time, digital and information technology has allowed firms to transcend physical boundaries, creating a truly "global workforce" that connects firms and their workers from any corner of the world.

External shocks like the COVID-19 pandemic, Brexit, and the invasion of Ukraine have acted as catalysts, accelerating the trend towards flexible work arrangements. The pandemic, in particular, forced organizations worldwide to shift to remote work almost overnight, leading to a reevaluation of conventional work setups. Brexit, by reducing the UK labor force, prompted companies to look beyond national borders, turning to remote work as a way to attract global talents. In a similar but different way, the conflict in Ukraine also led to the relocation of skilled workers, especially in technology fields, who now operate remotely from safer locations across Europe. These events have highlighted the adaptability of remote work in maintaining continuity amidst unexpected disruptions.

Thus, remote work, which once was an option for only a selection of professions, has become increasingly diffused across a variety of sectors, reshaping traditional notions of productivity, flexibility, and well-being.

The diffusion of remote work has been particularly visible in sectors like finance, information technology, and education, which have transitioned more seamlessly into online environments. These industries are characterized by tasks that adapt well to digital platforms, allowing for increased flexibility in where work is performed. Conversely, roles in manufacturing, construction, hospitality, and tourism face inherent limitations with remote work, as these jobs often require direct, in-person involvement.

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As a consequence, studies have shown that the uptake of remote work has not been homogeneous across regions, but the geographical differences reflect primarily the regional distribution of sectors.

Urban centers and capital regions host a higher concentration of remote workers due to their concentration of knowledge-intensive industries which are more amenable to work from home.

Conversely, rural areas are more dependent on agriculture and manufacturing, industries that typically require physical presence. Thus, rural areas, which often lack robust broadband and have fewer remote-compatible jobs, have seen slower adoption.

Moreover, in countries, where robust digital infrastructure and supportive labor policies were already established, such as Sweden, the Netherlands, and Denmark, the transition to remote work occurred at an accelerated pace. The presence of advanced digital services—such as high-speed internet, cloud computing, and collaborative software—played a crucial role in facilitating this shift.

Moreover, where supportive labor policies were in place, including flexible working hours, strong employee rights, and proactive measures to ensure work-life balance, have created an environment conducive to remote work. Such policies empower employees to navigate the challenges of working from home while ensuring that their rights and well-being are prioritized. In essence, the interplay of cutting-edge infrastructure, comprehensive services, and progressive labor regulations has positioned these countries as leaders in the remote work revolution, showcasing how enabling factors can significantly influence the adoption and effectiveness of flexible work arrangements.

Demographic factors like education and age also play a significant role in determining remote work adoption. Workers with higher education levels are more likely to be employed in roles compatible with remote work. In terms of age, while younger employees often occupy positions in industries where physical presence is required. Older workers embracing remote work are those in managerial roles which tend to be more adaptable to remote settings.

In the broader regional development context, remote work has been deemed to have the potential to alleviating urban congestion and revitalizing rural areas. Policymakers are exploring flexible work models as a means to encourage population shifts toward less dense regions, potentially easing housing pressures in cities and stimulating local economies in rural areas. Although large-scale relocations have yet to materialize, the emergence of remote work hubs and coworking spaces in non-urban settings signals a trend toward more balanced regional growth. This approach

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may also counteract challenges like brain drain and depopulation in rural regions by creating attractive work opportunities closer to home.

In sum, this document highlights how the convergence of megatrends, external shocks, and digital innovations is profoundly transforming the organization of labor and production. The implications of these changes extend far beyond the workplace, shaping economic, social, and spatial dynamics across Europe and offering both challenges and opportunities for a more interconnected, flexible future.

Key findings Section 2 – Current and potential transformations on Individuals

The whole experience of remote work has a significant impact on employees' well-being, appraised as job satisfaction, happiness, organizational commitment, intention to stay, work engagement, and sense of purpose. The effects of RW concern various aspects of well-being, such as mental health, job satisfaction and work-family conflict. Autonomy and isolation are probably the most relevant characteristics of the remote work experience and have both positive and negative consequences. Research also shows that well-being is influenced by many factors, such as the type of task, the intensity of remote work, the level of autonomy of the employee, the impact of technostress, the ergonomics of the technical equipment, the social support of colleagues and leaders, as well as the leadership behavior of the managers or the contextual factors of remote work, first of all, the family.

In shaping individuals' everyday practices and routines, the dimensions of flexibility, work-life balance, and work-family conflicts are also central recurring themes. Remote work experiences differ depending on the extent, location and circumstances are performed.

Moreover, the experiences of remote work are highly gendered. While flexible work arrangements offer the potential for better work-life integration for both men and women, it does not resolve the underlying gender disparities in household and childcare responsibilities, yet it can exacerbate gender inequalities.

Remote work impacts also organizational culture, as reduced in-person interactions can undermine trust, relationships and a sense of community. Overcoming these negative effects requires extra effort and supervisors should enhance their technological and interpersonal skills and serve as socialization agents, especially for newcomers.

Very little evidence exists on the intersection of several dimensions of inequalities, as race, age, disability, sexual identity, socio-economic status and territorial inequalities. RW may potentially bridge disparities in job conditions, reducing social discrimination and offering higher work opportunities. However, people suffering from inequalities are often associated with occupations with lower "teleworkability". Furthermore, job accessibility is also uneven across territories, with

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a positive trend in territories with an assemblage of economic, technological and institutional settings.

Altogether, the impact of remote work on individuals' working and living conditions is shaped by workers and their families, organisations, as well as policies and regulations. To increase employees' well-being, productivity, relationship and community engagement, the challenge for organizations is to design the right balance of the many components highlighted above.

Key findings Section 3 – Current and potential transformations on production organization

The literature exploring the relationship between remote work and business models has highlighted that the shift to remote work, significantly accelerated by the COVID-19 pandemic, demands a fundamental transformation and adaptation of business models and organizational practices. Remote work necessitates organizations to rethink their operations, collaboration methods, and company culture. Strategic adaptation involves not only adjusting policies but also investing in tools that facilitate remote work.

In this perspective, the integration of advanced digital tools and infrastructure is critical for supporting remote work effectively. Organizations must invest in cloud services, collaboration platforms, and cybersecurity measures to ensure efficient operations. The pandemic has accelerated the development of digital competencies among employees, granting them greater autonomy in utilizing technology. To harness this shift, organizations should provide training and resources that foster a culture of continuous learning, empowering employees to thrive in a remote setting. Additionally, effective socialization practices, such as online peer-to-peer connections and virtual informal meetups, can help maintain organizational culture and support new employees in building relationships.

Indeed, remote work presents significant challenges in fostering a sense of belonging and organizational identification among employees. The transition to remote environments often exacerbates feelings of exclusion, particularly for individuals from underrepresented groups. Employers must rethink their organizational strategies, especially leadership approaches, to cultivate an inclusive culture that supports meaningful work and nurtures a sense of purpose, community, and belongingness. As remote workers frequently face professional isolation, the creation of a supportive environment is vital for maintaining employee engagement and reducing turnover rates. Meaningful work, characterized by unity, shared values, and a sense of purpose, can be adversely affected by social isolation in remote environments. This highlights the importance of investing in leadership development

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to equip managers with the necessary skills to navigate the unique dynamics of remote work, ensuring that employees feel supported and connected.

Furthermore, the transition to remote work has highlighted various legal and fiscal challenges, including taxation, corporate liability, and labor laws, especially when employees work across different jurisdictions. Companies must develop clear policies to navigate these complexities, ensuring compliance and protecting employee rights. HR faces new challenges in areas such as wage calculations and maintaining employee engagement, emphasizing the need for frameworks that foster a strong company culture in remote settings. Furthermore, the rise of cross-border telework introduces complex legal and regulatory issues that companies must navigate, necessitating robust legal frameworks to mitigate risks such as social dumping and tax avoidance.

Overall, the literature emphasizes the interconnected nature of the various aspects of remote work and highlights the importance of strategic adaptation, technological integration, and supportive frameworks. By effectively managing these resources while navigating the complexities of this evolving work landscape, organizations can optimize performance and enhance employee well-being in the remote work environment.

Additionally, the literature on remote work, besides highlighting its organizational impact on business models, has also highlighted that remote work presents opportunities for innovation by increasing access to diverse knowledge and improving customer relationships. Indeed, remote working catalyzes significant transformations within organizations, leading to new practices, structures, and cultural evolutions.

However, the potential for innovation also fluctuates under remote conditions. While remote work can foster fresh perspectives and enhance creativity, also by potentially accessing a diverse workforce worldwide, the absence of face-to-face interactions can complicate knowledge sharing and reduce trust within teams, thus inhibiting interaction and knowledge flow, essential for driving innovation.

Consequently, hybrid models that combine remote and in-person interactions are recommended to harness the benefits of both environments, as well as inclusive leadership becomes essential for managing creative projects in virtual environments.

In this context, particularly start-ups have been able to exploit remote workers potentials. Indeed, the acceleration towards remote work during the pandemic has fundamentally transformed workers' expectations, with many employees now prioritizing greater autonomy over when and where they work. This newfound desire for flexibility has been particularly impactful for startups, which have historically thrived on agile and adaptive work cultures.

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By embracing remote work practices, these innovative organizations can attract diverse talent, enhance job satisfaction, and foster an environment where employees feel empowered to contribute creatively. Moreover, startups that prioritize these values not only benefit from increased productivity but also exhibit a higher propensity for innovation compared to larger corporations. Indeed, start-ups tend to create dynamic work environments that resonate with workers' aspirations for independence and fulfillment, ultimately driving both employee satisfaction and organizational success.

Key findings Section 4 – Current and potential socio-economic transformations

Favoured by the rise of the knowledge economy, changes in the socio-demographics structure, the labour market significantly change in consideration of the spatial-temporal flexibilization of the work. Access to remote jobs depends on workers skills occupational and industrial specialization, the organizational culture and the dissemination of the technology. Remote work is not necessarily fully "remotable" and the variation changes across territories and sectors, social skills and digitalization maturity. A strong positive association is found between the propensity for remote work and the level of acceleration in interpersonal skills demand.

Work related inequalities, expressed through gender, age, ethnicity and disability, have impacts on access to job opportunities, subjective well-being and wage gap. Through different levels, they exhibit reduced patterns of access to remote work, a tendency to occupy less advantaged occupations in specific sectors of activity, restricted autonomy and lack of control over work tasks.

Power relations are also affected by the expansion of remote work, revealing that the more autonomous the work context, the less autonomy workers seem to enjoy. Although studies showing positive effects of teleworking on productivity (public and private) employers its widespread adoption still resist. Discussions on this topic engage with the implications of the 'transposition' of power to digital media (algorithmic management), sociability in the workplace and the reconfiguration of labour solidarity.

The nearly 'prosthetic' nature of new digital mediation technologies elevates the issues of corporeality, subjectivity, and the elusiveness of control and supervision to an unprecedented level in human history, echoing Marxist-inspired inquiries into how socio-technical innovations impact the relationship between labour and capital.

An interesting finding regards the new frontiers of forms of struggles among workers: union membership is at a higher level of than non-teleworkers. However, little is known about new forms of action when the workplace is spatially dispersed and digitally mediated.

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Moving our attention to a socio-spatial perspective, it is worth to mention the implication on spatial mobility as an essential part of the effects of Remote Working. The spatial dimension of the work induces a novel use of the city, including the use of coworking spaces, cafés and public transport, and has become a new style of working that may affect the reconfiguration of daily mobility and urban land use. RW is changing the temporalities of everyday life as well, especially by adapting to life without work-related travel, and new and flexible routines.

Research on the space-temporal dimension of Remote Working concerning gender inequalities is still very limited. Among genders, women mainly or exclusively work in their homes, while men are much more likely to work in multiple types of workplaces. The uneven distribution of mobility also relates to different social classes. During the Covid-19 pandemic, higher-income households stopped moving while "essential workers" had to keep moving to survive, reflecting issues of class asymmetries and differential access to digital technologies. Low-income populations have different patterns of daily routines and time use because of individual and household constraints, time budget, limited access to ICT, and a greater charge of family responsibilities.

Telecommuting is often associated with a reduction in the overall number of trips and annual vehicle miles travelled particularly during peak periods, hence producing positive environmental outcomes. However, many studies show that there is a tendency to increase travelling by car for other out-of-home activities or the so-called "re-bound effect". Another unintended negative effect is a possible rise in car ownership and use among the many workers relocating from cities to the countryside. Therefore, the results on the environmental impacts of new patterns of mobility are non-conclusive, due to the heterogeneity amongst the studies and depend very much on contextualized variables.

Environmental impacts also relate to energy consumption: hybrid working may also promote increasing expenditure on office supplies and furnishings to keep functional workplaces at home and in the office.

Another main impactful phenomenon allowed by RW, labour flexibilization, precarity, and displacement of work is the so- called "digital nomadism". Also seen as a "lifestyle-driven migration" or "leisure-oriented mobility" the emergent yet growing experience of digital nomadism regards remote workers searching for a better quality of life with a lower cost of living, taking advantage of their "privileged" nationalities passports, traveling visa and the use of social media to get affordable destinations that offer new forms of consumption.

Entire neighborhoods are being transformed to accommodate the needs of this transnational class of "ephemeral residents", with socio-spatial implications like gentrification and higher house prices. Strategies employed by the local communities (grassroots communities, local populations, movements), hospitality

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industry (travel, accommodation, coworking/coliving, retreats, healthcare) in order to accommodate the needs of the incoming nomadic flows are heterogenous according to the degree of development of territories. Local communities cultivate ephemeral bonds and relationship and very little engagement with the RW communities. The use of coworking/coliving spaces acts as an entry point to city life's consumption and as social bubbles where remote workers socialize with their peers, with minimum interaction with local communities. Within this context of flexibility, precariousness becomes structural, penetrating crucial conditions of contemporary social life.

In sum, the growth of RW has affected the geography of work and residential location choices at urban, suburban or regional levels, thus having an important impact on territory and cities. Processes of re-territorialization are strictly intertwined with economic factors concerning labour, productivity, wage, housing prices, consumption and other situated urban transformations.

Three potential scenarios in large cities may occur: the gentrification of city centres, urban sprawl or "doughnut effect" when workers relocate to suburban areas and intermediary cities, or repopulation processes, when workers relocate to secondary cities or inner/rural areas. Many studies reveal a positive association between being a teleworker and having suburban living preferences with effects in diminished traffic congestion, and real estate prices decline, especially in big cities. Conversely, other studies highlight the attractivity of the city centre, and also that RW has a limited effect on residential location preferences, mainly driven by other factors related to the quality of life, space and neighbourhood satisfaction, in particular proximity to services and opportunity to socialization. Therefore, it seems that in the short term the residential location is not determined by the option to telecommute and there isn't a high risk of urban sprawl, while in the long-term perspective, policies encouraging Remote Working should plan appropriate measures to tackle with this risk in metropolitan areas.

Again, the extent to which reterritorialization processes are taking place depends on territorial and work-related factors. Cities with higher WFH productivity will see the population working in teleworkable jobs decreasing, with more workers settled in less expensive cities. On the contrary, cities with greater amenities function as attractors, increasing population even if employment decreases, but a probable increase in digital nomads, or "touristification" process. The transition will have a heterogeneous impact on workers, with high-skilled ones gaining flexibility in their residential choices, while less educated service workers depend on local consumer services demand in the city. In parallel, urban and territorial transformations affect the demands of services both in city centers and in smaller cities and/or increasing prices rises, cost of living and gentrification due to digital nomads.

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In rural areas, processes of "outmigration" of urban dwellers are still a hypothesis and concrete effects on rural development should be verified in the future. Some territories will likely prove to be more attractive than others within and across different regions, depending mainly on digitalization capacity, services and mobility facilities, among others. Bridging the digital infrastructure gaps is a crucial aspect to leverage a potential phenomenon of repopulation.

The surge of Collaborative Spaces (CS) both in peripheral and rural areas is a significant social and economic fact, with implications for the economies and social fabric. They attract remote workers, entrepreneurs, and freelancers who may contribute to the local economy, and retain young people and NEET. In rural areas, the existence of CS would help to fill the vacant properties, retain local talent residing in rural areas and diversify the economy at the local level. Therefore, CS has the potential to become a revitalization driver for rural areas. Policymakers recognize the function of CS in facilitating the employability processes, easing the transition of youth into labor markets, and tackling the brain drain. They gradually support and allocate programmes, policies and structural funds at European and local level to ease and improve the access of residents and business, especially in rural areas.

Future research trajectories

The results presented demonstrate significant heterogeneity regarding the impacts of remote work on individuals, businesses, and society. This heterogeneity primarily stems from the specific territorial contexts observed and analyzed, as well as the characteristics of the workers considered, the strategies implemented by companies, the sectors involved, and contextual factors such as local policies and available services.

Moreover, several thematic overlaps emerge among the different dimensions analyzed, particularly concerning cross-cutting issues like productivity, well-being, and inequalities. In this vein, we have sought to illuminate these themes from various perspectives to capture the full spectrum of nuances, thereby achieving a more nuanced and comprehensive understanding of the phenomenon.

In the same vein, the literature review emphasizes the importance of examining the phenomenon of remote work through a holistic lens that considers the interconnectedness of the impacts of remote work on workers, businesses, and society, rather than isolating these dimensions. In this context, we have underscored the critical role of policymakers in creating enabling conditions, such as well-developed technological infrastructure and supportive organizational and local policy design. These factors are essential for fostering the growth of remote work and ensuring equitable access, ultimately leading to benefits for individuals, firms, and their communities. By adopting this comprehensive approach, we can better

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understand the complexities of remote work and its implications for various stakeholders.

In this perspective, as remote work continues to evolve, it raises critical questions and research trajectories to be addressed, namely:

Future research should investigate how different designs of remote work arrangements influence employee well-being and productivity. This includes examining elements such as workspace ergonomics, work-life balance, and flexibility in scheduling. Understanding these factors can help organizations create more effective remote work environments that enhance overall job quality.

Since the rise of remote work has transformed the geographical distribution of work activities, allowing companies to access talent from a global pool, future research should focus on how organizations can adapt their technological and operational infrastructures, as well as their strategies, to effectively support distributed teams, ensuring seamless communication and collaboration.

Additionally, it would be valuable to examine how a geographically diverse workforce influences innovation, team dynamics, and organizational culture, as well as the role of leadership in facilitating these processes. Understanding these factors will help companies maximize the benefits of remote work while addressing the challenges of managing a dispersed workforce. This could be done also using a sectoral-based perspective or a comparative approach between startups and multinationals.

A specific focus should go to rethinking skills needs, in light of a scenario of European skills shortage and the emergent demand of innovative, specific and transversal skills.

Transformations in the models of interaction between business and labour are restructuring new forms of social conditions in contemporary reality. It also influences organizational culture, as decreased in-person interactions can undermine trust and community. Organizations and individuals face the challenge of balancing new organisational cultures, interpersonal skills, and models of leadership, depending on the context and circumstances. Spatial fragmentation of workplaces also affects collective actions, union membership, solidarity and community relationships and requires new and innovative communication practices among remote workers, that should be better explored and studied in the future.

A promising avenue for future research is to investigate the accessibility of resources and digital technology that facilitate effective remote work across different industries. This exploration is crucial, as some sectors may inherently possess advantages over others due to their unique operational requirements, technological

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readiness, or workforce characteristics. By examining these industry-specific trajectories, researchers can identify best practices and potential barriers, contributing to a more nuanced understanding of remote work's impact on different sectors and the workforce at large.

Furthermore, since the increasing digitalization of the workplace is not only transforming how work is performed but is also driving entire sectors towards a more digitized model, further trajectories could examine how the degree of digitalization varies across different sectors and identify the key factors that facilitate this process. The study of how emerging technologies (e.g. AI, VR) can shape the labour market and the future of remote work is still to be developed. The relationship between digital industries and policymakers is crucial to be explored, as effective policies and infrastructure enable this digital transformation across industries.

Digital platforms pose socio-economic and political challenges, not merely related to the fragmentation of workplaces, but also as agents of intermediary and/or substitution of distribution of services in the communities. Discussions on this topic engage with the implications of the 'transposition' of power to digital media (algorithmic management), sociability in the workplace, and the reconfiguration of labor solidarity. Future trajectories should focus on assessing opportunities and policy-relevant challenges for workers and their communities, focuses on tackling potential inequalities in terms of poverty risk, quality of working life, job precarization, access to civil and social rights, welfare entitlements, industrial relations and socialization in the workplaces and in the host communities – as the case of digital nomads.

Other research trajectories could address new communication practices among dispersed workers that can drive collective action and organization. This includes analyzing the factors that facilitate these transitions, the various forms of digital organization, and the strategies employed in their struggles for rights. Practices of social innovation should be identified to get a better understanding of the centrality of social practices within and outside the workplaces. Additionally, it's crucial to understand how traditional variables like gender, age, and professional status influence union membership in remote settings.

In addition, future research should explore the implications of remote work on inequalities among different population segments, including different income groups, employer-employee dynamics, age, gender and ethnic origin, to highlight disparities in accessibility to this new form of working, that might lead to different impacts across social categories. Research should differentiate between various household types and consider lower-status and non-ICT workers. From this perspective, an intersectional approach to inequalities would allow for a deeper understanding of

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whether and how remote work can serve as a lever to reduce (or reproduce) both new and existing disparities.

Finally, studies could focus more on the relationship between remote and urban-rural dynamics and territorial transformation. Is Remote workers a leverage to heal territorial divides? To gain a more in-depth understanding of the choice of residential mobility and possible effects on suburbanization and environmental impacts, there is a need to analyze details like housing supply and rise in housing prices, neighborhood factors, internet access, population density or specific urban components through a place-based perspective.

Another avenue of research is how platforms infrastructures (cables, servers, data centers etc.) and digital services offered by platforms (i.e. Airbnb, Amazon etc.) can alter the configuration of the city and the composition of social fabric at local level.

Environmental impacts are a crucial part of this phenomenon. A more in-depth analysis of the social determinants of travel patterns and the long-term effects should be carefully analyzed with specific and innovative methodologies, including perceptions and propensity to lifestyle changes.

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Annexes

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Annex 1 Methodological Guidelines

The first stage is about Gathering Contributions and depositing them on Zotero.

Gathering Contributions through Zotero

Contributions will be classified by two criteria: Thematic sources and Transversal Issues.

Thematic Sources

The thematic items of the literature review will be organized into three levels: Section – Chapter and Keywords (or tags). This structure will be used for gathering the literature by all partners and classifying results and is inspired by the text of the project.

- Section (Workpackages)
  - Chapter (Tasks)
    - Keywords or tags

Below you find Sections, Chapters and a list of Green Keywords. While gathering contributions, you can add yourselves other new keywords to make our search more open and consistent with the existing literature.

Section 1 – Descriptive analysis of the phenomenon and diffusion

- Industrial Sectors
- Countries
- Gender
- Age
- Occupations
- Tasks
- Territories
- Work spaces (e.g. hybrid – offices- home – co-working – collaborative spaces – third space and others)

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Section 2- Origins of the phenomenon: Shock and Megatrends

- Chapter 1: Shocks
  - Pandemics
  - Brexit
  - War
  - Disruption
- Chapter 2: Megatrends
  - Flexibilization
  - Digitalization/digital transition
  - Green transition
  - Precarisation

Section 3 - Current and potential transformations on Individuals (WP2)

- Chapter 1: Subjective well-being
  - work-life balance
  - well-being (physical, emotional, social, financial)
  - Proximity (social, cognitive, institutional and geographical)
  - health
  - safety [/stability]
  - isolation [/connection]
  - job satisfaction
  - stress
  - engagement [/motivation]
  - productivity
  - work efficiency
  - job quality
  - right to disconnect
  - care

- Chapter 2: Everyday practices
  - Flextime [/Flexibility__time]
  - Time Management
  - Flexiplaces /flexible space [/Flexibility__space]
  - Lifestyle
  - Routine

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- Chapter 3: Relationships
  - Care
  - Family
  - Friendships
  - Mutual support
  - Work climate
  - Communication
  - work-family conflicts

Section 4 - Current and potential transformations on production organization (WP3)

- Chapter 1: Business organization models
  - Platforms/platformization

- Chapter 2. Spatial aggregation of skills
  - Tasks and teleworkability
  - Skill migration

- Chapter 3: Economic activities and innovations
  - Infrastructures
  - Productivity
  - new industries
  - Network
  - Start-up

Section 5 - Current and potential socio-economic transformations (WP4)

- Chapter 1: Labour market
  - Labour Inclusion
  - Diversity
  - High-skilled workers
  - Knowledge workers
  - Wages /gender pay gap
  - Employment

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- Chapter 2: Mobility
  - Accessibility
  - Active travel
  - Sustainability
  - Social Inclusion
  - Commuting

- Chapter 3 Community
  - Housing
  - Social Inequalities
  - Accessibility to services
  - 15-minutes city
  - Proximity
  - Networks
  - Inner areas
  - Community wellbeing
  - Near working
  - Social cohesion

Section 7 – Environmental impacts

- Mitigation
- Productive models and environment
- Co2 emissions/GHG
- Travel time
- Mode of transfer
- Traffic congestion

Section 8 – Reshaping territories

- interdependences
- metro- rural
- reconfiguration of cities
- second tier cities
- social inequalities
- territorial inequalities

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- fragility - vulnerability - Resilience
- Inner areas
- Gentrification
- Donut effect
- Touristification
- Residential choices
- Second-home
- Multilocality
- Workation
- Brain drain
- Brain gain
- Brain circulation
- Rural hubs
- Innovation hubs
- Repopulation
- Refunctionalization/Real- estate
- Collaborative spaces

2) Transversal Issues

Literature will be collected and classified by these categories

1. **Territory:** Urban/Rural areas and/or Country-level/Non-territorial
2. **Gender:** Gendered/Non-Gendered
3. **Sector:** All sectors, Manufacturing, Creative, Services
4. **Occupation:** All occupations**,** Knowledge-intensive/ Routinary
5. **Content**: Theories, Case-study, Qualitative study, Quantitative study, Descriptive statistics and Policies
6. **Remote Work Arrangements**: Work from home, Digital nomads, Telework, Hybrid work, All RWA
7. **Type of source**: Prestigious Scientific and International Journals, Working Papers, Policy Papers or Reports from International Organisations (e.g. OECD, ILO), Grey literature, Databases

How to Tag the Articles

You should tag each contribution with at least 8 tags:

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For classifying **thematic items** at least 1 Tag, keeping together: Section and Chapter

For classifying **Green Keywords** at least 1 Tag

For classifying **transversal items** at least 6 Tags: Territory, Gender, Sector, Job typology, Type of content, Type of Source

Example:

Ferreira, R.; Pereira, R.; Bianchi, I.S.; da Silva, M.M. Decision Factors for Remote Work Adoption: Advantages, Disadvantages, Driving Forces and Challenges. J. Open Innov. Technol. Mark. Complex. 2021, 7, 70. https://doi.org/10.3390/joitmc 7010070

Thematic tags

TAG 1 Section and Chapter: Section 2 – Chapter 1 Shocks

TAG 2 Green Keywords (at least 1 but might be more than one): *work-life balance*

Transversal tags

TAG 3 Territory: *Non-territorial*

TAG 4: Gender: *Gendered*

TAG 5: Sector: All sector

TAG 6: Occupation: *Knowledge -intensive*

TAG 7: Content: *Case-study*

TAG 8: Remote Worker Arrangements: *Telework*

Classification of Results

This is a provisional table showing how the LR analysis of contributions will look like

		Descri ption	***Shock and***	***ndividu als (Wp2)***	***Productio n – business***	***Societal Transfo***	***Environm ental impact***	***Territoria l***	***Other impact s***

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			mega-trends		***- innovation (WP3)***	***rmations (Wp4)***		***Reshaping***	
TAG 4	**Territory**								
	Urban								
	Rural								
	Regional, Country and beyond level								
	Non – territorial								
TAG 5	**Gender**								
	Gendered								
	Non-gendered								
TAG 6	**Sector**								
	All								
	Manufactui								
	Creative								

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	Services								
TAG 7	**Job Tipology/Occupation**								
	Manager								
	Knowledge-intensive								
	Routinary								
TAG 8	**Type of content**								
	Theory								
	Experience Practice								
	Case-study								
	Policy								
TAG 9	**Type of source**								

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	Peer-Reviewed Articles								
	Policy Papers								
	Grey literature								
	Databases								
TAG 10 Remote worker Arrangements									
	Work from home								
	Digital nomads								
	Telework								
	Hybrid work								

You might find different taxonomy in the literature: remote work/homework/telework/home-based work/ home-based e-work/work from

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home/remote employee/e-work/flexible work/agile work/telecommute/ new way of work/hybrid work/digital nomads/Smart working/remote commuting. Please refer to the 4 categories above (Work from home/digital nomads/Telework/Hybrid work) while tagging the contributions.

Process and timing

Phase	When	Who
1) Agreement on the Outcomes and Methodology (4 tags each paper)	21st March	Drafting: UNIBO Revision: All Partners
2) Definition of keywords	27th March	Drafting: All Partners Revision: UNIBO
3) Sharing of the final list of keywords	3rd April	UNIBO
4) Gathering contributions through Zotero	30th April	All Partners
5) Analysis of Papers and writing text	2nd May – 28th June	UNIBO – Partners
6) Discussion of Results (Steering Committee)	July	All partners
7) Final elaboration and conclusion	15th September	UNIBO

Main actors for collecting and analyzing results

Item	*Who*
Description	UNIBO - POLIMI

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Shock and mega-trends	UNIBO
Individuals (WP2)	IRS – UNIBO - TSNUK
Economy – business- innovation (WP3)	TCD – PSB - UNIBO
Labour Market (WP4)	COLABOR
Community (WP4)	ECHN
Mobility (WP4)	UNIBO - POLIMI –
Reshaping territories (WP4)	UNIBO-POLIMI
Environmental impacts	UNIBO – POLIMI
Policy	POLIMI – VA – COBO - TSNUK

Phase Analysis of Papers and writing text

Study Design	***UNIBO will provide a description of the scientific review questions based on the objectives of the Work Packages***
Information Sources	**Describe the databases used: Google Scholar, Scopus etc.**
Search Strategy	**Add Keywords included in the search strategy.**
Data Collection and Study Selection	**INCLUSION CRITERIA** • *Remote Work Arrangements*: Work from home, Digital nomads, Telework, Hybrid work, All RWA • Territory: Urban/Rural areas and/or Country-level/Non-territorial • Gender: Gendered/Non-Gendered • Sector: All sectors, Manufacturing, Creative, Services • Occupation: All occupations, Knowledge-intensive/ Routinary

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	• Content: Theories, Case-study, Qualitative study, Quantitative study, Descriptive statistics and Policies **EXCLUSION CRITERIA** • *Time-frame*: primarily no more than 10 years • *Language*: only English • *Consistency* with the research objective You find a sub-folder in Zotero "Excluded" to move the contributions removed -i.e. that do not meet the exclusion criteria **Please indicate n. of Total Articles and no. of Articles excluded for your specific section*.** *It is however possible to include other studies in the research. Please do not forget to update the numbers of articles included in the list.
Synthesising the Collected Evidence	UNIBO will provide a classification of the results based on the tagging system. **Partners are asked to provide a narrative analysis based on the Sections already defined by 28th June**
Discussion	A preliminary discussion of results will be presented and debated together during the Steering Committee of July or September.

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Task 1.3: Future scenarios and forecasts for the likely evolution of remote work

Deliverable information	
Dissemination level	PU
Type of deliverable	Report
Work package	WP1 – Task 1.23 Future Scenarios
Status - version, date	Draft – 1.2, 28/11/2024
Deliverable leader	Zilvinas Martinaitis (Visionary Analytics)
Contributing partners	Salvatore Zappalà (UNIBO) Alessandra Landi (UNIBO) Patrizia Leone (UNIBO) Elena Prodi (POLIMI)
Contractual date of delivery	29/11/2024
Keywords	RWA, Forecasting, Scenarios

Quality control

	Reviewer Name	Organisation	Date
Peer review 1	Alessandra Landi	UNIBO	25/11/2024
Peer review 2	Salvatore Zappalà	UNIBO	25/11/2024

Version History

Version	Date	Organisation	Summary of changes
0.1	28/10/2024		First draft of document structure
0.2	06/11/2024		Final version
0.3	27/11/2024		Final version with final adjustments

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1. Introduction

1.1 Objectives of the scenario-building exercise

This chapter presents the outputs of *Task 1.3: Develop future scenarios and provide quantitative forecasts for the likely evolution of remote work*. The overall objectives of the following future-focused analysis are as follows:

(1) To highlight different paths along which remote work may evolve beyond the pandemic shock;
(2) To identify key drivers of likely future evolution in the prevalence of remote work and analyse the interplay of these drivers under different scenarios; and
(3) To provide quantitative projections of the prevalence of remote work to explore the implications of the scenarios in numeric terms, i.e. assess the share of the EU workforce that will be working remotely under each scenario.

The analysis is structured around three scenarios: baseline, slow-down, and high-growth. Each scenario involves the elaboration of quantitative aggregate estimates of the future prevalence of remote work, as well as a qualitative elaboration of the key drivers, trends, and nuances that are likely to shape the prevalence and distribution of remote work. It is important to note that the scenarios do not aim to 'get it right' and predict the future accurately. Rather, the scenario-building exercise should assist users (researchers, HR managers, and policymakers) in examining assumptions behind the question at hand and uncovering opportunities and challenges that may have been previously unseen or implied.

1.2 Methodology and study limitations

The scenarios have been developed following a multifaceted approach, which involved iterative stages of qualitative and quantitative analysis. More specifically, we followed a six-step methodology:

- **Step 1. Identification of drivers**: Based on a targeted literature review and consultations with the study team, we developed a typology of the main drivers likely to shape the future of remote work.
- **Step 2. Initial analysis**: We collected and compiled aggregate Eurostat data on the historical trends in 'the share of employees working from home mainly or sometimes'.
- **Step 3. Delphi survey**: A two-round Delphi survey approach was adopted to gather in-depth qualitative insights on the future scenarios of remote work. 58 remote work experts responded to the first round of the survey, which aimed to 'check the pulse' and assess the probable likelihood, direction, and magnitude of the impact of the identified drivers and gauge the likely future evolution of the prevalence of remote work (based on historical trends). Next, the second round of the survey served to refine the experts' estimations of the prevalence of remote work, follow up on any points of disagreement or divergence of views that emerged from round 1, and ask additional questions related to new trends and nuances emphasised by the experts in responses to round 1. The second-round questionnaire was disseminated only to the respondents to round 1; we collected a total of 44 responses.
- **Step 4. Scenario building**: Based on the literature review of remote work drivers and the results of the Delphi survey, we elaborated the three scenarios: baseline, slow-down, and high-growth, taking into account the variability of estimations and expectations for the future of remote work.

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- **Step 5. Quantitative forecasting:** We conducted econometric modelling to produce quantitative forecasts representing the three scenarios. Details of the model and data used are presented in *Box 1*.
- **Step 6. Refinement and finalisation**: We triangulated the results of the quantitative analysis and the qualitative assessment and aligned and fine-tuned some aspects of the scenarios to accurately represent the key trends and nuances.

Box 1. Econometric modelling

We used ARIMA (autoregressive integrated moving average) models. These models, widely employed in econometrics, help analyse past trends and generate quantitative estimates for future outcomes based on observable historical patterns.

Data sources:
Micro-level Labour Force Survey (LFS) and Cedefop data were used to generate forecasts.

Outcome (response) variables:

- ***The percentage of employees mainly working from home;***
- ***The percentage of employees sometimes working from home.***

We used two ***external predictors*** in the ARIMA regression models:

- *The 'pandemic' variable*: This variable, representing pandemic severity, is set to 0 before the pandemic, 1 for 2020-2021, when social distancing measures were highly restrictive with widespread lockdowns, travel restrictions, and bans on gatherings, especially during peak waves. For 2022, the variable is set to 0.5. Although the EU saw higher case numbers than in previous years, social distancing measures had significantly relaxed as most countries adopted a "living with COVID" approach.
- *Teleworkability of jobs*: We used the proportion of employed persons in ISCO categories 1-4 (managers, professionals, technicians and associate professionals, and clerical support workers) as a proxy for the share of jobs in the economy that can be performed remotely. The employment structure was estimated using Cedefop data.

Baseline and scenario development:
Historical data from 2000 and external predictors were used to forecast baseline scenarios for the response variables. Pessimistic and optimistic scenarios were crafted separately by incorporating insights on 15 identified drivers of remote work, with adjustments guided by expert judgement to account for likely future developments.

Source: Authors.

Foresight and scenario-building methods are valuable tools for anticipating future trends and preparing for various possibilities, especially in the context of remote work. However, they come with several limitations:

- **Uncertainty and complexity**: The future is inherently uncertain, and the complexity of drivers influencing remote work makes it challenging to predict outcomes accurately. Since forecasting typically relies on extrapolating past trends, it is particularly challenging in the context of remote work, where external shocks have created significant discontinuities in the prevalence of remote work in recent years. In particular, the work-from-home mandates imposed due to COVID-19 lockdowns and the subsequent return-to-office policies have (twice) revolutionised the remote work landscape in the immediate aftermath of the pandemic.
- **Data limitations**: The availability and quality of data determines the effectiveness of foresight methods. In the context of remote work, the LFS data on the share of employees working

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from home 'mainly' or 'sometimes' is the best, though imperfect, proxy for measuring remote work prevalence. It offers reliable data from 2000 to 2022. While this timeframe is sufficient for building short-term forecasts, on its own, it is insufficient to produce reliable projections extending to 2040. To address this limitation, additional variables related to factors correlated with telework were incorporated into the forecasting models.

- **Bias and subjectivity**: Scenario-building relies on the perspectives and judgments of the individuals involved (both researchers and consulted experts). This can introduce biases, such as overemphasising certain trends or underestimating others. In particular, there is a tendency to focus on extreme or unlikely scenarios, which can divert attention from more probable (moderate) outcomes. In this case, we have seen high optimism among the experts consulted via the Delphi survey regarding the future uptake of remote work that, in their assessment, goes over and beyond historical trends.

1.3 Conceptual and analytical framework: key drivers of remote work

As evident from the methodological design, scenario-building relies heavily on identifying drivers likely to impact the future of remote work. These drivers collectively shape the landscape of remote work, determining the degree of its adoption (prevalence of remote work) and the nature of its evolution (e.g., the spatial distribution of remote work). To account for a variety of micro- (individual), meso- (firm), and macro-level factors (economy, society), we have constructed a taxonomy of 15 key drivers, divided into four categories (employee and employer preferences, structural drivers, regulation, and migration and shocks). The taxonomy is summarised in *Box 2* below.

Box ***2****. Taxonomy of remote work drivers*

I. Employee and employer preferences:

D01: Demand from employees for flexible work arrangements. Employees' preferences for certain working arrangements can shape employers' policies, including regarding the place and time of work.

D02: Popularity of highly flexible/mobile lifestyles. The desire for lifestyles that integrate work and travel (e.g., digital nomadism, workations) may encourage more people to seek remote work opportunities that support such lifestyles.

D03: Employers' attitudes towards remote work arrangements. Employers' acceptance (normalisation of remote work) or resistance to remote work (return-to-office mandates) can significantly influence its adoption.

D04: Strategies for talent attraction and retention in tight labour markets. In competitive labour markets, offering remote work can be a key differentiator for employers and may help in attracting and retaining the workforce.

D05: Opportunities for employers to increase the geographical reach of hiring. Remote work allows employers to hire employees located outside the commuting distance from the office (including abroad). This can overcome the geographical constraints in finding the best candidates.

D06: Conscious efforts by employers and employees to reduce carbon footprint. Remote work may (be perceived to) contribute to sustainability goals by reducing the need for commuting, thereby lowering greenhouse gas emissions.

II. Structural drivers:

D07: Generational change. Younger cohorts entering the labour markets may be more inclined towards remote work. Their preferences may reshape workplace norms and increase the demand for flexible work arrangements.

D08: Economic restructuring towards creative and knowledge-intensive sectors, which provide teleworkable jobs. The shift towards creative and knowledge-intensive industries supports the growth of remote work as these sectors often involve tasks that can be performed remotely.

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D09: The rise of gig work and online labour platforms. Gig work and online labour platforms can make remote work more accessible for freelancers and contract workers. Companies may be inclined to increasingly use gig remote workers for short-term projects, reducing long-term employment costs.

D10: Availability and quality of digital infrastructure and digital collaboration tools. High-quality digital infrastructure (e.g., reliable internet enabling remote work) and collaboration tools (e.g., tools supporting synchronous and asynchronous communication) are essential for effective remote work.

D11: Price levels of housing and commercial real estate in metropolitan centres. High housing and commercial real estate prices in cities may make remote work an attractive alternative as employers can cut office costs, and employees can live in more affordable areas while working remotely.

III. Regulation:

D12: Domestic regulatory frameworks. The adaptability of existing regulations (e.g., labour codes) and the emergence of new policies and collective agreements that support or stifle remote work can alter the costs (including administrative costs) and benefits of remote work for firms and individuals.

D13: International regulatory frameworks. Cross-country agreements, e.g., on coordination of taxation and social security across national borders, or lack thereof, can determine the possibilities for cross-border remote work.

IV. Migration and shocks:

D14: Displacement of workers due to ongoing conflicts/wars or climate change. In some cases, remote work may provide a viable option for displaced individuals to continue their employment.

D15: Potential unexpected future shocks. Future shocks, such as energy crises, financial crises, or health crises, can shape the adoption of remote work.

Source: Authors.

While this taxonomy of drivers aims to encapsulate a wide spectrum of micro- and macro-level factors that may affect remote work adoption patterns, their relative importance in shaping future trends is not even. In particular, the experts consulted via the Delphi survey evaluated drivers in the category **'employee and employer preferences'** as among the most impactful. In particular, employee demand (D01) and remote work as a talent acquisition strategy (D04) have been assessed as strong drivers of increased remote work prevalence in the future. Employers' attitudes (D02) are equally important, although experts have somewhat disagreed on the direction of impact – whether the push for return-to-the-office or normalisation of remote work would prevail among most firms. Though drivers related to mobile lifestyles (D02) and the extended geographical reach of hiring (D05) can increase the incidence of remote work, their scope has been seen as limited to a small group of employees/employers, thus limiting the magnitude of impact. Lastly, emission reduction (D06) has not been considered impactful, highlighting the questionable effects of remote work on emission in the first place as well as the dominance of 'self-interested' factors over the 'common good' arguments in the context of working conditions.

'Structural drivers' have been assessed as highly influential, too. In particular, generational change (D07) and price levels of real estate in urban centres (D11) have been considered as significant positive drivers of higher remote work incidence. The rise of gig work (D09) can have some impact, though the limited scope of the phenomenon diminishes the magnitude of such impact in the context of the broader economy. Economic restructuring (D08) and advances in digital infrastructure and tools (D10) are somewhat ambiguous – while some have seen both as influential, others emphasised the limitations of both factors (e.g., the continuing prevalence of in-person service jobs or the diminishing returns on already advanced digital infrastructure in the EU).

'Regulation' and **'migration and shocks'** have been, on average, seen as of secondary importance. Experts somewhat disagreed on the direction and magnitude of the impact of regulatory changes at

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both domestic (D12) and international levels (D13), with assessments ranging from positive to negative and from high to low impact. Lastly, the effects of international migration on remote work (D14) take-up have been questioned, and the effects of unexcepted shocks (D15) are inherently difficult to gauge.

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2. Future remote work scenario

Based on the analysis of the likely drivers, we engaged in scenario-building. In particular, the expert evaluation of the identified drivers' likely direction and magnitude of impact and likelihood, as well as their open comments provided via the Delphi survey, have led us to the development of three scenarios: baseline, slow-down, and high-growth. These scenarios constitute the reflection (and, to some degree, interpretation) of the variability of estimations and expectations for the future of remote work expressed via the survey. These sentiments and estimations expressed in the survey have also fed into the econometric model by adjusting the 'pandemic' variable and developing the quantitative projections for each of the scenarios (see *Box 1* above).

In summary, the **slow-down scenario** assumes relatively weaker macroeconomic conditions, especially slacking labour markets, and thus high bargaining power of employers. While employees generally are in favour of flexible working arrangements, they long for social interactions that physical workplaces provide and consider on-site work a better means of on-the-job training and career progression. Most employers remain sceptical of high degrees of flexibility and worker autonomy and, considering their high bargaining power in the labour markets and the moderated demands from employees, they are generally able to continue enforcing return-to-the-office mandates. At the same time, deeper structural changes are slow and/or unfavourable to remote work. For example, technological advancements automate predominantly clerical tasks that would otherwise be performed remotely but are slow to replace humans in service jobs that require in-person presence (e.g., care or transport).

On the other hand, the **high-growth scenario** tells the story of rapid progress. In conditions of economic growth and tight labour markets, technological change is directed to automate low-skilled service jobs while giving a boost to the creative and knowledge sectors, which are prone to remote work. Employees advocate for highly flexible working arrangements that go beyond limited hybrid models and allow for full or almost full location independence, driven by the preferences for mobile lifestyles (e.g., digital nomadism) or relocation to more affordable living spaces (small towns, suburban, and rural areas). Employers fall into the 'virtuous cycle' of talent attraction and cost competitiveness: as pioneering remote-first companies are better able to attract high-skilled workers (due to the elimination of geographical boundaries for hiring) and can cut fixed office costs significantly, other firms must follow suit to stay competitive. This accelerates the adoption of remote work models over time to the point of saturation (where not much more work can be performed remotely).

Lastly, the **baseline scenario** constitutes a middle ground between the two extremes. It involves a continuous balancing act of employee demands for more flexible working arrangements and employers' mixed attitudes towards flexibility. Crucially, it presumes a high variability of outcomes, depending on national cultures, regional and sectoral labour market dynamics, and company cultures and experiences. Thus, it may involve some versions of the slow-down and high-growth scenarios playing out in different parts (sectors, countries) of the EU economy at the same time. On average, the 'new normal' under the baseline scenario pivots towards hybrid work models with different levels of place flexibility (i.e., shares of on-site and remote working days).

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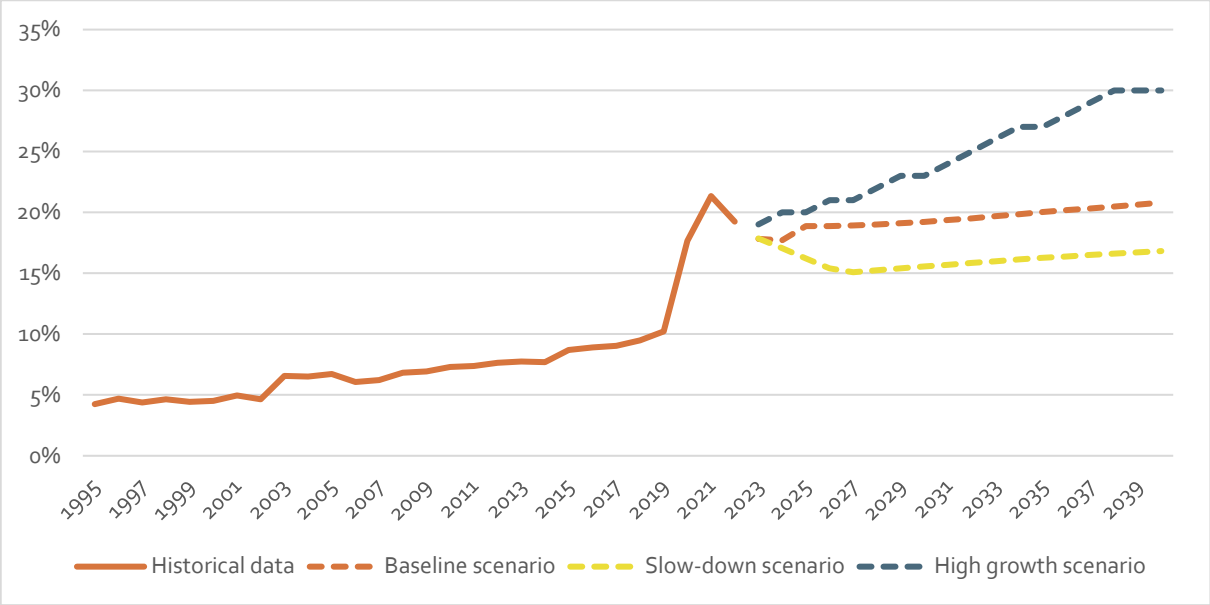
Figure 1. Share of employees in the EU working from home 'sometimes' or 'mainly': Historical trend and the baseline, slow-down, and high-growth scenarios



Source: Authors.

The sections below delve deeper into the forecasted trends and the expected evolution of key drivers under each of the three scenarios.

2.1 Baseline scenario

The key trends underlying the baseline scenario are as follows:

- The percentage of employees engaging in telework (mainly or sometimes) is expected to decline slightly, by approximately 1 percentage point, in 2023-2024 as the return to the office continues. Thereafter, the growth pattern is anticipated to return to pre-pandemic levels, averaging around 0.15 percentage points per year and reaching 21% by 2040.
- The return to the office trends will continue to have a limited effect on the percentage of employees who telework sometimes. As before the pandemic, the prevalence of employees teleworking sometimes will continue to grow at a faster rate than those teleworking mainly, averaging 0.1 percentage point per year and reaching 12% by 2040.
- The percentage of employees who telework mainly (more than 50% of the time) will decrease by approximately another 2% before reverting to a pre-pandemic growth rate averaging 0.4% per year and reaching 9% at the end of the period.

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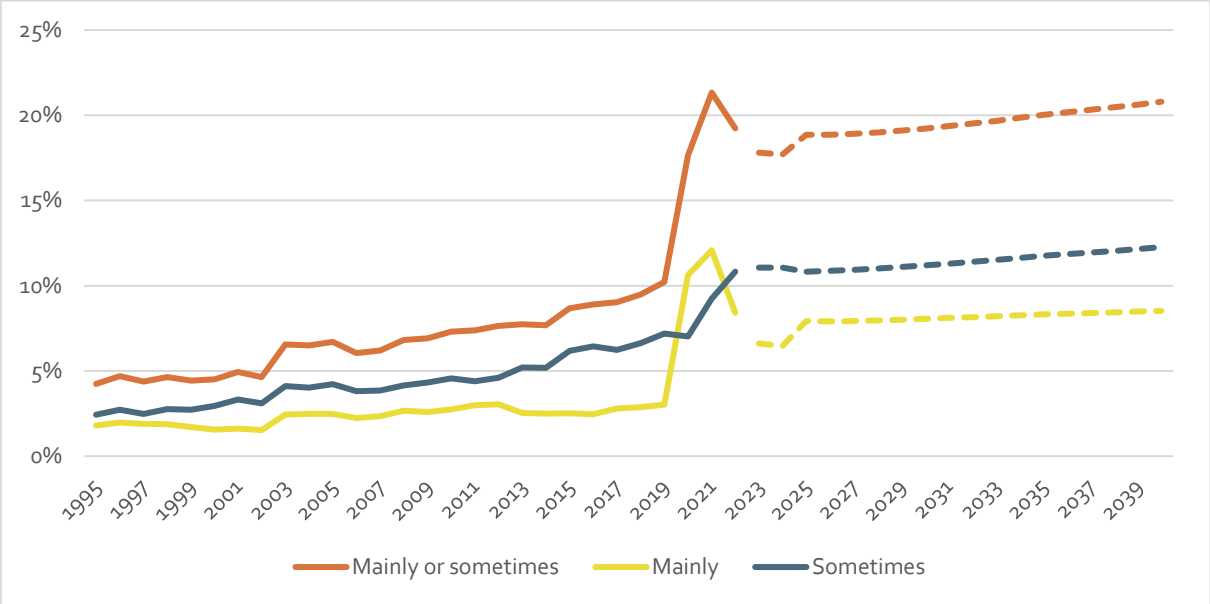
Figure 2. Share of employees working from home: baseline scenario



Source: Authors.

The key groups of drivers behind the evolution of remote work under the baseline scenario are discussed below.

EMPLOYEE AND EMPLOYER PREFERENCES

The drivers behind the baseline scenario are largely defined by the persisting conflict between employee preferences for remote work and employers' reluctance towards it. Under this scenario, the uptake of remote work is driven by employee preferences but constrained by the limited bargaining power of employees and varied employers' attitudes.

In particular, **employee demand for flexible working conditions continues to grow** in the aftermath of the pandemic (Barrero et al., 2021; Grzegorczky et al., 2022; Work Trend Index, 2021). However, this demand is somewhat moderated by the re-discovered and growing need on the part of employees for social interactions and personal connections with co-workers and the workplace. Thus, most people prefer hybrid work models, allowing them to work from home several days a week while maintaining a connection to the workplace (Dias Da Silva et al., 2023).

At the same time, **employers remain split between remote work supporters and sceptics**. Concerns about potential declines in productivity, challenges in maintaining company culture, and difficulties in managing remote teams (see Ghabban et al., 2024) persist among a significant share of firms, slowing down the more widespread adoption of remote work models. This ambiguity is visible in the Delphi survey results – 'employers' attitudes towards remote work' has been among the most contentious drivers in expert assessment, with 59% of respondents saying that employer preferences would shape in a way that they will increase the incidence of remote work and 31% - that they will decrease it.

The balance of these dynamics is highly context-dependent, and, therefore, the remote work outcomes vary. They differ depending on country characteristics (national norms, government

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policies), market context (labour market competitiveness), sectoral trends (remote work traditions), and company-level factors (size, culture). Therefore, some polarisation between countries, sectors, and worker profiles (e.g., higher- and lower-skilled) is likely to persist as some gradually adopt remote or hybrid models and others remain sceptical (Soroui, 2020). This can be considered a prolonged transitional phase, whereby the employee and employer preferences are in constant flux and approaching equilibrium. Indeed, almost all Delphi survey respondents (98%) recognised that employers are currently navigating a transitional period, seeking an optimal balance between remote and on-site work arrangements. One respondent noted:

> *Employers differ on this issue, and different sectors / organisational cultures have different approaches. For example, the public sector is generally quite accepting of flexible work arrangements, whereas the financial sector has typically been more traditional in its adherence to office-based work. Even within the same sector, there can be wildly varying attitudes toward onsite work depending on corporate culture. (respondent #34)*

On average, these equilibrium-seeking patterns **result in the relatively high prevalence of hybrid work** with a spectrum of modalities from very flexible ('mainly' remote work with occasional in-person presence) to office-first (mostly on-site work with opportunities to work from home 'sometimes'). The Delphi survey findings corroborate this perspective, with most experts (88%) agreeing or strongly agreeing that hybrid work is likely to become more prevalent than 'full-time' remote work.

STRUCTURAL DRIVERS

Under the baseline scenario, structural changes are unravelling slowly and are unlikely to significantly tip the state of play one way or another. For example, **generational change has an ambiguous impact.** On the one hand, it may strengthen the demand for remote work to some extent as younger workers are more inclined towards flexible working arrangements and prioritise work-life balance (Raišienė et al., 2021). However, the preference for a degree of in-person interaction also surfaces among Gen Z workers (Chomatowska & Janiak-Rejno, 2022). Furthermore, on-site work is preferred by both employers and employees for onboarding, training, and career progression. Lastly, the voices of the relatively pro-remote-work younger cohorts may be somewhat constrained by their limited decision-making power at their workplaces, at least in the short and medium term.

Other potential trends, including gig work, availability of digital infrastructure and digital collaboration tools, and real estate price levels, are not expected to significantly increase or decrease the propensity to adopt remote work. For example, 63.5% of the Delphi survey respondents agreed that basic digital infrastructure is already, on average, well-developed in the EU, providing marginal effects for future remote work growth. Thus, the uptake of remote work is dictated mostly by the **long-term economic restructuring towards sectors and occupations with a higher propensity for remote work**. This trend is anticipated to continue at the pre-pandemic levels, though notable country and sectoral variations are likely. For instance, economies oriented at creative and knowledge sectors (e.g., the Nordics) are better positioned to support remote work than those heavily relying on manufacturing and in-person service jobs (Ibid.; Aksoy et al., 2022; Hansen et al., 2023).

Infrastructural developments or advancements in digital tools are not expected to be of significant importance either, largely due to the already achieved high levels of digital connectivity. For example, Delphi survey respondents observed:

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My sense is that most improvements have already been made in developed regions. (respondent #27)

Digital infrastructure is already good enough to work remotely in most EU regions, therefore I expect the effect to be marginal due to diminishing returns. (respondent #32)

REGULATION

In the baseline scenario, domestic regulation and international frameworks remain slow to adapt, not constraining (domestic) remote work but not providing incentives for it while keeping up regulatory barriers for cross-border remote work.

In particular, **domestic regulation is slow to adapt to remote work arrangements** (Senatori & Spinelli, 2021; Lerouge & Pons, 2022). While not imposing rules that are strictly unfavourable to remote work, the absence of clear regulations and the non-adaptation of labour laws for remote work reality creates a degree of uncertainty surrounding certain aspects of working conditions (e.g., regarding responsibility for occupational health and safety at home offices), decreasing the propensity of employers to implement remote or hybrid work models in the short- to medium term. Though labour regulation eventually catches up with the remote work trend, it is largely reactionary and does not contribute to encouraging further take-up of remote work significantly. Most Delphi survey respondents (76.9%) agreed that while domestic laws would be eventually updated to accommodate remote work, these changes would not dramatically alter incentives for its adoption. Some shared the following insights:

Given that rules are slowly changing and countries have already started developing plans, laws, and policies for new forms of work, (…) over the next 10-15 years, domestic regulatory frameworks are more likely to (..) adapt to and support the evolving work landscape. (respondent #26)

Even if late and reactive to trends, I think regulatory frameworks will evolve. (respondent #63)

Both domestic laws and **international agreements continue to ignore the aspect of cross-border remote work**. Bilateral and multilateral agreements are rare in this respect, not least because of the low strategic priority assigned to labour issues, the difficulty in establishing enforceable rules (e.g., in terms of setting and tracking tax residency), and the lack of broader international platforms for joint policy-making. While the EU might react to the remote work trend, policy intervention is slow, and challenges related, for example, to tax and social security obligations, persist in the short to medium term (European Parliamentary Research Service, 2022). Indeed, the Delphi survey results revealed a positive outlook regarding EU-level regulation, with experts generally believing that EU frameworks would likely boost remote work incidence in the coming decade. They expressed much less optimism about international regulatory frameworks beyond the EU.

MIGRATION AND SHOCKS

In the baseline scenario, migration patterns and potential shocks have a limited impact on the overall trajectory of remote work adoption. Most Delphi survey respondents (69.2%) said that there is little direct link between (international) migration and remote work incidence and that most remote-working migrants were able to work remotely before and not as a result of their displacement.

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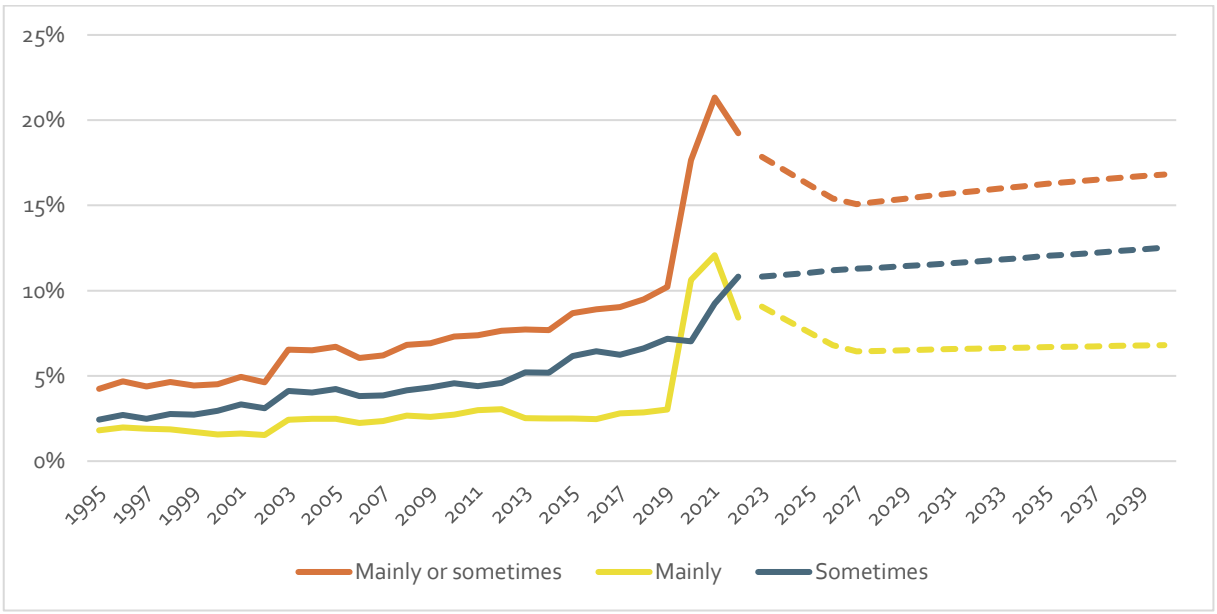
Furthermore, domestic migration (from urban to suburban and rural areas) is likely to be limited in the baseline scenario.

2.2 Slow-down scenario

The slow-down scenario is characterised by two key trends:

- The percentage of employees engaging in telework (either mainly or sometimes) will continue to decline until 2027. By then, approximately half of the employees who began teleworking during the pandemic will have returned to working exclusively from the office. After a brief period of stabilisation, the prevalence of telework is expected to resume growth, though at less than half the rate observed prior to the pandemic, averaging 0.1 percentage point per year. At that rate, the percentage of employees teleworking (mainly or sometimes) would reach approximately 17% by 2040.
- Back-to-the-office mandates will result in the dominance of on-site work and hybrid work with a low-frequency remote element. As in the baseline scenario, the return to the office will continue to have limited effect on the percentage of employees who telework sometimes. The prevalence of employees teleworking sometimes will continue to grow by 0.1 percentage point per year on average, reaching 13% by 2040. The share of employees teleworking mainly will stagnate at around 7%.

Figure 3. Share of employees working from home: slow-down scenario



Source: Authors.

The key groups of drivers behind the evolution of remote work under the slow-down scenario are discussed below.

EMPLOYEE AND EMPLOYER PREFERENCES

While employee preferences are likely to remain in favour of flexible working conditions, employer attitudes will shift more against remote and hybrid work compared to the baseline scenario. At the

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same time, labour market dynamics will shift the bargaining power away from employees and onto employers.

Specifically, Employee demand for remote or hybrid working arrangements perseveres under the slow-down scenario, though **higher shares of employees may prefer to spend more working time at the office** driven by the desire to socialise, difficulties in setting up a high-quality home office or other personal circumstances. The Delphi survey respondents, though generally optimistic about the prospects of remote work, agreed in the majority (74.4%) that feelings of loneliness and social isolation could discourage workers from opting for remote work in the future. At the same time, **employers are more likely to enforce back-to-office mandates**, citing concerns about productivity, collaboration, and company culture (Gibson et al., 2023). They also opt for direct oversight and control over employees, relying more on monitoring employee attitudes and behaviours rather than just outputs to maintain control (Downes et al., 2023). According to Delphi survey respondents:

> *As employers have a higher bargaining power than employees, I believe their attitudes towards remote work are most likely to be the strongest driver in its future adoption/non-adoption. (respondent #32)*

> *The vast majority of companies are not ready to change their attitudes and policies in a way that promotes efficiency and seamless collaboration among employees – therefore, they are pushing for back-to-office mandates and – apart from some highly skilled employees – will succeed in hampering the growth of remote working. (respondent #41)*

Employee-employer bargaining power dynamics also act against remote work adoption. In the context of slow economic growth and weak labour markets presumed under the slow-down scenario, employers gain more bargaining power, and employees' ability to negotiate flexible arrangements is limited (Waldrep et al., 2024). At the same time, slack labour markets and the availability of a workforce 'close to home' reduce the need for extended geographical reach of hiring. In particular, global remote work hiring practices remain limited to a small share of the labour market. The Delphi survey results corroborate this perspective, with most experts (61%) expecting that global remote work hiring practices would remain confined to a small segment of the labour market, primarily involving multinational firms and high-skilled workers.

As a result of these dynamics, **hybrid work models with a relatively low frequency of remote work days emerge as a prevalent compromise**, with employees working from home occasionally but primarily based in the office (Hackney et al., 2022). This is reflected in the quantitative projections (see *Figure 3* above), which assume a moderate growth of the share of employees working from home 'sometimes' and an extended drop in the share of workers who can 'mainly' work remotely.

STRUCTURAL DRIVERS

Structural changes supporting remote work evolve slowly and are constrained by various underpinning factors, including:

- *Slow restructuring:* Economic restructuring towards creative sectors progresses at a slower pace, limiting the expansion of roles suitable for remote work (Chapple & Schmahmann, 2023). At the same time, the expansion of service sectors that require high in-person presence (e.g., care) constrains the growth of remote work options. Furthermore, the digitalisation push is more likely to replace 'teleworkable' jobs (e.g., clerical tasks), but

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automation and AI development do not progress enough to decrease the demand for in-person service workers.

- *Limited innovation diffusion:* Technological advancements supporting remote work continue, but the rate of adoption is low and slow (Ferreira et al., 2021).
- *Uneven infrastructural coverage*: Inequities in access to digital infrastructure (in certain regions, rural areas, etc.) remain a key factor that can affect the geographical distribution of remote workers. Investment in digital infrastructure stays low, particularly in rural areas, hindering the potential wider distribution of remote work (Braesemann et al., 2022; Hopkins, 2024; Hyman & Summers, 2004). Workers remain centred in large metropolitan areas, given the need for proximity of the office and unreliable digital infrastructure outside them (Althoff et al., 2022; Braesemann et al., 2022). The Delphi survey results reinforce this observation, with most experts (83%) acknowledging that disparities in digital infrastructure access remain a crucial factor influencing the geographical spread of remote workers.
- *Limited impact of generational change:* The pro-flexibility tendencies of younger workers are moderated by their relatively low bargaining and decision-making power and the need for in-person presence dictated by social needs and career progression goals:

> *From a productivity, training and career progression perspective, younger cohorts benefit from in-person work experiences. (respondent #27)*

> *If positive, I believe the effect of generational change in the workforce will be limited, as younger workers have a lower bargaining power being more junior and needing more on-the-job mentorship. (respondent #32)*

> *Part of the younger cohorts may also be looking to make new friends and meet new people, seeing the office as a social space in their lives. (respondent #35)*

REGULATION

Under the slow-down scenario, the regulatory environment provides little support for remote work or de-incentivises it. Domestic regulation, at best, remains obsolete, failing to address the unique challenges and requirements of remote work arrangements (European Parliamentary Research Service, 2022). **Regulatory changes that do take place provide excessive administrative burdens and thus de-incentivise employers from adopting remote or hybrid work models** (Mamaysky & Lister, 2021). At the same time, there are no significant attempts to regulate cross-border remote work at the EU or international level, maintaining existing barriers (Mierļņa & Šūpule, 2024). Tax and social security systems remain primarily designed for traditional work arrangements, creating complications for cross-border remote workers (Benton & Hooper, 2022). The complexity of underlying problems has been highlighted by some Delphi respondents in this context:

> *This [international regulatory interventions] is unlikely to happen in the next 10 years, as the issues of taxation, social security, etc., are so complex. Progress will be made, but actual solutions are still far away. (respondent #52)*

MIGRATION AND SHOCKS

Domestic migration does not accelerate under the slow-down scenario, as workers remain tied to their physical workplaces. While remote work might have contributed to a shift in migration patterns (from urban to rural or sub-urban areas), this trend is uneven and varies across countries. While some countries saw increased migration post-pandemic, others, such as Australia, continued to experience a decline (MacLeavy et al., 2024). Most Delphi survey respondents (73.2%) agreed that the 'doughnut

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effect' – the relocation of workers to suburban areas – would be limited by the prevalence of hybrid work models and the enduring appeal of major cities. One respondent noted:

> *I expect this impact [the 'doughnut effect'] to be low as I expect most companies to rely on hybrid rather than full-time remote work, which involves the presence of an office and housing relatively near the workplace. (respondent #32)*

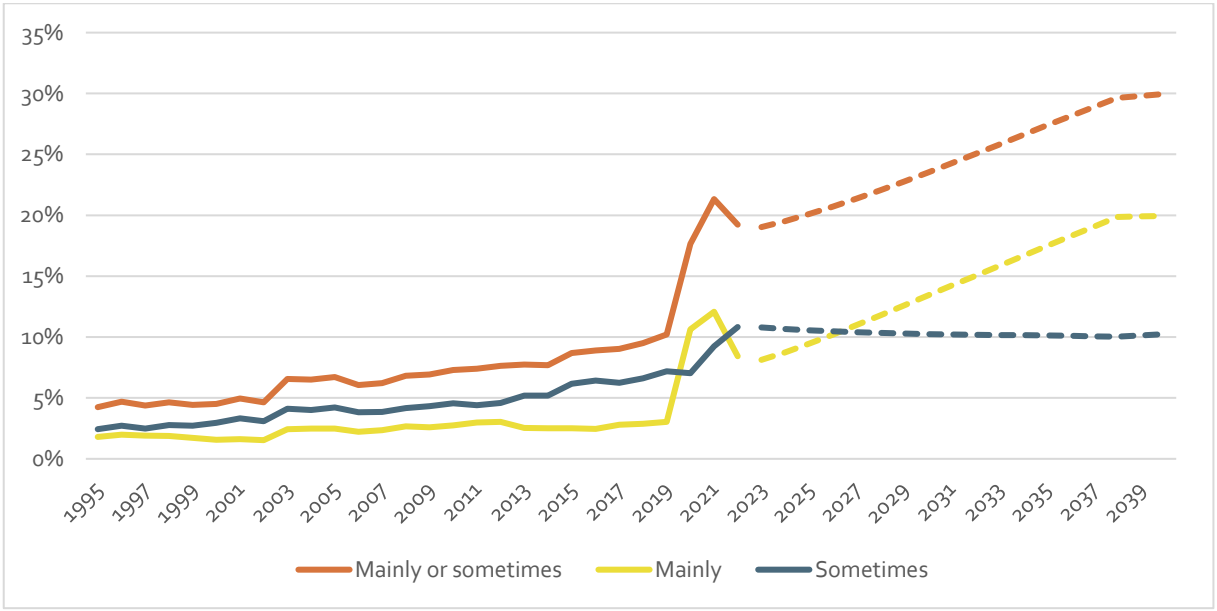
International migration, similarly to the baseline scenario, is generally not seen as a major contributor to the overall increase in remote work incidence. In particular, the increase in remote work among the Ukrainian workforce is expected to continue, though constrained by unfavourable regulatory frameworks for cross-border remote work (Dzhulai, 2023).

2.3 High growth scenario

The key trends under the high growth scenario are as follows:

- The return-to-office process concluded by the end of 2022. Following a year of stabilisation, the percentage of employees engaging in telework (either mainly or sometimes) is expected to increase by an average of 0.7 percentage points per year, reaching approximately 30% by 2040. It is likely that the growth rate will be non-linear, with the uptake of telework arrangements initially slow, as employers require time to adapt office settings and business models to meet the rising demand for flexible employment. The process will eventually gain momentum but slow down again as employers face structural barriers, such as the proportion of teleworkable jobs in the economy and the share of individuals willing to telework.
- The overall growth in the share of teleworking employees will be driven by employers and employees embracing remote work or hybrid models with a high-frequency remote element in sectors such as creative, information and communication, financial and insurance activities sectors ('mainly' in the graph below). The share of employees who telework only sometimes will remain stable at around 10%.

Figure 4. Share of employees working from home: high-growth scenario



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Source: Authors.

The key groups of drivers behind the evolution of remote work under the slow-down scenario are discussed below.

EMPLOYEE AND EMPLOYER PREFERENCES

In the context of tight labour markets presumed under the high-growth scenario, remote work will become a key job perk and a means to attract and retain employees.

In particular, employee preference for remote work will be high, with limited sentiment for on-site in-person presence, compared to 'slow-down' and 'baseline' scenarios. This sentiment is supported by the Delphi survey respondents, who identified **'demand from employees for flexible working arrangements' as the single most important factor shaping the upward trend of remote work uptake**. At the same time, employers gradually recognise the benefits of remote work and become more susceptible to adopting remote work models. Indeed, Delphi survey results indicate that, according to the experts surveyed, employer preferences are more likely than not to shape in a way to increase the incidence of remote work. Several respondents noted the benefit-driven adoption of remote work:

> *Companies are performance-oriented; if remote work proves itself to be an effective way of employment, it will be accepted more by [more] companies. (respondent #30)*

> *Most employers in the EU embrace remote work as the "new normal" due to its proven productivity, cost savings, and employee satisfaction. (respondent #33)*

> *Research and experts suggest that, especially in certain highly competitive fields, employers do try to adapt to remote work to attract talent, despite an overall reluctance. (respondent #43)*

However, the true 'game changer' in the high-growth scenario is also the tight labour market and the high relative bargaining power of employees. Delphi survey respondents considered this scenario the most likely, whereby in cases of potential employee-employer conflict, employees would have more bargaining power and would eventually force employers to adopt more remote-work-friendly models, thus increasing the growth of remote work (in most sectors/companies in the EU). In this scenario, **companies leverage remote work as a key benefit to 'win' employees** in competitive hiring landscapes (Ham et al., 2024). Remote work is likely to then evolve, in the long term, from a perk to a standard expectation among job seekers, becoming the 'new normal' (Soroui, 2020). According to a couple of Delphi survey respondents:

> *As global companies increasingly compete for top talent by offering flexible work arrangements, I expect other organisations will follow suit to remain competitive, thereby empowering employees in negotiations over remote work conditions. (respondent #26)*

> *This request for a new "labour right" is likely to slowly expand from the most qualified and thus privileged employees (who are now signing individual agreements because they can exert some leverage on the employer) to wider types of teleworkable employees. (respondent #41)*

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The rising prevalence of remote-first companies also changes wider company policies, including hiring and cost management. Considering labour shortages, **employers try to expand their geographical scope of hiring**, tapping into broader talent pools beyond local markets (Bamieh & Ziegler, 2022; Soroui, 2020). Dispersion of the workforce, as well as cost competitiveness motives, drive employers to downsize or eliminate office spaces in expensive metropolitan centres, contributing to the domino effect (as remote-first firms become more competitive, others must follow suit).

STRUCTURAL DRIVERS

Demographic and labour market drivers align in a way that facilitates broader remote work adoption while technological advancements address the pre-existing demand for solutions that support and maximise the efficiency of remote work. This Delphi survey response summarises the optimistic sentiment:

> *Cities are becoming expensive, digital tools are becoming accessible, and new generations will not trade very often the quality of life for their work. (respondent #32)*

In the long run, younger cohorts progressing into decision-making positions lead the remote work evolution, reshaping organisational policies (Camp et al., 2022). Indeed, **generational change has been assessed as one of the most influential drivers of remote work uptake** by Delphi survey respondents, and most (51.2%) disagreed that this positive impact could be constrained by young workers' lower bargaining power at workplaces and/or their need for more on-the-job training.

At the same time, labour market structures support remote work. **Automation and digitalisation progress in a way that creates more employment opportunities in high-skilled creative and knowledge sectors**, which are more prone to remote work, and decreases the demand for in-person service jobs (driven not least by large labour shortages in these areas). Furthermore, as one Delphi respondent emphasised, certain tasks within occupations with low teleworkability potential can be performed remotely:

> *While not all jobs can be performed entirely remotely, many tasks within these roles can be. This means that hybrid work arrangements could become feasible for a larger portion of the workforce, potentially extending the benefits of remote work to more people than fully remote work alone would allow. (respondent #26)*

Furthermore, the amount of available gig or platform work continues to grow, too, potentially boosting the market and opportunities for remote work (Huws et al., 2018). From the EU perspective, though digital labour platforms are likely to mainly cause outsourcing of certain (low-skilled) teleworkable tasks to the Global South, they might also facilitate remote work uptake in the EU, including among groups with historically high entry barriers to labour markets.

Responding to the demand for solutions that facilitate remote working, **progress in the development of digital collaboration tools accelerates**. New technologies and improvements to the existing ones enhance remote collaboration capabilities, making virtual interactions more effective (Sahut & Lissillour, 2023). The Delphi survey findings strongly corroborate this view, with most experts (82.1%) endorsing the notion that advancements in digital tools will contribute to increased remote work adoption. For example, one respondent noted:

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As digital infrastructure and remote collaboration tools become even more sophisticated and widespread, it's reasonable to expect that a high percentage of jobs will be feasible for remote work (…). (respondent #50)

Specifically, technological advancements in areas such as 5g enable and facilitate distance communication. The widespread adoption of cloud-based services allows for easier access to work-related data and applications from any location (Soroui, 2020). Importantly, the uptake and effective use of such tools accelerates, too, especially in the medium to long term, after a period of exploration and experimentation on the side of users.

Lastly, **the geographical distribution of remote workers shifts as a result of accelerating investments in broadband and digital infrastructure in rural areas** (Eurofound & Joint Research Centre, 2024). Improved infrastructure across regions drives the dispersion of remote workers, leading to a 'renaissance' in small towns and non-urban areas (Soroui, 2020). The limited need for frequent in-person presence at company premises (or lack of such premises), combined with significantly lower costs of housing and living in non-metropolitan areas, reinforces the demand for higher frequency remote work. The Delphi survey results lend substantial support to this perspective, as most experts (87.2%) agreed that the development of rural areas and improved infrastructure and services would contribute to increased remote work adoption. However, one Delphi respondent argued:

Availability and quality of the digital infrastructure will allow a geographical (re)distribution of remote jobs but not an increase in their numbers. (respondent #35)

REGULATION

Under the high-growth scenario, policymakers recognise the need to adjust regulatory frameworks at domestic and international levels.

At the domestic level, **policymakers actively promote remote work, recognising its potential societal benefits**, such as emission reduction and improved work-life balance (Benton & Hooper, 2022). Labour codes and collective agreements are updated in a way that guarantees decent working conditions for remote workers (including the 'right to disconnect'; Baumann & Marcum, 2023) while incentivising the uptake of remote work arrangements by employers.

EU-level efforts to promote seamless remote work in the single market regulation lead to clarification and unification of rules related to taxation and social security obligations for cross-border remote workers (Marica, 2023). One Delphi respondent highlighted:

[R]emote work is forcing the EU to consider a uniform regulatory framework around cross-border intra-EU work that is already needed (e.g. common taxation, pension schemes, etc.). (respondent #43)

Domestic frameworks and international bilateral and multilateral agreements adjust to allow hiring abroad for domestic employers and work at foreign firms for employees. Additional policy actions, such as digital nomad visas (Bednorz, 2024; Sánchez-Vergara et al., 2023), facilitate mobility and enable seamless (periodical) remote work at different locations.

MIGRATION AND SHOCKS

Migration and shocks have a limited impact even in the optimistic high-growth scenario, though they can strengthen the overall trends. For example, remote work enables 'reverse urbanisation' with

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workers moving from cities to smaller towns and rural areas seeking lower living costs and/or a better quality of life (Soroui, 2020; Tammaru et al., 2023). In a virtuous cycle, this may reinforce the demand for highly flexible remote work arrangements.

Looking at international migration patterns, **the war in Ukraine has significantly impacted the work conditions of creative sector workers** in Ukraine, particularly concerning relocation and remote work. First, the war has compelled many Ukrainian companies to rapidly adapt to remote and distributed work models out of necessity – somewhat parallel to the Covid-19 shock (Yaroshenko & Lutsenko, 2022; Sereda, 2022). According to the IT Ukraine Association (2022), the conflict has accelerated the shift to remote work, with 71.5% of companies now reporting that more than 75% of their employees work remotely. This represents a dramatic change from pre-conflict figures, where only 24.8% of companies had such a high level of remote work.

Furthermore, the refugee wave from Ukraine to the neighbouring EU countries might have increased the numbers of these Ukrainian remote workers (sustaining their employment in Ukraine-based firms) in the EU. At the same time, the migration of Ukrainian citizens into the EU (particularly in countries such as Poland, Germany, and the Czech Republic) increased the number of Ukrainian workers employed in local (EU-based) firms. As some of these workers are returning to Ukraine, they could sustain their (remote) employment at these firms after relocation. The sustainability of these trends is feasible under the high-growth scenario, especially in the context of likely favourable regulatory interventions that normalise the *status quo* both internally in Ukraine as well as in the context of cross-border remote workers based there.

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