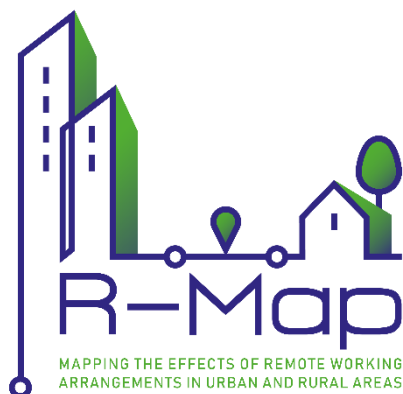




D2.3

Taxonomy of economic and social impacts of remote working arrangements

Bocconi University

September 2025



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Abbreviations

Table 1 - Abbreviations

RWA	Remote working arrangements
RW	Remote work
PRISMA-ScR	Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews
CBD	Central business district
SDT	Self-determination theory
TAM	Technology acceptance model

Executive Summary

This deliverable presents a comprehensive taxonomy of the economic and social impacts of remote working arrangements (RWA) as part of the Horizon Europe-funded R-MAP project. RWA are defined as “work arrangements in which some or all of the employee’s responsibilities are routinely performed at a place other than their regularly assigned work location” (Association of Professional Administrators, 2025). The project aims to understand, assess, and forecast how RWA influence disparities across European urban and rural areas. The taxonomy developed in this report provides a foundational analytical tool for evaluating multifaceted effects of remote work on individuals, organizations, and society.

Grounded in an extensive systematic literature review of **147 academic sources**, the taxonomy identifies **140 impact variables**, categorized as either *outputs* (direct effects) or *outcomes* (indirect effects), and analyzed across three loci of impact: **individual**, **organizational**, and **societal**.

The taxonomy is structured into eight thematic clusters, each underpinned by robust theoretical frameworks:

1. **Spatial Sorting:** rooted in urban economic theory, this cluster focuses on how remote work reshapes geographic patterns, such as relocation trends, urban dispersion, housing demand, and office vacancy. Though frequency of evidence is low, early findings suggest RWA contribute to reconfiguring urban space and mobility preferences.
2. **Economic and Material Wellbeing:** this cluster includes both personal (e.g., income stability, cost savings) and societal (e.g., employment rate, territorial inequality) economic outcomes. Evidence suggests that while individuals may benefit financially from RWA, broader impacts on employment and regional inequality are complex and often inconclusive.
3. **Gender Relations Impacts:** this cluster highlights the gendered effects of RWA, including increased *caregiving burdens*, *domestic responsibilities*, and widening *gender disparities*. Women disproportionately bear the brunt of these changes, especially in households where remote work blurs the boundary between paid and unpaid labor.
4. **Organizational Effectiveness:** impacts in this cluster relate to how remote work influences productivity, collaboration, managerial support, communication, performance, and turnover. The findings are mixed: while some studies highlight gains in *efficiency* and *flexibility*, others point to increased *workloads* and reduced *cohesion*.
5. **Health and Wellbeing:** this is the most populated cluster, focusing on impacts to physical and mental health, social isolation, emotional strain, and overall wellbeing. Increased *stress*, *isolation*, and *emotional strain* are frequently observed, as papers point out that RWA can increase psychological pressures and reduce social connectedness.
6. **Job Characteristics:** drawing on motivational theory, this cluster captures how RWA affect autonomy, flexibility, engagement, and job satisfaction. Generally, remote work enhances perceived *autonomy* and *job motivation* but may simultaneously reduce *motivation* or professional development opportunities in some contexts.
7. **Family and Community:** focused on social cohesion and relational dynamics, this cluster examines how RWA affect family routines, community bonds, and social capital. While less represented in the literature, existing studies indicate mixed results regarding the work-life balance of individuals, while

they are more consistent in highlighting that RWA isolate individuals from broader community networks.

8. **Digital Acceptance:** this cluster investigates how individuals and organizations adapt to digital tools necessitated by remote work. It extends beyond simple technology use, addressing issues of *digital fatigue*, *resistance*, *inclusivity*, and the capacity to adapt organizational processes to digital transformation.

The taxonomy shows that the literature analyzed give evidence of the fact that while remote work can generate positive impacts (e.g., improved flexibility, job satisfaction), it also exacerbates risks (e.g., emotional strain, gender inequality, increased workload). Notably, most research remains concentrated on **micro-level** (organizational and individual) **impacts**, with **societal-level** consequences comparatively **underexplored**.

1. Introduction

1.1 Project summary

The R-MAP project aims to analyze the multifaceted impacts of RWA on spatial, socio-economic, and environmental disparities across European urban and rural contexts. Grounded in the recognition that RWA represent both a challenge and an opportunity for regional development, the project seeks to bridge the urban-rural divide by developing an Integrated Impact Assessment Framework powered by the R-MAP model. This model facilitates a holistic evaluation of individual, social, economic, environmental, and spatial outcomes of remote work. A core output of the project is the design of an interactive visualization platform to support decision-makers in assessing and monitoring the effects of RWA. Through six diverse use cases located in four countries, Greece, the United Kingdom, Italy, Turkey, and two cross-border regions, Netherlands–Germany and Austria–Switzerland, the project employs scenario-building and forecasting techniques to project the long-term implications of remote work and formulate place-based policy recommendations. By fostering cross-regional exchanges and policy dialogues, R-MAP aims to enhance the capacity of public authorities and stakeholders to harness the potential of remote work for inclusive and sustainable territorial development across Europe.

1.2 Project objectives

The primary objective of the R-MAP project is to advance a comprehensive understanding of how RWA influence regional disparities, with a specific focus on the urban-rural divide in Europe. The project aspires to develop a robust and transferable methodological framework, the Integrated Impact Assessment Framework, which aims at capturing the multidimensional effects of RWA across individual, social, economic, environmental, and spatial domains. By leveraging this framework, R-MAP aims not only to assess current trends but also to forecast future developments through scenario-building techniques, thereby enabling evidence-informed policymaking. The ultimate goal is to generate actionable knowledge and tailored policy recommendations that empower local and regional governments to create enabling environments for remote work, enhance territorial cohesion, and address structural inequalities exacerbated or reshaped by the digitalization of work. Through its interdisciplinary and cross-territorial approach, the project contributes to the formulation of inclusive, forward-looking strategies for regional development in a post-pandemic socio-economic landscape.

1.3 Task 2.4 overview

Task 2.4 focuses on developing a comprehensive taxonomy to systematically classify the concepts and dimensions related to the socio-economic impacts of RWA. The task took as basis the literature that was already analyzed in task 1.1 and 1.4 and then moved on with an extensive literature review to identify the impacts of RWA. Then, the papers found in the review were coded based on the specific variables of impacts caused by RWA that they were referring to. These variables are then assigned to broad clustering categories based on a thorough review of existing taxonomies. Ultimately, the validated taxonomy is to serve as a

foundational analytical tool within the R-MAP project, enabling the systematic organization, analysis, and interpretation of data on remote working phenomena across different territorial contexts.

1.4 D2.3 structure

Deliverable 2.3 begins with an overview of the R-MAP project and its objectives, followed by a presentation of task 2.4, which forms the basis for the deliverable. The document then outlines the theoretical framework, explaining the rationale for creating a taxonomy focused on the economic and social effects of remote working arrangements and establishing the conceptual foundations for classifying impacts of RWA. A methodological section describes how the systematic literature review was conducted, including the hierarchical structure used to organize the identified impacts and the stakeholders affected. The results section starts with an overview of the analyzed literature sources and then presents each primary cluster, detailing the associated impacts and whether RW has a positive or negative influence on each. For every cluster, relevant stakeholders – such as individuals/employees, organizations, and society – are identified. A critical discussion follows, reflecting on the findings, highlighting prevailing narratives in the literature, and pointing out underexplored dimensions. The report concludes with a synthesis of key insights; and outlines how the taxonomy will guide future project activities and support evidence-based policy development.

2. Theoretical framework

To capture the state-of-the-art literature on the socio-economic impacts of RWA, this research has focused on the concept of value and value creation. The concept of value has been researched in different domains since the theory proposed by Adam Smith, who postulates the existence of value or value-in-use based on the willingness-to-pay price of an individual (Smith, 1776). Value is also about how individuals, organizations, and system innovations positively change the lives of citizens dependent upon the values that individuals hold and is socially constructed and subjective (Osborne, 2022). From this, the literature around this topic has developed and in the last few decades, the concept of value is gaining significant traction in public management theory and practice, stemming from the work initiated by Moore (1995), who focuses on the idea of *public value*. This concept focuses on the value that an activity, such as RW, contributes to society. This idea has been later applied by Osborne et al. (2021) through the value creation framework, which emphasizes the interconnection between service users, citizens, and society with processes of value creation.

This framework, that encompasses different levels of involvement of stakeholders and variables is necessary to be applied in the taxonomy. Indeed, the literature review performed in this task addresses statically some selected objects of the impacts of RWA, without comprehensively addressing values for the elements of the overall ecosystem. We argue that this is a narrow-sighted framing of the impacts, which may lead to not capturing the full effects of RWA fully. Indeed, socio-economic impacts cannot be understood and assessed only by identifying the variables alone, the analysis must be supported taking into account the loci of value namely societal (macro-level), the organizational (microlevel) and the individual (sub-micro-level) ones (Osborne et al., 2021) (Table 2). Most research focuses on the micro-organizational level, however the individuals may be affected individually and as groups of actors, and they can affect the dynamics of the entire society through their behaviors.

Table 2 – The 3 loci analyzed (Osborne et al., 2021)

Loci	Description of the impact
Society	Impact on the provision of public goods, societal norms, rules, inclusion, well-being and competitiveness as a result of implementing RWA policies.
Organization	Impact on organization performance, rules and functioning as a result of implementing RWA policies.
Individual/ employee	Impact as a result of the use of the remote work, in the individuals' behaviors, beliefs and actions.

Based on the loci provided by this framework, the impacts of RWA can be summarized as follows (adapted from Osborne et al., 2021):

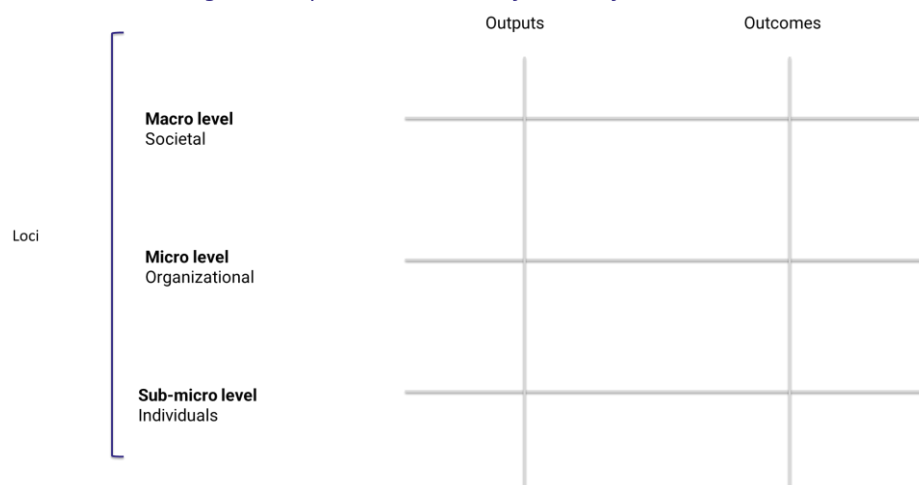
- At a macro level, the impact refers to societal values, institutional norms, the well-being and inclusion of individuals and firms' competitiveness through RWA;
- The micro-level draws upon the creation of value through RW and actions for the single actors, such as the organization, its performance, rules, structure and processes.

- The sub-micro level concerns a direct use RW and that impacts individuals' behaviors and actions.

Within this framework, the impacts associated with RWA are operationalized as either outputs or outcomes. Outputs denote the immediate and direct consequences resulting from the experience of RWA, whereas outcomes capture the more indirect effects that RWA may generate over time. The stakeholders affected by these impacts are situated within one of the three loci previously delineated, as suggested in Figure 1.

This unified, structured and dynamic approach is fundamental to understand the various levels of impacts of RWA, as well as, assessing and resolving the current tensions among different types of impacts into a single, holistic, value-informed modelling framework to create a taxonomy of economic and social impacts of RWA.

Figure 1 - Operationalization of the loci framework



3. Method

The development of the taxonomy was methodologically grounded in the preliminary findings from tasks 1.1 and 1.4 of the R-Map project. Task 1.1 focused on researching the current status of remote working arrangements in Europe and beyond, while task 1.4 provided an understanding of the potential socio-economic effects of remote working arrangements. For task 2.4, we started by analysing the subset of literature addressing remote work impacts found in the two tasks and subsequently validated by the leader of task 2.4.

Building on this foundation, the task proceeded with a systematic literature review guided by the PRISMA-ScR framework (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) (Tricco et al., 2018), also employed in task 1.1 and 1.4. This framework provides a standardized and comprehensive checklist designed to ensure methodological rigor, transparency, and reproducibility in literature reviews. The protocol, shaped by ongoing refinements from review experts, was applied to define the methodological approach, including eligibility criteria, search strategy, selection of relevant sources of evidence, and processes for data extraction, analysis, and presentation.

3.1 Search string strategy and sources

The literature search, finalized on April 30, 2025, includes articles published in peer-reviewed academic journals, books and book chapters that address the socio-economic effects of RWA. The search strategy aimed to be as comprehensive as possible (Peters et al., 2020) to identify as many relevant primary sources of scientific evidence as possible. A search string was developed to capture all potential effects that remote work could generate, both theoretically and empirically. The search strategy was based on the literature reviewed in tasks 1.1 and 1.4 and was further refined to identify studies specifically addressing the socio-economic impacts of remote work. All identified keywords were searched in two electronic databases powered by Thomson Reuters (Web of Science) and Elsevier (Scopus), as well as in selected domain-specific journals. The keywords used are as follows.

(TITLE-ABS-KEY("remote work" OR "telework" OR "telecommuting" OR "work from home*" OR "hybrid work" OR "agile work*"))*

AND (TITLE-ABS-KEY(impact OR effect* OR influence* OR outcome* OR consequence* OR result* OR implication*))*

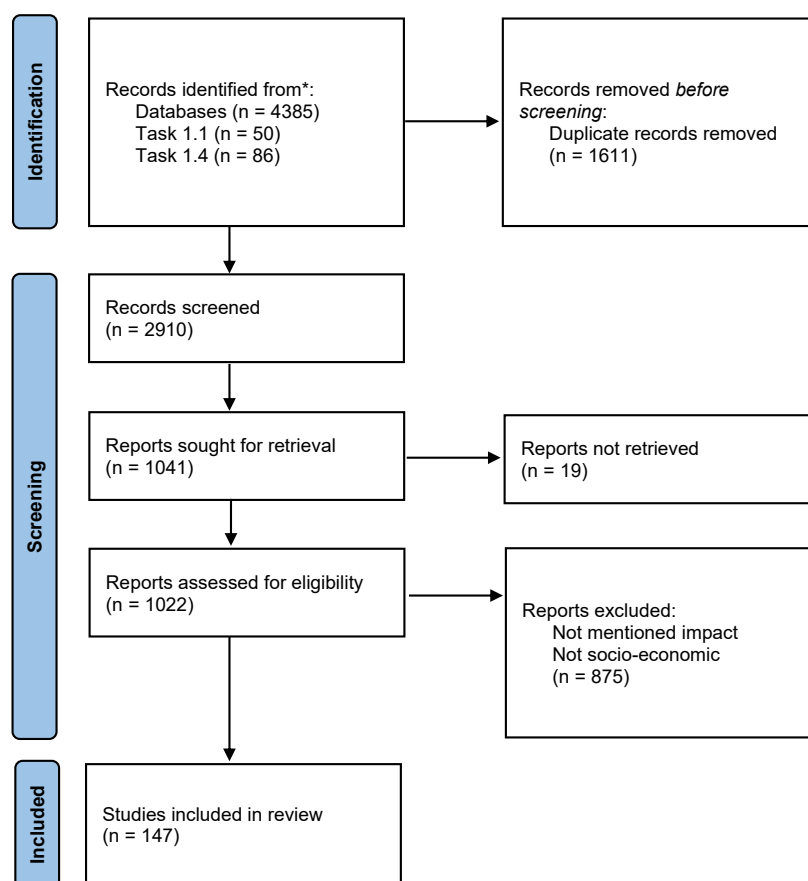
AND (TITLE-ABS-KEY("socio-economic" OR "social" OR "economic"))

To ensure the relevance and quality of the studies included in the systematic review, a set of eligibility criteria was established in accordance with the guidelines proposed by Liberati et al. (2009). These criteria were applied to determine the suitability of studies for inclusion and to ensure the review captured a focused and coherent body of literature. The review included both theoretical and empirical studies, regardless the methodological approach, encompassing designs such as surveys, case studies, and experimental research. No restrictions were imposed regarding the year of publication, thereby allowing for a comprehensive longitudinal perspective. Only records written in English were considered eligible to ensure consistency in data interpretation. With regard to publication status, only peer-reviewed journal articles, reviews, books, and

book chapters from recognized academic publishers were included, while grey literature was excluded. Finally, the eligible unit of analysis included employees, individuals, organizations, or broader societal entities affected by remote work, irrespective of sector or geographic location. The database search resulted into a total of 2910 unique records identified, after 1611 duplicates were removed. The records were then allocated to each supporting partner for review.

A two-stage screening process was employed: (1) an initial screening of titles and abstracts; (2) a full-text review. The papers were assessed in terms of topical relevance, and records were required to reference remote work, or any commonly used variation of the term, in conjunction with social and/or economic impacts, such as work-life balance, social isolation, reduced social interaction, or productivity. Among the two stages, a moment of calibration occurred. Since a high level of agreement among reviewers was reached on both occasions (i.e., exceeding 90%), it was not necessary to revise the inclusion criteria (Thomas et al., 2017). After the full-text analysis of the studies, the final sample for the review comprises 147 studies (Figure 2).

Figure 2 - PRISMA workflow



The review generated a dataset that includes key details for each study, such as author(s), publication year, journal, country and sectoral context, research methodology.

Moreover, to apply the framework proposed in figure 2, the literature was also coded according to socio-economic outputs and outcomes of RWA. The outcomes and outputs represent the two types of socio-

economic impacts created by RWA. The research also codified the stakeholder affected, which represents the loci of the framework (society, organization and individual/ employee). Lastly, also the direction of the impact associated with RWA has been captured. This was validated through cross-checking by multiple project partners to ensure accuracy and consistency. This data extraction process allowed for a structured analysis of the literature, enabling a comprehensive overview of the field and a well-grounded response to the research questions. Table 3 depicts the coding scheme utilized.

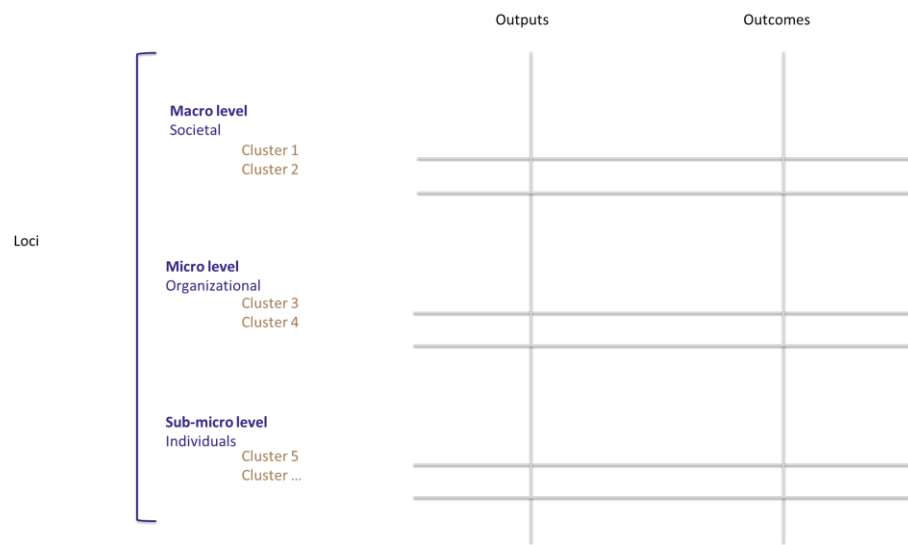
Table 3 - Coding employed by the researchers

Variable identified	Description	Coding
Output	Direct correlation between RWA and the impact produced	Description of the variable in 1 word
Outcome	Indirect effect created because of RWA	Description of the variable in 1 word
Relationship	Direction of the impact with respect to RWA	Positive, negative, mixed
Stakeholder	Type of stakeholder affected by RWA	Employee, individual, organization, society

The variables identified within the categories outputs and outcomes are then grouped into broader thematic clusters, each of them belonging to one of the 3 loci of the framework.

These clusters were developed from a desk-based analysis of existing taxonomies related to socio-economic impacts and were adapted to suit the specifics of remote work contexts. This analysis used an inductive, data-driven coding approach aimed at generating theoretical insights and conceptual models based on interpreting unstructured textual data (Chandra & Shang, 2019). Using this inductive strategy, the reviewers independently identified and coded recurring themes from the studies. Below, Figure 3 summarizes the operationalization of the framework proposed.

Figure 3 - Coding framework applied to the framework



4. Findings

4.1 Descriptive statistics

Out of the 147 records included in the review, 130 are peer-reviewed journal articles, while the remaining 16 consist of books, book chapters, or review articles. Regarding the temporal distribution, no records were published prior to 2013, with a marked increase in publications observed after 2019 (Figure 4). We note that the decrease in outputs published in 2025 is due to the fact that we closed the research of records in Q1 of 2025. In terms of disciplinary origin (Figure 5), the majority of studies derive from the fields of management and business ($n = 44$), followed by public health and medicine ($n = 35$), with additional contributions from environmental studies ($n = 10$) and urban studies ($n = 9$).

Figure 4 - Years of publication

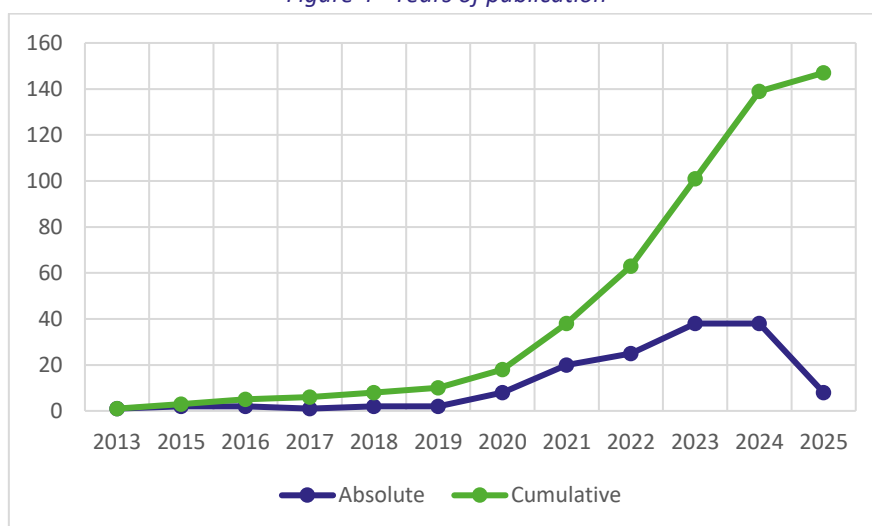
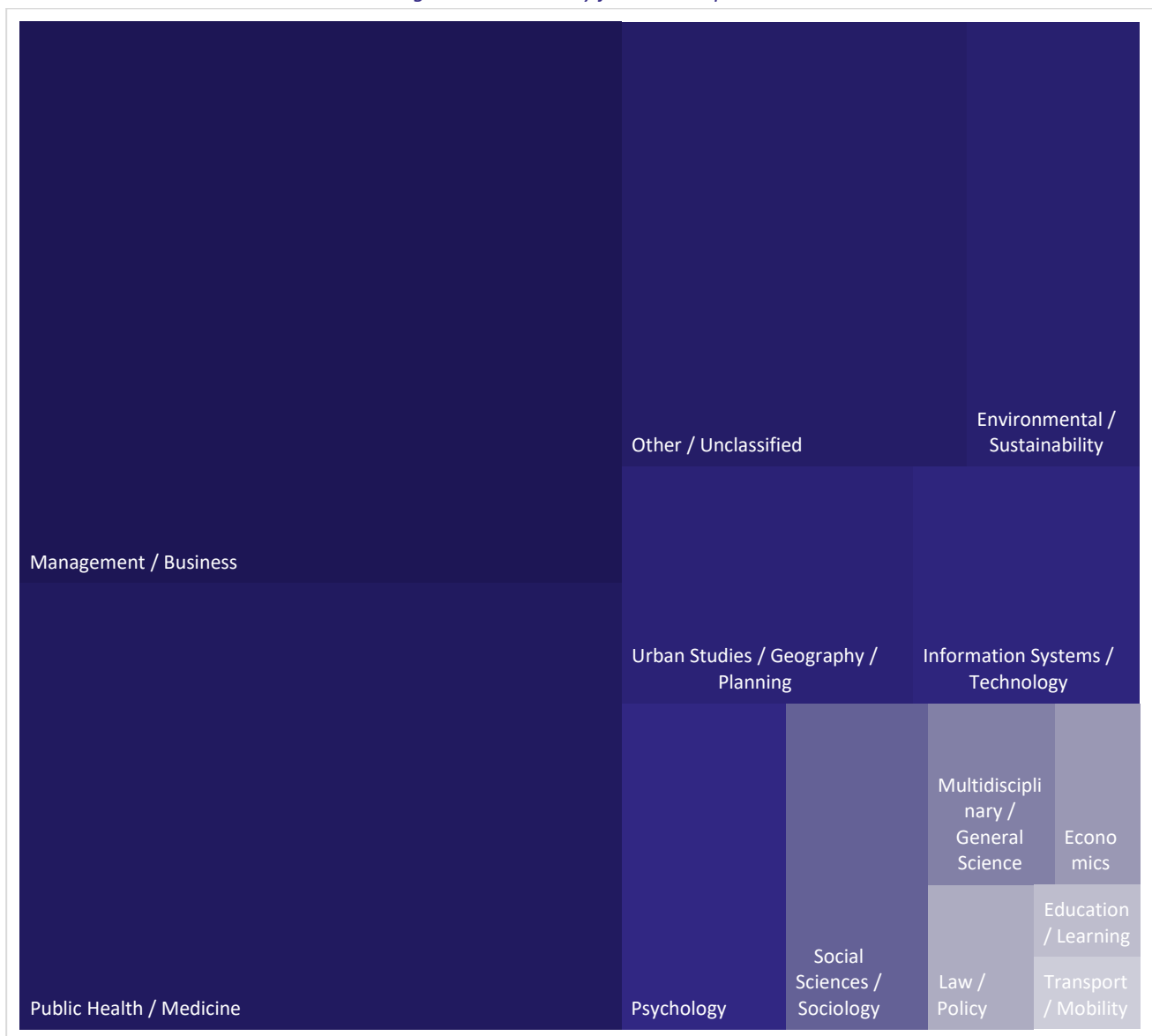


Figure 5 - Records by journal discipline

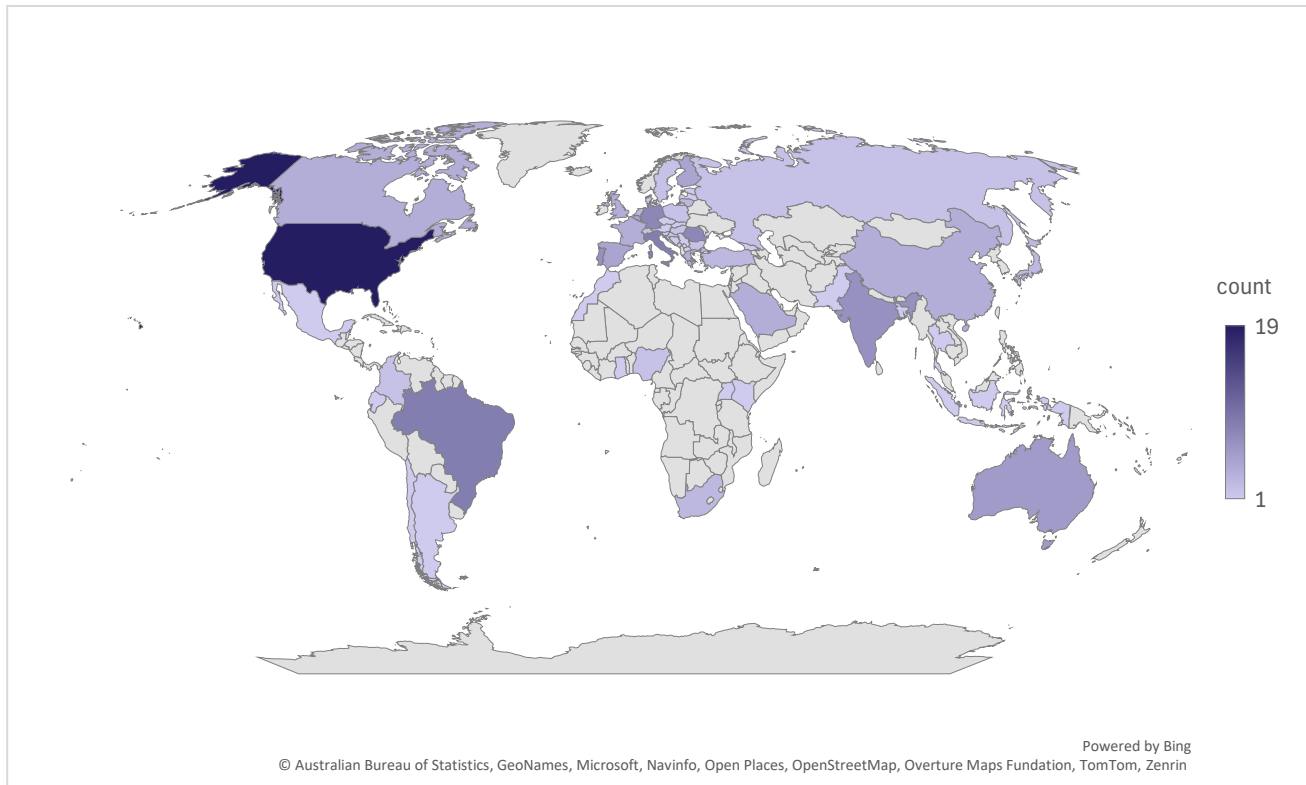


Concerning study typology, 21 records are theoretical in nature; all of these employ qualitative methodologies, primarily literature reviews. The remaining 123 are empirical studies, the majority of which adopt a quantitative approach and utilize surveys as the primary research instrument ($n = 91$). A smaller subset of qualitative empirical studies ($n = 20$) relies mostly on interviews ($n = 18$), with only a few employing case studies ($n = 2$). Two studies adopt a mixed-methods approach, combining surveys, interviews, and case studies.

Focusing on the empirical studies, the geographical distribution (Figure 6) reveals a predominance of research conducted in Europe ($n = 56$), particularly in Italy ($n = 8$), Romania ($n = 6$), Germany ($n = 5$), and Portugal ($n = 4$). Asia constitutes the second most represented region ($n = 26$), with a notable focus on India ($n = 7$) and Saudi Arabia ($n = 4$), followed by North America ($n = 21$), predominantly the United States ($n = 17$). Other studies are situated in Latin America ($n = 11$), Oceania ($n = 7$), and Africa ($n = 4$). With respect to the spatial dimension, most empirical studies do not explicitly address the urban-rural divide ($n = 80$). Among those that do, 26 focus on urban contexts, while none addresses rural settings specifically. Finally, in terms of sectoral

focus, 59 empirical studies examine both public and private sectors organizations, whereas 36 concentrate solely on the private sector and 32 on the public.

Figure 6 - Geographical distribution of empirical studies



*Grey countries have not been found in the review

4.2 Operationalization of loci: identification of socio-economic clusters

Before delving into the description of the various impact variables found in the literature, it is important to describe the various socio-economic clusters of impacts that pertain to RW. As outlined in the methodology section, the clusters have been created through a rigorous search in the academic literature among existing taxonomies that focused on socio and economic impacts. A synthesis of the clusters is provided in Table 4.

1. **Spatial Sorting:** this concept originates in the urban economic theories developed by Alonso, Muth and Mills (1964, 1969, 1967), who introduced the Central Business District (CBD) model within cities characterized by fixed populations and income levels. Their work highlights how commuting costs shape residential choices: proximity to the CBD becomes more desirable but also more expensive, resulting in higher-density and costlier housing near the center, and lower-density, more affordable housing on the periphery. Building on this, the urban location models proposed by Eeckhout et al. (2004) and Davis and Ortalo-Magné (2011) suggest that identical individuals, with preferences for both housing and consumption, sort themselves across cities to maximize utility. Eeckhout et al. (2014) expand on this by introducing the concept of spatial sorting in the context of worker mobility and skill allocation across urban areas.
2. **Economic and material wellbeing:** this cluster has been conceptualized by Vanclay (2002), which represents one of the most widely cited socio-economic impact taxonomies in the field. The cluster

encompasses both individual-level prosperity and broader economic conditions at the community level. In industrialized contexts, this includes indicators such as employment status, income levels, and property values.

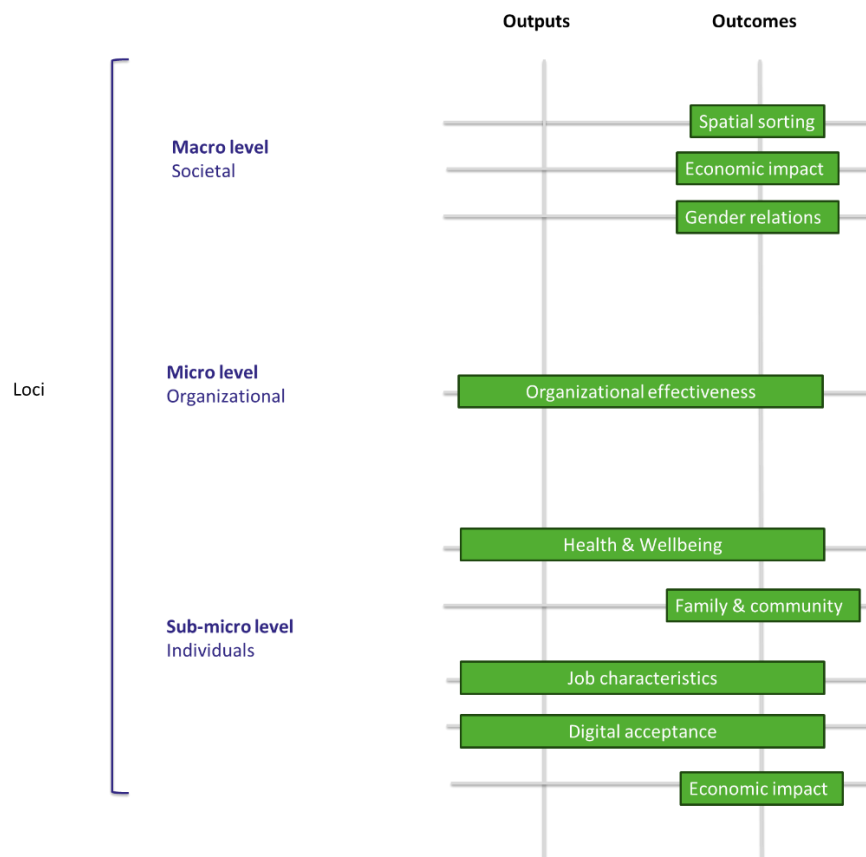
3. **Gender Relations Impacts:** this cluster, likewise drawn from Vanclay's (2002) framework, concerns the differential social impacts experienced on the basis of gender. Vanclay underscores that gender inequality remains a global issue, with women disproportionately affected across legal, social, and economic dimensions. Given that women frequently bear the most immediate and significant consequences of social change, gender relations are recognized as a critical dimension of social impact.
4. **Organizational Effectiveness:** this cluster is based on the foundational study by Bowers and Seashore (1966), which conceptualizes organizational effectiveness as a multidimensional construct shaped by leadership behaviors and a range of organizational variables. This includes both subjective dimensions, such as perceptions of workload and workplace safety; and objective performance metrics such as productivity, efficiency, and employee turnover. Effectiveness is broadly defined, following Hall (1980), as the extent to which an organization achieves its stated goals.
5. **Health and Wellbeing:** this cluster is derived from the conceptualization of social impact proposed by Vanclay (2002). The focus here is on impacts experienced at the individual, familial, community, and societal levels, consistent with the operational categories established in our taxonomy. Health-related impacts are considered inherently social in nature, encompassing not only physical health outcomes but also psychological and emotional dimensions.
6. **Job Characteristics:** this cluster encompasses variables linked to the structure and experience of work, and is informed by Self-Determination Theory (SDT) (Deci & Ryan, 1985). SDT provides a comprehensive framework for understanding human motivation and psychological needs in the workplace, and underpins constructs such as work motivation and job satisfaction, central themes in organizational psychology and management studies (Bolino & Grant, 2016). Within this cluster, SDT is employed as the guiding theoretical lens to examine the influence of RWA on various workplace-related outcomes (e.g., autonomy, competence, relatedness).
7. **Family and Community:** also grounded in Vanclay (2002), this cluster refers to social impacts that affect family dynamics, social networks, and community cohesion. These changes may manifest, for example, in the disruption of family structures, which can influence intimate relationships and interpersonal bonds. At the community level, such impacts may lead to a decline in social cohesion, a diminished sense of belonging, and weakened attachment to place.
8. **Digital Acceptance:** this cluster draws on the Technology Acceptance Model (TAM) (Davis, 1989), which aims to explain individual acceptance in the use of information systems. However, the present focus diverges from traditional TAM applications: rather than identifying correlates of system use, this cluster captures the broader social and organizational impacts stemming from technology adoption in the context of RWA.

Table 4 - Theoretical frameworks

Cluster	Theoretical framework	Focus
Spatial Sorting	Alonso, Muth and Mills (1964, 1969, 1967); Eeckhout (2004); Davis and Ortalo-Magné (2011); Eeckhout (2014)	Socio-economic
Economic and material wellbeing	Vanclay (2002)	Economic
Gender Relations Impacts	Vanclay (2002)	Social
Organizational Effectiveness	Bowers and Seashore (1966); Hall (1980)	Socio-economic
Health and Wellbeing	Vanclay (2002)	Social
Job Characteristics	Deci & Ryan (1985)	Socio-economic
Family and Community	Vanclay (2002)	Social
Digital Acceptance	TAM model (Davis, 1989)	Socio-economic

Figure 7 below describes how the various clusters have been allocated throughout the three loci and across output and outcome variables based on the impact variables found in the literature review. In the following paragraph, the report will focus describing the output and outcome variables and the respective clusters in more detail. Each variable found in the review was assigned to a specific cluster based on the characteristics of the cluster found in the literature mentioned in Table 4.

Figure 7 - Clusters sorted by the 3 loci



4.3 Identification of socio-economic variables

Among the **147 records analyzed**, a total of **140 distinct impact variables** associated with RWA were identified. Of these, **35** are categorized as **outputs**, denoting direct effects of RWA, while the remaining **105** are classified as **outcomes**, reflecting more indirect consequences.

In terms of frequency, impact variables were recorded 493 times across the literature analyzed. Among the outputs, the most frequently cited variable is **stress** (n = 33), with the majority of studies reporting an increase in stress levels attributable to RWA (n = 26). **Flexibility** is the second most cited output (n = 21), consistently reported as having increased. The variables **isolation** (n = 19) and **workload** (n = 17) also appear prominently, both primarily associated with increases due to RWA. Regarding outcomes, the most frequently reported variable is **work-life balance** (n = 35), with a general trend toward improvement thanks to RW (n = 17). **Job satisfaction** (n = 24) also exhibits a predominantly positive correlation with RWA (n = 18). However, the variables **well-being** (n = 17) and **productivity** (n = 16) present mixed findings, with studies reporting both positive and negative associations. While for **emotional strain** (n = 14), the studies have reported an increase of it due to RWA. Figure 8 and 9 summarize the most frequent impact variables.

Figure 8 - Frequency of most cited output variables

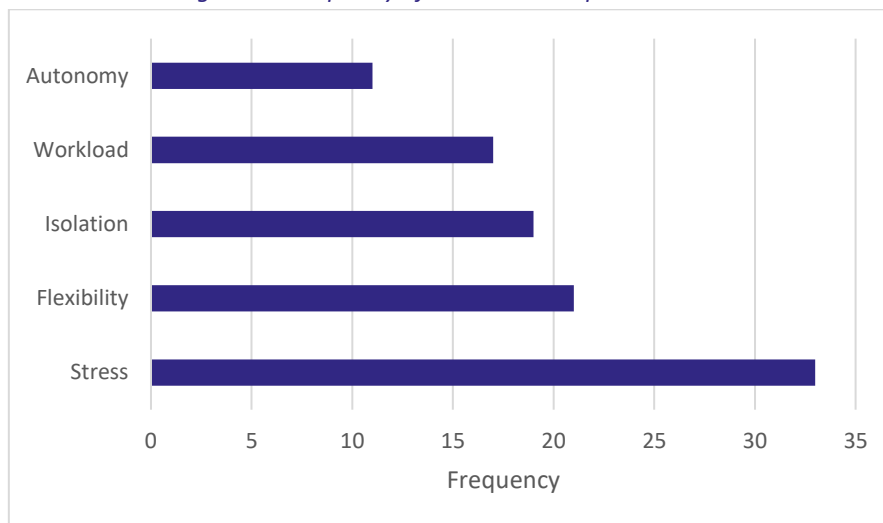
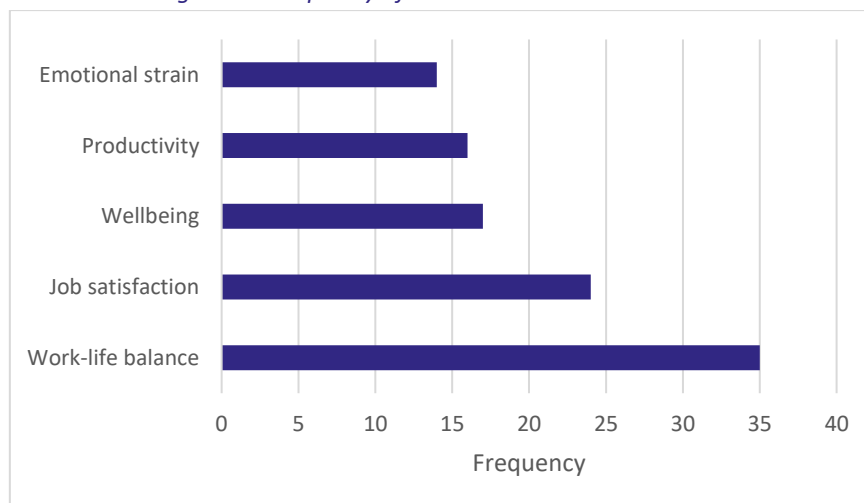
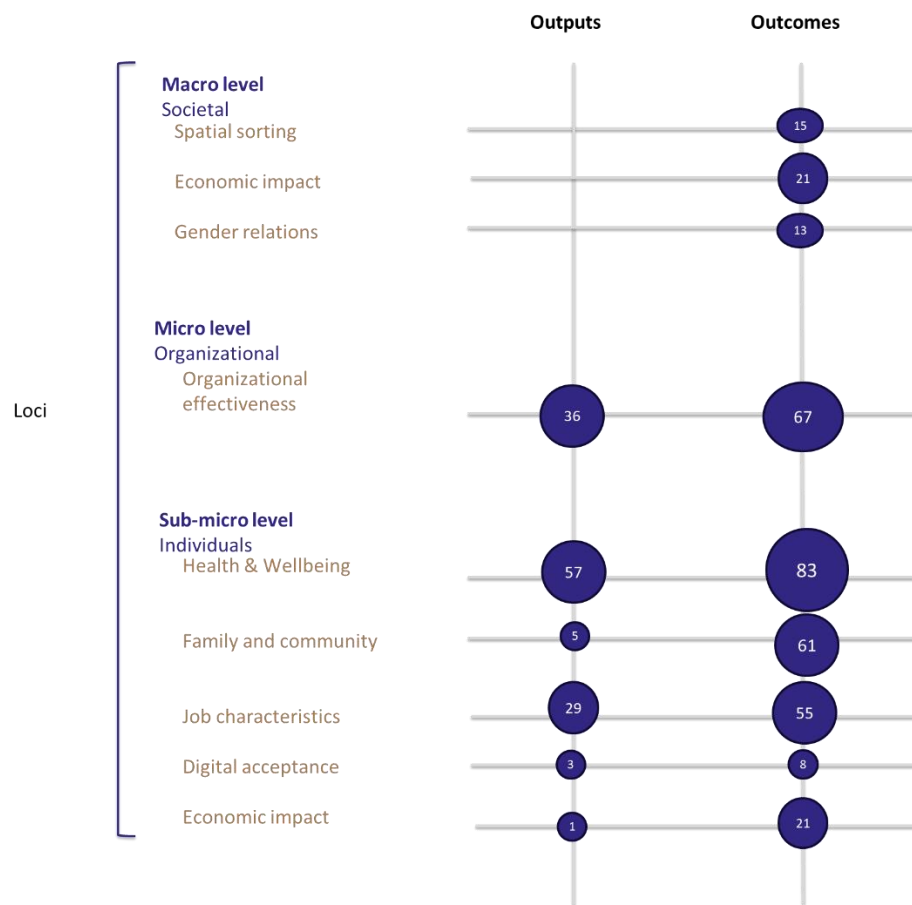


Figure 9 - Frequency of most cited outcome variables



The cluster that counts the highest frequency of variables is **“Health And Well-Being”**, accounting for **140 variables** in terms of frequency; while **“Organizational Effectiveness”** for **95 variables** and **“Job-Characteristics”** accounts for **92**. The other 5 clusters progressively present lower frequencies. Figure 10 below depicts the allocation of frequency of impact variables – operationalized as outputs and outcomes, across the framework matrix introduced above.

Figure 10 - Frequency of output and outcome variables across the clusters



4.4 Cluster 1: Spatial sorting

The following clusters will be presented based on the scheme above, starting from the macro societal level. However, as appears from the scheme, the variables related to impacts of RWA at societal level are the lowest in terms of frequency. For instance, spatial sorting focuses on workers that move to maximize their utility (Eeckhout et al., 2014). This concept translates into 15 outcome variables (Table 5) as no output has been found for this cluster.

Table 5 - Cluster 1 variables

Outputs	Outcomes
	Relocation
	Urban dispersion
	Territorial segmentation
	Commercial vacancy
	Return migration
	Office demand
	Urban transformation
	Touristification
	Housing demand
	Gentrification

All of these variables occur with very low frequency, which limits the ability to generalize the direction of their impacts – namely, whether they increase or decrease as a consequence of RWA. The variable with the highest frequency in this cluster is *relocation* ($n = 4$), which is consistently reported as increasing due to RWA. Specifically, lifestyle-related migration appears to have increased, while job-related migration has declined (Haslag & Weagley, 2024). This outcome may also influence *housing demand* in both the areas from which remote workers depart and those to which they relocate (Boesel et al., 2021). Consequently, such dynamics have contributed to broader processes of *urban dispersion* and *urban transformation*, as individuals' relocation decisions are shaped by personal and social characteristics, as well as their ability to adapt to remote working environments (Pakoz & Kaya, 2024; Gong et al., 2024). Table 6 provides a list of sources discussing each variable in detail.

Table 6 - Cluster 1 sources

Variable	Sources	Year of publication
Commercial vacancy	Haslag P.; Weagley D.	2024
Gentrification	Sequera J.	2025
Housing demand	Vacchiano M.; Fernandez G.; Widmer E.; Arntz M.; Azzi M.; Bulti A.; Cianferoni N.; Cullati S.; Junte S.; Massoudi K.; Molina Romo O.; Ramirez A.C.; Steinmetz S.	2024
	Boesel M.; Chen S.; Nothaft F.E.	2021
Office demand	Haslag P.; Weagley D.	2024

Relocation	Vacchiano M.; Fernandez G.; Widmer E.; Arntz M.; Azzi M.; Bulti A.; Cianferoni N.; Cullati S.; Junte S.; Massoudi K.; Molina Romo O.; Ramirez A.C.; Steinmetz S.	2024
	Paköz M.Z.; Kaya N.	2024
	Haslag P.; Weagley D.	2024
	Kiko M.; Coulombel N.; Poulhès A.; Seregina T.; Tremblin G.	2024
Return migration	Cangià F.	2024
Territorial segmentation	Campos García Á.X.; Cabrera-García V.E.; Docal-Millán M.C.; Acuña Arango L.M.; Riveros Munevar F.	2024
Touristification	Sequera J.	2025
Urban dispersion	Paköz M.Z.; Kaya N.	2024
	Gong Z.; Liu W.; Zhang F.	2024
Urban transformation	Sequera J.	2025

4.5 Cluster 2: Economic and material wellbeing

The Economic and Material Wellbeing cluster encompasses variables that relate both to individual-level prosperity and to broader economic conditions at the societal level, thus spanning across the individual and societal loci of analysis. This cluster comprises 21 impact variables, all of which are categorized as outcomes. However, due to the low frequency of occurrence across all variables, it is not possible to establish a generalizable direction of impact resulting from RWA.

At the individual level, the variables identified include *salary growth* ($n = 1$), *job security/insecurity* ($n = 3$), *income stability* ($n = 2$), and *cost savings* ($n = 2$). The reviewed literature suggests that RWA may be associated with increased *job insecurity* (Sequera et al., 2025; Şimşek et al., 2023) and lower *salary growth* trajectories (Kasperska et al., 2024). Conversely, other studies report positive effects such as enhanced *cost savings* and greater *income stability*, often linked to reduced commuting and work-related expenses (Zalat & Bolbol, 2022; Pereira et al., 2024).

At the societal level, variables include *employment rate* ($n = 3$), *precarity* ($n = 2$), *property value shifts* ($n = 2$), *territorial inequality* ($n = 2$), and *urban inequality* ($n = 2$). Findings on the employment rate are mixed, with some studies indicating a positive effect (Jain, 2024) while others find no significant impact to date (Dima et al., 2019). The literature also highlights growing territorial disparities, particularly disadvantages for rural areas compared to urban centers (Vacchiano et al., 2024), as well as increased intra-urban inequalities (Campos

García et al., 2024). Moreover, property values appear to be affected by remote work, with shifts linked to migration patterns of remote workers (Haslag & Weagley, 2024; Boesel et al., 2021).

Table 7 summarizes the variables included in this cluster, while Table 8 provides a list of sources discussing each variable in detail.

Table 7 - Cluster 2 variables

Outputs	Outcomes
	Employment rate
	Precarity
	Cost saving
	Income stability
	Job security/ insecurity
	Salary growth
	Urban inequality
	Territorial inequality
	Property value shifts

Table 8 - Cluster 2 sources

Variable	Sources	Year of publication
Cost savings	Ye S.; Wang C.C.	2025
	Zalat M.; Bolbol S.	2022
Earnings gap	Rodríguez-Modroño P.	2024
Employment rate	Jain D.	2024
	Bocean C.G.; Puiu S.; Vărzaru A.A.	2021
	Dima A.-M.; Tuclea C.-E.; Vrânceanu D.-M.; Tigu G.	2019
Income stability	Jain D.	2024
	Pereira, ASD; Morais, J; Lucas, C; Paulo, J; Santos, JD; Almeida, F	2024
Job security/ insecurity	Sequera J.	2025

	Loezar-Hernández M.; Briones-Vozmediano E.; Ronda-Pérez E.; Otero-García L.	2025
	Şimşek Demirbağ K.; Demirbağ O.	2023
Precarity	Sequera J.	2025
	Anwar M.A.; Graham M.	2021
Property value shift	Haslag P.; Weagley D.	2024
	Boesel M.; Chen S.; Nothaft F.E.	2021
Salary growth	Kasperska A.; Matysiak A.; Cukrowska-Torzewska E.	2024
Territorial inequality	Vacchiano M.; Fernandez G.; Widmer E.; Arntz M.; Azzi M.; Bulti A.; Cianferoni N.; Cullati S.; Junte S.; Massoudi K.; Molina Romo O.; Ramirez A.C.; Steinmetz S.	2024
	Zhang Y.; Han H.; Fan C.; Su X.	2023
Urban inequality	Campos García Á.X.; Cabrera-García V.E.; Docal-Millán M.C.; Acuña Arango L.M.; Riveros Munevar F.	2024
	Zenkteler M.; Hearn G.; Foth M.; McCutcheon M.	2022

4.6 Cluster 3: Gender Relations Impacts

The third cluster included in the taxonomy pertains to gender relations and comprises a total of 13 instances, making it the smallest cluster identified thus far. This cluster captures the differentiated social impacts of RWA based on gender. Notably, no output variables were recorded within this category; instead, it consists entirely of outcome variables ($n = 7$) all of which register relatively low frequencies. Table 9 lists the outcomes related to this cluster.

Table 9 - Cluster 3 variables

Outputs	Outcomes
	Gender disparity
	Gender inequality
	Caregiving burden
	Domestic duties
	Gender participation
	Earnings gap
	Gender gap
	Gender parity

Among these, *gender disparity* emerges as the most frequently cited variable ($n = 5$), with four instances indicating an increase in disparity because of RWA. For example, Romens et al. (2024) examine the cases of Italy and France, highlighting how increased access to telework risked transforming it into a de facto “childcare policy.” The authors argue that this dynamic has had significant implications for gender inequality, as the burden of caregiving while working from home has disproportionately fallen on women, thereby reinforcing existing socio-economic and gender disparities.

Although the remaining variables occur infrequently and thus preclude generalization, they uniformly suggest a negative impact of RWA on gender equity and the distribution of childcare responsibilities. Importantly, all variables within this cluster are situated at the societal level, as the effects extend beyond the individual and reflect broader systemic dynamics. Accordingly, this cluster is categorized within the macro-level locus of analysis.

The table below is a synthesis of the various records that were included in this cluster (Table 10).

Table 10 - Cluster 3 sources

Variable	Sources	Year of publication
Gender disparity	Sequera J.	2025
	Vaidya R.; Nag D.; Rani R.; Prasad K.	2025
	Romens, Al; Vincent, S; Menezes, PCS	2024
	Hook, H; Borremans, R; Witlox, F	2024
	Skalacka K.; Pajestka G.	2024
Caregiving burden	Jain D.	2024
	Romens, Al; Vincent, S; Menezes, PCS	2024

Domestic duties	Boehs S.T.M.; Vilela N.G.S.; Santos-Costa L.; Kunde S.; Lourenço M.L.	2024
Gender gap	Rodríguez-Modroño P.	2025
Gender inequality	Simionescu M.	2024
	Loezar-Hernández M.; Briones-Vozmediano E.; Ronda-Pérez E.; Otero-García L.	2025
Gender parity	Mishra N.; Bharti T.	2024
Gender participation	Jannat H.; Saif-Ur-Rahman K.M.; Noor I.N.; Begum A.	2024

4.7 Cluster 4: Organizational effectiveness

The cluster associated with organizational effectiveness constitutes the second most populated category within the taxonomy, comprising 103 instances identified across the analyzed literature. In this context, effectiveness is conceptualized as a multidimensional construct, shaped by behaviors and a range of organizational variables. Within this cluster, 36 instances correspond to outputs directly linked to RWA, while 67 instances are classified as indirect outcomes. Table 11 provides a comprehensive overview of the variables pertaining to this cluster.

Table 11 - Cluster 4 variables

Outputs	Outcomes
Workload	Leadership
Work hours	Collaboration
Coworker support	Work fragmentation
Managerial support	Work decentralization
Workplace safety	Organizational commitment
Time management	Inclusivity
Concentration	Productivity
Communication	Efficiency
	Innovation
	Knowledge transfer
	Task interdependence
	Proactivity
	Communication
	Trust
	Cohesion
	Performance
	Attrition
	Turnover intention

Focusing on outputs, *workload* (n = 18) emerges as the most frequently recorded variable, whereas the remaining variables occur at substantially lower frequencies. Most studies report an increase in workload as a consequence of RWA (Raišienė et al., 2024; Miron et al., 2021; Phadnis et al., 2021; Matli, 2020). However, some evidence suggests moderating factors; for example, El Kadri Filho and Lucca (2022) indicate that previous experience in telework may mitigate the extent to which workload intensifies under remote arrangements.

Regarding outcomes, *performance* (n = 17) and *productivity* (n = 14) are the most frequently observed variables. The majority of studies report a positive association between RWA and *performance* (Toscano et al., 2024; Kakkar, 2023; Alsulami et al., 2023; Vega et al., 2015). Nonetheless, mixed effects are also documented, often contingent on contextual or mediating factors. For instance, Varotsis (2022), in a study of Greek public managers, observed that while telework did not enhance the efficiency of public service performance, the flexibility afforded by remote arrangements improved specific dimensions of work performance. Similarly, findings related to *productivity* are mixed, with both positive effects (Ramani et al., 2024; Hanzis & Hallo, 2024; Ditsche et al., 2023; Curtis et al., 2025) and variable outcomes reported. Appel-Meulenbroek et al. (2023) highlight that individual-level factors, such as gender, age, education, the quality of the home workspace, the

presence of children, and perceived organizational support, significantly shape productivity perceptions under RWA.

In terms of locus of analysis, most records situate this cluster at the organizational level (micro), given that the variables examined are largely determined by organizational policies, structures, and managerial practices. Nonetheless, several studies also explore individual-level impacts of these variables. Overall, due to the primarily organizational origin of these variables and their subsequent influence on individuals, this cluster is allocated to the micro locus of organizations. Below is a synthesis of all the sources related to this cluster (Table 12).

Table 12 - Cluster 4 sources

Variable	Sources	Year of publication
Communication	Nemțeanu M.-S.; Dabija D.-C.	2025
Concentration	Toscano F.; González-Romá V.; Zappalà S.	2025
Coworker support	Ikegami K.; Ando H.; Mafune K.; Tsuji M.; Tateishi S.; Odagami K.; Muramatsu K.; Fujino Y.; Ogami A.	2023
Managerial support	Ikegami K.; Ando H.; Mafune K.; Tsuji M.; Tateishi S.; Odagami K.; Muramatsu K.; Fujino Y.; Ogami A.	2024
	Alsulami A.; Mabrouk F.; Bousrih J.	2024
Time management	Hanzis A.; Hallo L.	2024
	Thulin E.; Vilhelmson B.; Johansson M.	2019
Work hours	Busia K.A.; Agbadi P.; Mokomane Z.	2025
Workload	Toivonen S.; Blind I.; Kyrö R.	2025
	Raišienė A.G.; Danauskė E.; Kavaliauskienė K.; Gudžinskienė V.	2024
	Loezar-Hernández M.; Briones-Vozmediano E.; Ronda-Pérez E.; Otero-García L.	2023
	Sandoval-Reyes J.; Revuelto-Taboada L.; Duque-Oliva E.J.	2024
	Čiarnienė R.; Vienažindienė M.; Adamonienė R.	2025
	Antunes E.D.; Bridi L.R.T.; Santos M.; Fischer F.M.	2023
	El Kadri Filho F.; Lucca S.R.D.	2022

	Mutiganda J.C.; Wiitavaara B.; Heiden M.; Svensson S.; Fagerström A.; Bergström G.; Aboagye E.	2022
	Miron D.; Petcu M.A.; David-Sobolevschi M.I.; Cojocariu R.C.	2021
	Lizana P.A.; Vega-Fernandez G.	2021
	Phadnis S.; Sengupta S.; Chakraborty A.	2021
	Anwar M.A.; Graham M.	2021
	Morilla-Luchena A.; Muñoz-Moreno R.; Chaves-Montero A.; Vázquez-Aguado O.	2021
	Toscano F.; Zappalà S.	2020
	Matli W.	2020
	Charalampous M.	2020
	de Sio S.; Cedrone F.; Nieto H.A.; Lapteva E.; Perri R.; Greco E.; Mucci N.; Pacella E.; Buomprisco G.	2021
	Gore M.N.	2024
Workplace safety	Kakar A.S.; Rauza; Misron A.; Lateef F.	2024
	Zalat M.; Bolbol S.	2022
Cohesion	Costa M.M.; Alves Filho A.; Pessoa-de-Oliveira A.K.	2024
	Park S.Y.; Newton C.; Lee R.	2025
	Ditsche A.; Bugajska M.; Dimitrova G.; Kopaliani N.; Kheladze A.	2024
	Hackney A.; Yung M.; Somasundram K.G.; Nowrouzi-Kia B.; Oakman J.; Yazdani A.	2022
Collaboration	Kakkar S.; Kuril S.; Singh S.; Saha S.; Dugar A.	2023
	Straus E.; Uhlig L.; Kühnel J.; Korunka C.	2023
	Battisti E.; Alfiero S.; Leonidou E.	2022
Efficiency	Costa M.M.; Alves Filho A.; Pessoa-de-Oliveira A.K.	2024
	Gong Z.; Liu W.; Zhang F.	2024

	Battisti E.; Alfiero S.; Leonidou E.	2022
	Bocean C.G.; Puiu S.; Vărzaru A.A.	2021
	Bran F.; Tudorache M.-D.; Nicolescu A.F.; Bodislav D.A.; Radulescu C.V.; Negescu M.D.O.; Popescu M.L.	2022
	Oladipo O.; Platt K.; Shim H.S.	2023
Inclusivity	Hall C.E.; Brooks S.K.; Greenberg N.; Weston D.	2024
	Kakkar S.; Kuril S.; Singh S.; Saha S.; Dugar A.	2023
Innovation	Hackney A.; Yung M.; Somasundram K.G.; Nowrouzi-Kia B.; Oakman J.; Yazdani A.	2022
Knowledge transfer	Mosquera P.; Soares M.E.; Alvadia T.	2025
	Park S.Y.; Newton C.; Lee R.	2024
Leadership	Hackney A.; Yung M.; Somasundram K.G.; Nowrouzi-Kia B.; Oakman J.; Yazdani A.	2022
Organizational commitment	Nemțeanu M.-S.; Dabija D.-C.	2024
	Toscano F.; González-Romá V.; Zappalà S.	2025
	Kakkar S.; Kuril S.; Singh S.; Saha S.; Dugar A.	2023
	Nemțeanu M.-S.; Dabija D.-C.	2024
	Alsulami A.; Mabrouk F.; Bousrih J.	2023
	Varotsis N.	2022
Performance	Mutiganda J.C.; Wiitavaara B.; Heiden M.; Svensson S.; Fagerström A.; Bergström G.; Aboagye E.	2022
	Shimura A.; Yokoi K.; Ishibashi Y.; Akatsuka Y.; Inoue T.	2021
	Busu M.; Gyorgy A.	2021
	Galanti T.; Guidetti G.; Mazzei E.; Zappalà S.; Toscano F.	2021
	Kuruzovich J.; Paczkowski W.“.; Golden T.D.; Goodarzi S.; Venkatesh V.	2021

	Gallardo R.; Whitacre B.	2018
	Duan, SX; Deng, HP; Wibowo, S	2023
	Varotsis, N	2022
	Vega, RP; Anderson, AJ; Kaplan, SA	2015
	Gore M.N.	2024
	Kwon M.; Kim-Goh M.	2023
	Oladipo O.; Platt K.; Shim H.S.	2023
Proactivity	Park S.Y.; Newton C.; Lee R.	2023
	Ramani A.; Alcedo J.; Bloom N.	2024
	Hanzis A.; Hallo L.	2024
	Smirnykh L.	2024
	Mishra N.; Bharti T.	2024
	Ramya S.M.; Banu J.; Asokan Ajitha A.; Baral R.	2025
	Bhat Z.H.; Yousuf U.; Saba N.	2024
	Ditsche A.; Bugajska M.; Dimitrova G.; Kopaliani N.; Kheladze A.	2023
Productivity	Furuya Y.; Nakazawa S.; Fukai K.; Tatemichi M.	2024
	Wei T.; Wang W.; Yu S.	2022
	Curtis, C; Olaru, D; Smith, B; Reed, TW; Knight, C; Biermann, S	2025
	Farmania, A; Elsyah, RD; Fortunisa, A	2022
	Valentina Mele, Paolo Belardinelli, Nicola Bellé	2023
	Bran F.; Tudorache M.-D.; Nicolescu A.F.; Bodislaw D.A.; Radulescu C.V.; Negescu M.D.O.; Popescu M.L.	2022
	Appel-Meulenbroek R.; Voulon T.; Bergefurt L.; Arkesteijn M.; Hoekstra B.; der Schaaf P.J.-V.	2023
Task interdependence	Kossen C.; van der Berg A.M.	2022

Trust	Mutiganda J.C.; Wiitavaara B.; Heiden M.; Svensson S.; Fagerström A.; Bergström G.; Aboagye E.	2022
Work engagement	Perego, A; Belardinelli, P	2024
Work fragmentation	Straus E.; Uhlig L.; Kühnel J.; Korunka C.	2025
Attrition	Ramani A.; Alcedo J.; Bloom N.	2024
	Haines V.Y., III; Guerrero S.; Marchand A.	2024
Turnover intention	M Blake Emidy, Gregory B Lewis, Ximena Pizarro-Bore	2023
	Valentina Mele, Paolo Belardinelli, Nicola Bellé	2023

4.8 Cluster 5: Health and Wellbeing

As previously discussed, the Health and Wellbeing cluster emerged as the most frequently represented in the dataset ($n = 140$). This cluster encompasses the multifaceted impacts of remote working arrangements (RWA) on stakeholders' physical health, mental wellbeing, and social health. In Table 13 below, are depicted the impact variables found in the literature that belong to this cluster.

Table 13 - Cluster 5 variables

Outputs	Outcomes
Stress	Well-being
Isolation	Emotional strain
Fatigue	Mental health
Sedentary time	Burnout
	Physical strain
	Mental strain
	Depression
	Anxiety
	Pressure
	Physical health
	Comfort
	Life satisfaction
	Sleep issues
	Health
	Loneliness
	Techno-addiction

A closer examination of the impact variables within this cluster reveals that the most recurrent outputs are *stress* (n = 33) and *isolation* (n = 17), both of which pertain to mental health and social wellbeing. In both instances, the literature consistently reports an increase in these effects attributable to RWA. For example, Sandoval-Reyes et al. (2023) surveyed 200 managers across five Latin American countries in various economic sectors, finding that remote work significantly exacerbates work-related stress. Similarly, a study on UK government employees identified isolation as the most frequently cited negative consequence of working from home (Hall et al., 2024).

Among the outcome variables, the most frequently cited are *emotional strain* (n = 15), *wellbeing* (n = 16), and *mental health* (n = 9), further emphasizing the salience of psychological and social dimensions in the discourse on RWA. The evidence suggests a general trend: *emotional strain* and mental health issues tend to increase, while overall *wellbeing* declines in the context of remote work. These patterns have been documented across diverse sectors and geographical settings, particularly in response to the widespread adoption of RWA during the COVID-19 pandemic (Phadnis et al., 2021; Magnavita et al., 2021; Anwar et al., 2021).

Although physical health is addressed to a lesser extent, it nonetheless appears in the form of increased *physical strain* (n = 4) and extended *sedentary time* (n = 3), both of which are negatively associated with prolonged remote work. Regarding the stakeholders affected, all records within this cluster exclusively pertain

to employees and individuals, thereby situating the cluster firmly within the sub-micro locus of the proposed taxonomy.

Below a synthesis of the various records that were included in this cluster (Table 14).

Table 14 - Cluster 5 sources

Variable	Sources	Year of publication
Isolation	Hall C.E.; Brooks S.K.; Greenberg N.; Weston D.	2024
	Toscano F.; González-Romá V.; Zappalà S.	2025
	Smirnykh L.	2024
	Sandoval-Reyes J.; Revuelto-Taboada L.; Duque-Oliva E.J.	2024
	Zalat M.; Bolbol S.	2022
	Ekpanyaskul C.; Padungtod C.	2021
	Phadnis S.; Sengupta S.; Chakraborty A.	2021
	Anwar M.A.; Graham M.	2021
	Toscano F.; Zappalà S.	2020
	Matli W.	2020
	Charalampous M.	2020
	de Sio S.; Cedrone F.; Nieto H.A.; Lapteva E.; Perri R.; Greco E.; Mucci N.; Pacella E.; Buomprisco G.	2021
	Kozhina A.A.; Vinokurov L.V.	2020
	Seinsche, L; Schubin, K; Neumann, J; Pfaff, H	2023
	Radulovic, D; Djukanovic, B; Vucekovic, M	2022
	Van Zoonen, W; Sivunen, AE	2022
	Gore M.N.	2024
	Kwon M.; Kim-Goh M.	2023
Sedentary time	Aoki E.; Hiramatsu A.; Hanaki K.	2025
	Wilms P.; Schröder J.; Reer R.; Scheit L.	2022

	Appel-Meulenbroek R.; Voulon T.; Bergefurt L.; Arkesteijn M.; Hoekstra B.; der Schaaf P.J.-V.	2023
	Simionescu M.	2024
	Kakar A.S.; Rauza; Misron A.; Lateef F.	2024
	Mishra N.; Bharti T.	2024
	Sandoval-Reyes J.; Revuelto-Taboada L.; Duque-Oliva E.J.	2023
	Čiarnienė R.; Vienažindienė M.; Adamonienė R.	2025
	Ramya S.M.; Banu J.; Asokan Ajitha A.; Baral R.	2024
	Vaidya R.; Nag D.; Rani R.; Prasad K.	2025
	Ditsche A.; Bugajska M.; Dimitrova G.; Kopaliani N.; Kheladze A.	2025
	Abdulrahim H.; Yousif G.	2025
	Almubarak S.H.; Alsaif A.K.; Almulla S.J.; Alfayez A.S.; Alnujaidi H.Y.; Alsalman D.M.	2024
Stress	Wei T.; Wang W.; Yu S.	2022
	Elouadi S.; Elouadi N.	2022
	Horton N.; Jacobs K.	2022
	Zalat M.; Bolbol S.	2022
	Shimura A.; Yokoi K.; Ishibashi Y.; Akatsuka Y.; Inoue T.	2021
	Ekpanyaskul C.; Padungtod C.	2021
	Phadnis S.; Sengupta S.; Chakraborty A.	2021
	Galanti T.; Guidetti G.; Mazzei E.; Zappalà S.; Toscano F.	2021
	Magnavita N.; Tripepi G.; Chiorri C.	2021
	Anwar M.A.; Graham M.	2021
	Toscano F.; Zappalà S.	2020

	Matli W.	2020
	Charalampous M.	2020
	Gu L.; Wang J.	2020
	Thulin E.; Vilhelmson B.; Johansson M.	2019
	Gallardo R.; Whitacre B.	2018
	Seinsche, L; Schubin, K; Neumann, J; Pfaff, H	2023
	Radulovic, D; Djukanovic, B; Vucekovic, M	2022
	Romens, Al; Vincent, S; Menezes, PCS	2024
	Singh, P; Bala, H; Dey, BL; Filieri, R	2022
	Gore M.N.	2024
	Haines V.Y., III; Guerrero S.; Marchand A.	2024
Techno-addiction	Farmania, A; Elsyah, RD; Fortunisa, A	2022
Anxiety	Mendonca, I; Coelho, F; Ferrajao, P; Abreu, AM	2022
	Petcu M.A.; Sobolevschi-David M.I.; Crețu R.F.; Cărea S.C.; Hristea A.M.; Oancea-Negescu M.D.; Tutui D.	2023
	Čiarnienė R.; Vienažindienė M.; Adamonienė R.	2024
Burnout	Busia K.A.; Agbadi P.; Mokomane Z.	2024
	Bhat Z.H.; Yousuf U.; Saba N.	2025
	Antunes E.D.; Bridi L.R.T.; Santos M.; Fischer F.M.	2025
	Petcu M.A.; Sobolevschi-David M.I.; Crețu R.F.; Cărea S.C.; Hristea A.M.; Oancea-Negescu M.D.; Tutui D.	2024
	Abdulrahim H.; Yousif G.	2024
Cognitive fatigue	Almubarak S.H.; Alsaif A.K.; Almulla S.J.; Alfayez A.S.; Alnujaidi H.Y.; Alsalman D.M.	2024
	Schellaert M.; Deros E.	2024
	Aleem M.; Sufyan M.; Ameer I.; Mustak M.	2023

	Costa M.M.; Alves Filho A.; Pessoa-de-Oliveira A.K.	2024
	Biasi P.; Checchi D.; De Paola M.	2022
	Zalat M.; Bolbol S.	2022
	Singh, P; Bala, H; Dey, BL; Filieri, R	2022
Comfort	Durakovic I.; Aznavoorian L.; Candido C.	2024
Depression	Mendonca, I; Coelho, F; Ferrajao, P; Abreu, AM	2022
Emotional strain	Boehs S.T.M.; Vilela N.G.S.; Santos-Costa L.; Kunde S.; Lourenço M.L.	2024
	Ditsche A.; Bugajska M.; Dimitrova G.; Kopaliani N.; Kheladze A.	2025
	El Kadri Filho F.; Lucca S.R.D.	2023
	Miron D.; Petcu M.A.; David-Sobolevski M.I.; Cojocariu R.C.	2021
	Ekpanyaskul C.; Padungtod C.	2021
	Phadnis S.; Sengupta S.; Chakraborty A.	2021
	Magnavita N.; Tripepi G.; Chiorri C.	2021
	Anwar M.A.; Graham M.	2021
	Schade H.M.; Digutsch J.; Kleinsorge T.; Fan Y.	2021
	Morilla-Luchena A.; Muñoz-Moreno R.; Chaves-Montero A.; Vázquez-Aguado O.	2021
	Charalampous M.	2020
	Gu L.; Wang J.	2020
	Anderson A.J.; Kaplan S.A.; Vega R.P.	2015
	Van Zoonen, W; Sivunen, AE	2022
	Afota, MC; Savard, YP; Léon, E; Ollier-Malaterre, A	2024
Health	Rodríguez-Modroño P.	2023
Life satisfaction	Mosquera P.; Soares M.E.; Alvadia T.	2024

Loneliness	Suckley L.; Orel M.	2024
	Appel-Meulenbroek R.; Voulon T.; Bergefurt L.; Arkesteijn M.; Hoekstra B.; der Schaaf P.J.-V.	2023
Mental health	Hall C.E.; Brooks S.K.; Greenberg N.; Weston D.	2024
	Smirnykh L.	2024
	Sandoval-Reyes J.; Revuelto-Taboada L.; Duque-Oliva E.J.	2025
	Busia K.A.; Agbadi P.; Mokomane Z.	2025
	Zalat M.; Bolbol S.	2022
	de Sio S.; Cedrone F.; Nieto H.A.; Lapteva E.; Perri R.; Greco E.; Mucci N.; Pacella E.; Buomprisco G.	2021
	Pereira, ASD; Morais, J; Lucas, C; Paulo, J; Santos, JD; Almeida, F	2024
	Skafacka K.; Pajestka G.	2024
Mental strain	Appel-Meulenbroek R.; Voulon T.; Bergefurt L.; Arkesteijn M.; Hoekstra B.; der Schaaf P.J.-V.	2023
	Toivonen S.; Blind I.; Kyrö R.	2025
	Korkeakunnas T.; Heiden M.; Lohela-Karlsson M.; Rambaree K.	2025
Physical health	Antunes E.D.; Bridi L.R.T.; Santos M.; Fischer F.M.	2024
	Durakovic I.; Aznavoorian L.; Candido C.	2025
Physical strain	Toivonen S.; Blind I.; Kyrö R.	2025
	Korkeakunnas T.; Heiden M.; Lohela-Karlsson M.; Rambaree K.	2023
	Zalat M.; Bolbol S.	2022
	Ekpanyaskul C.; Padungtod C.	2021
Pressure	Petcu M.A.; Sobolevschi-David M.I.; Crețu R.F.; Cureau S.C.; Hristea A.M.; Oancea-Negescu M.D.; Tutui D.	2025

Sleep issues	Loezar-Hernández M.; Briones-Vozmediano E.; Ronda-Pérez E.; Otero-García L.	2024
	Aleem M.; Sufyan M.; Ameer I.; Mustak M.	2025
	Şimşek Demirbağ K.; Demirbağ O.	2025
	Korkeakunnas T.; Heiden M.; Lohela-Karlsson M.; Rambaree K.	2017
Wellbeing	Suckley L.; Orel M.	2024
	Sandoval-Reyes J.; Revuelto-Taboada L.; Duque-Oliva E.J.	2024
	Simon A.C.; Aranyi G.; Faragó K.; Pachner O.C.; Kiss O.E.	2024
	Almubarak S.H.; Alsaif A.K.; Almulla S.J.; Alfayez A.S.; Alnujaidi H.Y.; Alsaman D.M.	2025
	Wilms P.; Schröder J.; Reer R.; Scheit L.	2022
	Biasi P.; Checchi D.; De Paola M.	2022
	Miron D.; Petcu M.A.; David-Sobolevski M.I.; Cojocariu R.C.	2021
	Lizana P.A.; Vega-Fernandez G.	2021
	Magnavita N.; Tripepi G.; Chiorri C.	2021
	Schade H.M.; Digutsch J.; Kleinsorge T.; Fan Y.	2021
	de Sio S.; Cedrone F.; Nieto H.A.; Lapteva E.; Perri R.; Greco E.; Mucci N.; Pacella E.; Buomprisco G.	2021
	Palumbo R.; Manna R.; Cavallone M.	2020
	Anderson A.J.; Kaplan S.A.; Vega R.P.	2015
	Curtis, C; Olaru, D; Smith, B; Reed, TW; Knight, C; Biermann, S	2025
	Singh, P; Bala, H; Dey, BL; Filieri, R	2022
	Skłacka K.; Pajestka G.	2024

4.9 Cluster 6: Family and Community

The sixth cluster of this taxonomy encompasses variables associated with family and community dynamics. It also ranks as the fourth largest cluster in terms of variable frequency, comprising a total of 66 instances. Table 15 below depicts the impact variables that have been found in the literature that have been assigned to this cluster.

Table 15 - Cluster 6 variables

Outputs	Outcomes
Childcare	Work-life balance
Household labor	Family cohesion
	Community belonging
	Social interaction
	Family time
	Social support
	Collective purpose

The cluster exhibits a limited presence of output variables, with only three identified, namely *childcare*, *household labor*, and *social interaction*, accumulating a total frequency of five. Due to this limited representation, it is not possible to derive meaningful insights into the directionality of their effects, such as whether these outputs increase or decrease as a result of RWA.

Conversely, outcome variables are considerably more frequent within this cluster, accounting for 61 of the total 66 mentions. Among these, *work-life balance* (n = 36) and *social interaction* (n = 16) emerge as the most prominent. The findings related to *work-life balance* are mixed, meaning that there is no clear direction of the impact. For instance, Campos García (2024), in a study conducted in Colombia, reports that 44.8% of respondents experienced interference of work with personal life, and 61.6% indicated that their work extended beyond habitual hours. Similarly, Lizana and Vega-Fernández (2021) observe that remote working had a detrimental impact on work–family balance among teachers in Chile. Morilla-Luchena et al. (2021) further suggest that the impact of RWA on work-life balance is contingent upon mediating variables and cannot be assessed in isolation.

In contrast, the directionality of the impact on *social interaction* appears more consistent across studies, with the majority highlighting negative effects. For example, Lemetty (2024) illustrates how RWA diminishes opportunities for social engagement, ultimately leading to a reduction in interpersonal skills.

All impact variables, both outputs and outcomes, within this cluster are situated with the individual or employee level, thereby classifying this cluster within the sub-micro locus of analysis.

Below is a synthesis of the various records that were included in this cluster (Table 16).

Table 16 - Cluster 6 sources

Variable	Sources	Year of publication
Childcare	Simionescu M.	2024
	Romens, Al; Vincent, S; Menezes, PCS	2024
Household labour	Simionescu M.	2024
	de Oliveira da Silva Scaranni P.; Griep R.H.; Pitanga F.J.G.; Barreto S.M.; Matos S.M.A.; de Jesus Mendes da Fonseca M.	2023
Social interaction	Simon A.C.; Aranyi G.; Faragó K.; Pachner O.C.; Kiss O.E.	2023
	Lemmetty S.	2024
	Hanzis A.; Hallo L.	2024
	Biasi P.; Checchi D.; De Paola M.	2022
	Juchnowicz M.; Kinowska H.	2021
	Schade H.M.; Digutsch J.; Kleinsorge T.; Fan Y.	2021
	Seinsche, L; Schubin, K; Neumann, J; Pfaff, H	2023
	Radulovic, D; Djukanovic, B; Vucekovic, M	2022
	Vander Elst, T; Vandenbroeck, S; Boets, I; Godderis, L	2024
	Afota, MC; Savard, YP; Léon, E; Ollier-Malaterre, A	2024
	Kortsch, T; Rehwaltd, R; Schwake, ME; Licari, C	2022
	Perego, A; Belardinelli, P	2024
	Pereira, ASD; Morais, J; Lucas, C; Paulo, J; Santos, JD; Almeida, F	2023
	Kaltiainen J.; Hakanen J.J.	2024
	Haines V.Y., III; Guerrero S.; Marchand A.	2024

	Appel-Meulenbroek R.; Voulon T.; Bergefurt L.; Arkesteijn M.; Hoekstra B.; der Schaaf P.J.-V.	2023
	Kwon M.; Kim-Goh M.	2023
Work-life balance	Hall C.E.; Brooks S.K.; Greenberg N.; Weston D.	2024
	Hanzis A.; Hallo L.	2024
	Campos García Á.X.; Cabrera-García V.E.; Docal-Millán M.C.; Acuña Arango L.M.; Riveros Munevar F.	2024
	Sandoval-Reyes J.; Revuelto-Taboada L.; Duque-Oliva E.J.	2024
	Sandoval-Reyes J.; Revuelto-Taboada L.; Duque-Oliva E.J.	2025
	Ramya S.M.; Banu J.; Asokan Ajitha A.; Baral R.	2025
	Bhat Z.H.; Yousuf U.; Saba N.	2025
	Abdulrahim H.; Yousif G.	2024
	Almubarak S.H.; Alsaif A.K.; Almulla S.J.; Alfayez A.S.; Alnujaidi H.Y.; Alsalman D.M.	2023
	El Kadri Filho F.; Lucca S.R.D.	2024
	Furuya Y.; Nakazawa S.; Fukai K.; Tatemichi M.	2023
	Battisti E.; Alfiero S.; Leonidou E.	2022
	Elouadi S.; Elouadi N.	2022
	Biasi P.; Checchi D.; De Paola M.	2022
	Zalat M.; Bolbol S.	2022
	Zenkteler M.; Hearn G.; Foth M.; McCutcheon M.	2022
	Miron D.; Petcu M.A.; David-Sobolevski M.I.; Cojocariu R.C.	2021

	Lizana P.A.; Vega-Fernandez G.	2021
	Juchnowicz M.; Kinowska H.	2021
	Morilla-Luchena A.; Muñoz-Moreno R.; Chaves-Montero A.; Vázquez-Aguado O.	2021
	Toscano F.; Zappalà S.	2020
	Matli W.	2020
	Charalampous M.	2020
	Palumbo R.; Manna R.; Cavallone M.	2020
	Dima A.-M.; Tuclea C.-E.; Vrânceanu D.-M.; Tigu G.	2019
	Curtis, C; Olaru, D; Smith, B; Reed, TW; Knight, C; Biermann, S	2025
	Seinsche, L; Schubin, K; Neumann, J; Pfaff, H	2023
	Radulovic, D; Djukanovic, B; Vucekovic, M	2022
	Duan, SX; Deng, HP; Wibowo, S	2023
	Vander Elst, T; Vandenbroeck, S; Boets, I; Godderis, L	2024
	Valentina Mele, Paolo Belardinelli, Nicola Bellé	2023
	Kaltiainen J.; Hakanen J.J.	2024
	Gore M.N.	2024
	de Oliveira da Silva Scaranni P.; Griep R.H.; Pitanga F.J.G.; Barreto S.M.; Matos S.M.A.; de Jesus Mendes da Fonseca M.	2023
	Haines V.Y., III; Guerrero S.; Marchand A.	2024
	Oladipo O.; Platt K.; Shim H.S.	2023
Collective purpose	Simon A.C.; Aranyi G.; Faragó K.; Pachner O.C.; Kiss O.E.	2024
Community belonging	Suckley L.; Orel M.	2024

	de Oliveira da Silva Scaranni P.; Griep R.H.; Pitanga F.J.G.; Barreto S.M.; Matos S.M.A.; de Jesus Mendes da Fonseca M.	2023
Family cohesion	Jannat H.; Saif-Ur-Rahman K.M.; Noor I.N.; Begum A.	2024
	de Oliveira da Silva Scaranni P.; Griep R.H.; Pitanga F.J.G.; Barreto S.M.; Matos S.M.A.; de Jesus Mendes da Fonseca M.	2023
Family time	Busia K.A.; Agbadi P.; Mokomane Z.	2024
Social support	Vaidya R.; Nag D.; Rani R.; Prasad K.	2023

4.10 Cluster 7: Job-characteristics

The seventh cluster identified in the taxonomy pertains to job characteristics influenced by RWA and represents the third most frequent cluster in terms of variable occurrences ($n = 88$). This cluster comprises 29 instances categorized as outputs and 55 instances classified as outcomes. Table 17 provides a detailed overview of all the impact variables included within this cluster.

Table 17 - Cluster 7 variables

Outputs	Outcomes
Flexibility	Work engagement
Autonomy	Motivation
Multitasking	Creativity
Job control	Job satisfaction
	Workaholism
	Work control
	Job commitment
	Career progression
	Career rethinking
	Learning

Regarding outputs, the most frequently observed variables are *flexibility* ($n = 15$) and *autonomy* ($n = 10$), while the remaining three variables are recorded with considerably lower frequencies. The reviewed literature consistently reports an increase in *flexibility* resulting from RW (Hall et al., 2024; Ye et al., 2025; Costa et al.,

2024; Jannat et al., 2024; Seinsche et al., 2023). Nonetheless, some studies (e.g., Busia et al., 2023) highlight a paradoxical effect, whereby increased flexibility is accompanied by heightened work-family conflict, ultimately leading to a deterioration of work-life balance. Similarly, all analyzed records concerning *autonomy* indicate a positive effect of RWA on this variable, often in close association with enhanced flexibility (Costa et al., 2024; Smirnykh et al., 2024; Anwar & Graham, 2021).

With respect to outcomes, *job satisfaction* (n = 29) emerges as the most frequently reported variable, predominantly showing an increase attributable to RWA (Boehs et al., 2024; Kakkar et al., 2023; Rymia et al., 2023; Horton et al., 2022). However, exceptions exist, as evidenced by Kuruzovich et al. (2021), who report that extensive use of telecommuting systems can negatively impact job satisfaction due to the limitations inherent in virtual interactions. Notably, this negative effect may be mitigated by the use of high-quality communication software. Other outcome variables occur with frequencies too low to establish a generalized direction of effect. Also *work engagement* (n = 13) is seen as increasing with RW in the majority of the cases. Toscano et al. (2025), for example, studied the behavior and perception of employees in a public organization in Italy, which claimed that that working from home had a positive relationship work engagement, which then influenced job performance.

Overall, all variables within this cluster pertain to the individual-level experience of employees, thereby positioning this cluster within the sub-micro locus of analysis. A comprehensive list of records referencing these variables is provided below (Table 18).

Table 18 - Cluster 7 sources

Variable	Sources	Year of publication
Autonomy	Costa M.M.; Alves Filho A.; Pessoa-de-Oliveira A.K.	2024
	Smirnykh L.	2024
	Raišienė A.G.; Danauskė E.; Kavaliauskienė K.; Gudžinskienė V.	2023
	Čiarnienė R.; Vienažindienė M.; Adamonienė R.	2023
	Park S.Y.; Newton C.; Lee R.	2025
	Aleem M.; Sufyan M.; Ameer I.; Mustak M.	2025
	Zalat M.; Bolbol S.	2022
	Anwar M.A.; Graham M.	2021
	Dima A.-M.; Tuclea C.-E.; Vrânceanu D.-M.; Tigu G.	2019
	Haines V.Y., III; Guerrero S.; Marchand A.	2024
	El Kadri Filho F.; Lucca S.R.D.	2024
	Şimşek Demirbağ K.; Demirbağ O.	2024
	Furuya Y.; Nakazawa S.; Fukai K.; Tatemichi M.	2022
	Battisti E.; Alfiero S.; Leonidou E.	2022
Flexibility	Sequera J.	2025
	Hall C.E.; Brooks S.K.; Greenberg N.; Weston D.	2024
	Ye S.; Wang C.C.	2025
	Anik M.A.H.; Khan N.A.; Habib M.A.	2024
	Costa M.M.; Alves Filho A.; Pessoa-de-Oliveira A.K.	2024
	Jannat H.; Saif-Ur-Rahman K.M.; Noor I.N.; Begum A.	2024

	Gong Z.; Liu W.; Zhang F.	2024
	Mishra N.; Bharti T.	2024
	Čiarnienė R.; Vienažindienė M.; Adamonienė R.	2025
	Busia K.A.; Agbadi P.; Mokomane Z.	2023
	Zalat M.; Bolbol S.	2022
	Kozhina A.A.; Vinokurov L.V.	2020
	Seinsche, L; Schubin, K; Neumann, J; Pfaff, H	2023
	Kwon M.; Kim-Goh M.	2023
	Oladipo O.; Platt K.; Shim H.S.	2023
Job control	Antunes E.D.; Bridi L.R.T.; Santos M.; Fischer F.M.	2025
Multitasking	Boehs S.T.M.; Vilela N.G.S.; Santos-Costa L.; Kunde S.; Lourenço M.L.	2024
	Raišienė A.G.; Danauskė E.; Kavaliauskienė K.; Gudžinskienė V.	2025
Career progression	Hanzis A.; Hallo L.	2024
	Kasperska A.; Matysiak A.; Cukrowska-Torzewska E.	2024
	Boehs S.T.M.; Vilela N.G.S.; Santos-Costa L.; Kunde S.; Lourenço M.L.	2024
	M Blake Emidy, Gregory B Lewis, Ximena Pizarro-Bore	2023
Career rethinking	Cangia F.	2024
Creativity	Kakkar S.; Kuril S.; Singh S.; Saha S.; Dugar A.	2023
	Straus E.; Uhlig L.; Kühnel J.; Korunka C.	2024
Job commitment	Huml, MR and Taylor, EA and Martin, EM	2023
Job satisfaction	Suckley L.; Orel M.	2024

Boehs S.T.M.; Vilela N.G.S.; Santos-Costa L.; Kunde S.; Lourenço M.L.	2024
Kakkar S.; Kuril S.; Singh S.; Saha S.; Dugar A.	2023
Sandoval-Reyes J.; Revuelto-Taboada L.; Duque-Oliva E.J.	2024
Korkeakunnas T.; Heiden M.; Lohela-Karlsson M.; Rambaree K.	2024
Rodríguez-Modroño P.	2024
Ramya S.M.; Banu J.; Asokan Ajitha A.; Baral R.	2023
Vaidya R.; Nag D.; Rani R.; Prasad K.	2024
Durakovic I.; Aznavoorian L.; Candido C.	2023
Aleem M.; Sufyan M.; Ameer I.; Mustak M.	2024
Alsulami A.; Mabrouk F.; Bousrih J.	2024
Şimşek Demirbağ K.; Demirbağ O.	2022
Mutiganda J.C.; Wiitavaara B.; Heiden M.; Svensson S.; Fagerström A.; Bergström G.; Aboagye E.	2022
Horton N.; Jacobs K.	2022
Kuruzovich J.; Paczkowski W.; Golden T.D.; Goodarzi S.; Venkatesh V.	2021
Bae K.B.; Kim D.	2016
Vega, RP; Anderson, AJ; Kaplan, SA	2015
Kortsch, T; Rehwaldt, R; Schwake, ME; Licari, C	2022
Perego, A; Belardinelli, P	2024
Pereira, ASD; Morais, J; Lucas, C; Paulo, J; Santos, JD; Almeida, F	2024
M Blake Emidy, Gregory B Lewis, Ximena Pizarro-Bore	2023
Valentina Mele, Paolo Belardinelli, Nicola Bellé	2023

	Kwon M.; Kim-Goh M.	2023
Learning	Kasperska A.; Matysiak A.; Cukrowska-Torzewska E.	2024
	Mosquera P.; Soares M.E.; Alvadia T.	2025
Motivation	Ditsche A.; Bugajska M.; Dimitrova G.; Kopaliani N.; Kheladze A.	2025
	Abdulrahim H.; Yousif G.	2024
	Almubarak S.H.; Alsaif A.K.; Almulla S.J.; Alfayez A.S.; Alnujaidi H.Y.; Alsalman D.M.	2025
Work control	Ikegami K.; Ando H.; Mafune K.; Tsuji M.; Tateishi S.; Odagami K.; Muramatsu K.; Fujino Y.; Ogami A.	2025
	Horton N.; Jacobs K.	2022
Work engagement	Toscano F.; González-Romá V.; Zappalà S.	2025
	Rodríguez-Modroño P.	2025
	Wei T.; Wang W.; Yu S.	2022
	Biasi P.; Checchi D.; De Paola M.	2022
	Galanti T.; Guidetti G.; Mazzei E.; Zappalà S.; Toscano F.	2021
	Kuruzovich J.; Paczkowski W.; Golden T.D.; Goodarzi S.; Venkatesh V.	2021
	Schade H.M.; Digutsch J.; Kleinsorge T.; Fan Y.	2021
	Gallardo R.; Whitacre B.	2018
	Kortsch, T; Rehwaldt, R; Schwake, ME; Licari, C	2022
	Park S.Y.; Newton C.; Lee R.	2025
	Aleem M.; Sufyan M.; Ameer I.; Mustak M.	2024
	Kaltiaainen J.; Hakanen J.J.	2024
	Haines V.Y., III; Guerrero S.; Marchand A.	2024

4.11 Cluster 8: Digital acceptance

The final cluster, digital acceptance, represents the least populated category in terms of frequency ($n = 11$). Despite its lower representation, this cluster is considered relevant due to the intrinsic connection between RWA and the adoption of digital technologies that enable RW practices. Given the low frequency of occurrence of all variables within this cluster, it is not possible to establish generalizable conclusions regarding the direction of impact of RWA on these variables. Accordingly, this taxonomy is limited to providing a descriptive overview of the main variables included in this cluster (Table 19).

Table 19 - Cluster 8 variables

Outputs	Outcomes
Digital communication overload	Digital/ technological readiness
Technological barriers	Digital divide
Tech reliance	
Digital skills	

In terms of impact variables, outputs account for 5 instances, primarily encompassing *digital communication overload*, *digital skills*, and *technological barriers*. The indirect outcomes comprise 6 instances, including *digital divide* and *digital/technological readiness*. Although limited in number, the studies analyzed generally report an improvement in *digital skills* and *readiness* (Raišienė et al., 2025; Ramya et al., 2024; Mishra & Bharti, 2024), while simultaneously noting an increase in *digital divide* and *technological barriers*, highlighting the dual nature of digital acceptance dynamics under RWA conditions (Ye & Wang, 2025; Kakar et al., 2024).

This cluster is primarily positioned within the sub-micro locus, as the majority of variables pertain to the individual-level experience of technology adoption. However, its scope also extends to the societal level when addressing issues related to the digital divide. A comprehensive list of authors discussing these topics is provided below (Table 20).

Table 20 - Cluster 8 sources

Variable	Sources	Year of publication
Digital communication overload	Mendonca, I; Coelho, F; Ferrajao, P; Abreu, AM	2022
Digital skills	Raišienė A.G.; Danauskė E.; Kavaliauskienė K.; Gudžinskienė V.	2025
	Ramya S.M.; Banu J.; Asokan Ajitha A.; Baral R.	2024

	Furuya Y.; Nakazawa S.; Fukai K.; Tatemichi M.	2025
Technological barriers	Bhat Z.H.; Yousuf U.; Saba N.	2023
Digital divide	Ye S.; Wang C.C.	2025
	Kakar A.S.; Rauza; Misron A.; Lateef F.	2024
	Kakar A.S.; Rauza; Misron A.; Lateef F.	2024
Digital/ technological readiness	Mishra N.; Bharti T.	2024
	Alsulami A.; Mabrouk F.; Bousrih J.	2025
	Bocean C.G.; Puiu S.; Vărzaru A.A.	2021

4.12 Other

The final paragraph of the results section addresses variables identified in the review that do not occur with sufficient thematic consistency to be grouped into a coherent cluster. Nonetheless, some of these variables merit attention. Among the outputs, one particularly recurring variable is *commute*, which appears with a frequency of 13. The findings consistently indicate a reduction in commuting, both in terms of distance and time. For example, full-day teleworking significantly reduces the number of trips across all modes of transportation, particularly motorized modes, whereas part-day teleworking may result in an overall increase in travel (Kappler et al., 2025).

Among the outcomes, a notable impact is the observed *reduction in emissions* and the associated *environmental benefits* (n = 5). Zhang et al. (2023), for instance, estimate a decarbonization potential of remote work in urban areas. The remaining output and outcome variables, given their low frequency, are not discussed in detail here but are listed in Table 21 and 22 below.

Table 21 - Other variables

Outputs	Outcomes
Commute time	Traffic
Mobility	Environmental gain/ emissions
Car trips	Leisure
Travel	
Public transport use	
Car dependence	

Table 22 - Other sources

Variable	Sources	Year of publication
Car trips	Kappler L.B.; de Abreu e Silva J.	2025
	Anik M.A.H.; Khan N.A.; Habib M.A.	2024
	Anik M.A.H.; Khan N.A.; Habib M.A.	2024
Commute	Zenkteler M.; Hearn G.; Foth M.; McCutcheon M.	2022
	Kappler L.B.; de Abreu e Silva J.	2025
	Paköz M.Z.; Kaya N.	2024
	Pawluk De-Toledo K.; O'Hern S.; Koppel S.	2024
	Chen L.; Li C.; Tang T.	2024
	Gong Z.; Liu W.; Zhang F.	2024
	Tao Y.; You S.; Zhu J.; You F.	2024
	Phadnis S.; Sengupta S.; Chakraborty A.	2021
	Toscano F.; Zappalà S.	2020
	Matli W.	2020
	Zhu P.	2013
	Zhu P.	2013
	Curtis, C; Olaru, D; Smith, B; Reed, TW; Knight, C; Biermann, S	2025
	Zhang Y.; Han H.; Fan C.; Su X.	2023
Mobility	Kim S.-N.	2017
Public transport use	Anik M.A.H.; Khan N.A.; Habib M.A.	2024
Travel	Tao Y.; You S.; Zhu J.; You F.	2024
Environmental gain/ emissions	Kappler L.B.; de Abreu e Silva J.	2025
	Anik M.A.H.; Khan N.A.; Habib M.A.	2024
	Chen L.; Li C.; Tang T.	2024

	Tao Y.; You S.; Zhu J.; You F.	2024
	Zhang Y.; Han H.; Fan C.; Su X.	2023
	Zhang Y.; Han H.; Fan C.; Su X.	2023
Leisure	Simionescu M.	2024
Traffic	de Oliveira da Silva Scaranni P.; Griep R.H.; Pitanga F.J.G.; Barreto S.M.; Matos S.M.A.; de Jesus Mendes da Fonseca M.	2023
	Paköz M.Z.; Kaya N.	2024
	Pawluk De-Toledo K.; O'Hern S.; Koppel S.	2024
	Dima A.-M.; Tuclea C.-E.; Vrânceanu D.-M.; Tigu G.	2019

5. Discussion

As evidenced in the results section, the socio-economic impacts of RWA are highly nuanced and heterogeneous. This study employed the concept of value to systematize and interpret the existing literature, with the aim of understanding how RW can generate impact and, by consequence, value across individual, organizational, and societal levels. To this end, the loci framework proposed by Osborne et al. (2021) was adopted to delineate the levels at which value creation occurs. The findings reveal that certain areas are well represented in literature, while others remain underexplored. Notably, the reviewed literature tends to focus more extensively on outcomes, understood as the indirect consequences of RWA, than on outputs, which are its more immediate and direct effects. This discrepancy suggests a research orientation that privileges broader socio-economic dynamics over proximal causal changes directly attributable to RWA.

Among the three loci, the sub-micro level of the individual emerges as the most thoroughly investigated, highlighting the salience of RWA's immediate impacts on individuals, particularly in relation to health and wellbeing. The individual locus also encompasses other domains, such as family and community relations, as well as job-specific impacts. Nevertheless, within this level, the cluster concerning digital acceptance remains relatively underdeveloped. At the micro-organizational level, there is a substantial body of research addressing both performance-related and managerial aspects of RWA, which reflects the organizational origin of most RW arrangements and the consequent focus on internal dynamics and effectiveness.

Conversely, the societal locus is the least explored, particularly with regard to output-level impacts, which are entirely absent from the reviewed literature. This may indicate the methodological and conceptual challenges associated with capturing direct societal-level effects of RWA. Although some societal outcomes, especially those pertaining to economic impacts, have been examined, issues such as gender relations remain significantly underrepresented within this locus. Moreover, social outcomes related to organized labor remain unexplored, signaling that research on the topic of trade union related to RWA is missing. Overall, these findings underscore the need for a more balanced exploration across all loci, particularly to address the gaps at the societal level and in underdeveloped thematic clusters.

By looking at the variables within the clusters, there are certain impact variables that are extensively examined across the literature, while the remaining ones appear with very low frequency. This pattern suggests, on the one hand, that the socio-economic impacts of RW are highly nuanced and multifaceted. On the other hand, it highlights the absence of a clear and consistent framework for identifying, conceptualizing, and categorizing these impacts. The lack of convergence in terminology and clustering approaches points to a fragmentation in the field and suggests that the issue is truly multidimensional, which hinders cumulative knowledge development. For this reason, the taxonomy proposed in this study holds particular significance, as it provides a structured and comprehensive framework to guide future research in systematically capturing and organizing the diverse impacts associated with RW.

5.1 The added value of the taxonomy for the R-Map model

This taxonomy is situated within WP2, which is dedicated to the co-creation of the R-MAP model, an integrated impact assessment framework designed to systematically capture the social, spatial, and economic impacts of RWA and their interconnections. It is therefore essential to examine how this taxonomy relates to the model. Focusing specifically on the socio-economic dimensions, numerous points of convergence emerge between the co-created conceptual R-Map model and the taxonomy derived from the literature.

For example, several social impacts identified as part of the co-design of the R-Map model correspond directly to categories in the taxonomy. The cluster “health and wellbeing” is explicitly reflected in both taxonomy and the model. The factor “caring responsibilities” in the model aligns with the taxonomy’s “family and community” cluster and also intersects with the taxonomy cluster “gender relations.” Similarly, “social cohesion” in the model is linked to the broader “family and community” cluster of the taxonomy. Turning to economic impacts, parallels can also be observed. Impacts relating to the labor market, individual workers, and regional development are all captured in both the taxonomy and in the model. Moreover, clusters identified in the model as “socio-economic” are represented in the taxonomy, although subsumed within broader categories. For instance, “work-life balance,” conceptualized as a socio-economic impact in the model, is integrated into the taxonomy under the “family and community” cluster. While this taxonomy’s purpose is not to explicitly address spatial implications of RWA, the literature consistently identifies spatial impact factors such as *relocation* and *carbon emissions* as intrinsically linked to the socio-economic factors, in line with the findings of the co-design exercises in the R-MAP model. This suggests that spatial impacts, although analytically distinguished, remain closely tied to social and economic dimensions. Beyond one to one correspondence, the causal relationships as identified in the R-Map model also map well onto the taxonomy clusters. The R-Map model is not only interesting in terms of the presence of causal relationships but also their absence that indicates independence of factors, in other words independent clusters. For instance, the factor *workplace loneliness* is strictly a mediator between the factors RWA and *health and wellbeing*, and is independent of other factors. This aligns with the taxonomy that club these factors together into the “health and wellbeing” cluster. Similarly, *health and wellbeing* is unique in the model in terms of the being the main outcome of most social and socio-economic factors, a pattern the taxonomy validates by treating it as its own cluster.

Moreover, the taxonomy shows how impact factors are positively or negatively affected by RWA. This is also a point of convergence with the R-MAP model. For instance, the factor *workplace loneliness* that is represented in the R-map model as increasing due to RWA is closely aligned with *isolation*, one of the most cited impact in the taxonomy. The taxonomy also shows an increase in employee isolation when RWA are implemented. Indeed, each relationship represented in the model showcasing the influence of RWA on different factors is also measured in terms of direction of the relationship and in its strength. The strength is not explored in the taxonomy since it is based on a literature review, which does not allow to capture this evidence. It is also important to point out that this taxonomy focused on two levels of impacts (outputs and outcomes), as it aligned better with the literature analyzed, which did not mention specifically the temporality of the impacts. However, the model focused on impacts by classifying them into short, medium and long terms factors based on the findings of the co-design exercise and subsequent survey and workshops.

Lastly, another important similarity with the model is the level of analysis chosen. The three types of stakeholders analyzed in the taxonomy (individual/ employee, organization, and society) align with the conceptual R-Map model representation. Indeed, the co-design exercise results see the different levels of representation separated along the vertical access.

Although the objectives of the two tasks differ, their interrelation is evident. The taxonomy provides a valuable validation for the model, demonstrating that the factors incorporated into the R-MAP model are closely related to the variables and clusters found in the literature review of this task. For future refinements of the model, it may be worthwhile to incorporate elements from the taxonomy into the R-Map model given the latter’s explicit purpose of consolidating and rationalizing diverse conceptualizations of impacts across scholarly work.

5.2 Future interdependencies

This taxonomy holds significant potential for informing future activities under WP4, as it provides a structured foundation to refine and validate the factors identified in Task 4.1 through complementary research, interviews, and survey evidence. Beyond its methodological value, the taxonomy also constitutes a critical analytical tool for guiding policy dialogues aimed at forecasting the impacts of RWA. In particular, its capacity to systematically categorize and cluster impacts within the socio-economic sphere enhances both the rigor and clarity of subsequent analyses, thereby supporting a more comprehensive understanding of how RWA shape economic and social dynamics across diverse contexts.

6. Conclusion

This deliverable has developed a structured and theoretically grounded taxonomy to systematically classify the socio-economic impacts of RWA, thereby contributing a critical analytical tool to the R-MAP project. By integrating the concept of value creation with the loci framework proposed by Osborne et al. (2021), the study offers a multidimensional perspective that captures the diverse and layered nature of RWA impacts across individual, organizational, and societal levels.

The findings underscore the complexity of remote work's consequences. While RWA present clear advantages, such as enhanced autonomy, improved work-life balance, and organizational flexibility, they also introduce significant challenges, including increased stress, social isolation, growing gender disparities, and ambiguous effects on regional economic cohesion. Moreover, the systematic literature review revealed a predominance of research focused on outcomes rather than outputs, and on the individual and organizational levels over the societal. This imbalance underscores a significant research gap in understanding the broader societal effects of remote work. Moreover, the wide dispersion and low frequency of many impact variables highlight a lack of coherence in existing literature, which this taxonomy seeks to address.

This taxonomy represents a refinement of the R-MAP model offering a greater spectrum of RWA impacts grounded in the literature. It also provides a robust framework to inform future data collection, scenario building, and policy development aimed at fostering inclusive and sustainable regional development in the digital age.

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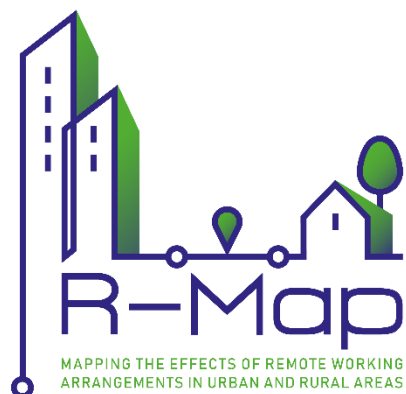
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