Teleworking and organizational performance: A theory-informed systematic review and appraisal of two decades of evidence (2004-2023)

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Abstract:

Teleworking has become a structural feature of work organization, yet the evidence on its consequences for organizational performance remains fragmented and partly contradictory, and existing syntheses treat telework as a homogeneous practice. This study systematically reviews the literature published between 2004 and 2023 on the relationship between teleworking and organizational performance to establish the conditions under which, and the organizational mechanisms through which, teleworking affects performance. The review departs from earlier syntheses in three ways. First, it is theory-informed: social exchange theory, the job demands-resources model, the resource-based and knowledge-based views of the firm and institutional theory are used to specify mechanisms and boundary conditions, and they structure the coding and comparison of the studies. Second, the evidence is appraised rather than summarized: the included studies are compared on their theoretical lenses, research designs, samples, contexts and performance measures; their methodological quality is assessed, and the confidence that can be placed in each finding is graded. Third, the review distinguishes voluntary or planned telework, mandatory telework during the COVID-19 pandemic and post-pandemic hybrid arrangements. A search of eight databases identified 9,308 records; 80 publications met the inclusion criteria, and 27 provided extractable evidence on the telework-performance relationship. This corpus is dominated by cross-sectional, single-source surveys relying on self-reported performance, concentrated in service organizations and in a limited number of countries, and largely produced under pandemic conditions. Within these limits, the evidence supports a conditional rather than a general positive effect: teleworking is associated with perceived productivity gains, lower turnover and innovation when it is voluntary, supported by results-based management and adequate digital infrastructure, and accompanied by deliberate knowledge-sharing routines, whereas it is associated with neutral or negative outcomes when it is imposed, intensively monitored or accompanied by technostress. The review contributes an integrated framework that theorizes these mechanisms, nine research propositions derived from the contradictions identified, and evidence-graded managerial recommendations. It positions teleworking as a knowledge-organizing practice whose performance effects depend on how organizations sustain knowledge creation and sharing among dispersed employees.

Keywords: Teleworking; hybrid work; organizational performance; systematic literature review; evidence appraisal; knowledge sharing; social exchange theory; job demands-resources model

1. Introduction

Korte and Wynne (1996) define teleworking as a professional activity carried out, at least in part, using digital tools outside the company's assigned offices. Under this definition, telework is distinguished by workers' status, the proportion of time spent working remotely, and where it is carried out. Telecommuting, remote work, or working from home, as Matli (2020) notes, are nomologically related concepts because they refer to work carried out outside the usual, fixed workplace. It can be carried out from home or anywhere outside the company's location. In sum, teleworking involves performing an employee's usual tasks differently from in an office (Matli, 2020). Matli (2020) also argues that this approach is similar to a work agreement that allows workers to perform their duties virtually via digital communication. Several authors have used different themes to distinguish between remote work and agile work (Grant et al., 2019; Bloom et al., 2013; Felstead & Henseke, 2017). Remote work is, therefore, about fulfilling professional commitments in exchange for remuneration in a non-traditional context outside the employing organization's premises (Wheatley, 2021). While these concepts certainly have subtle differences, they all refer to work performed outside the employer's premises using communication and information technologies. In this article, we will use the terminology employed by the original authors of each selected publication. However, we will use "telework" as the main term to ensure terminological consistency.

From a knowledge economy perspective, telework is not merely a spatial reorganization of work but also a form of digital organization that shapes how knowledge is created and shared within a dispersed team. However, this could lead to knowledge fragmentation if organizational support is insufficient (Cirielli De Mola et al., 2025). On the other hand, digitizing organizational activities enhances operational efficiency and the organization's adaptability when digital technologies are properly integrated into appropriate organizational structures (Holl et al., 2025). Consequently, telework can be a key element in transforming organizations, where human skills, knowledge, and technologies

collectively shape organizational performance. Although this way of working is not entirely new, it has developed slowly in several countries (Jalagat & Jalagat, 2019). Urbaniec (2022) states that COVID-19 has enabled businesses to shift their operations to employees' homes. Thus, companies that had not considered teleworking earlier had to adopt this new work configuration. This knowledge-based reading of telework is the organizing lens of the present review: it frames telework as a practice that alters the conditions under which organizational knowledge is created, shared and applied (Grant, 1996; Nonaka, 1994), and it is carried through the research questions, the coding of the studies and the synthesis presented below rather than invoked only in the discussion.

Currently, companies face several challenges stemming from the need to adapt to the market, maintain operations amid constant change, optimize customer relationships, and compete while remaining efficient. Companies are compelled to reduce costs and maximize profits regardless of how they work. To achieve these objectives, companies must implement strategies that significantly influence their results. Performance varies from one company to another depending on different criteria. Generally, performance is the net result of a feat, accomplishment, or significant success. This notion refers to the level of efficiency demonstrated by organizations, individuals, industries, and the economy as a whole in converting inputs, such as labour and capital, into outputs, including goods and services (Gordon et al., 2015). Performance is defined as the degree to which results are achieved relative to the efforts made and resources used, based primarily on the variables of effectiveness and efficiency (Issor, 2017). Gilbert and Charpentier (2004) conceptualize performance in several ways. In management, the triple bottom line perspective even defines performance in terms of social, financial, and environmental dimensions (Ducrou et al., 2008; Fabi et al., 2009). In this study, we shall focus on a particular performance outlook.

Among performance forms, organizational performance stands out because it focuses on the company as a whole. Taouab and Issor (2019) define organizational performance as a company's ability to achieve a certain level of profitability, productivity, competitiveness, and efficiency. The latter depends on the organization's material resources, strategy, and systems, although human capital is undeniably the central element. According to the literature, performance and productivity criteria are strongly linked to teleworking. Salolomo and Agbaeze (2019) found that remote or teleworking improves employees' productivity and performance. Similarly, Nakrošienė et al. (2019) found that, even when employees use information and communication technologies to perform their tasks, those who work from home tend to show higher performance and productivity. Gajendran et al.'s (2015) results concur, suggesting that the favourable correlation between teleworking and productivity may be attributed to several factors, including reduced interaction with colleagues, the establishment of a home workspace, and the ease of fulfilling family obligations while working from home. In addition, a significant correlation exists between reduced distractions from co-workers, an adapted home office, and improved employee performance (Ongaki, 2019). However, these positive results coexist with studies that report no significant association between telework and performance, or that document adverse effects on collaboration, supervision, and well-being (Sewell & Taskin, 2015; Varotsis, 2022; Vayre, 2019). This coexistence of divergent findings is precisely why the evidence requires appraisal rather than accumulation.

Looking at the history of remote work, we see that this way of working has long been in the background and has only recently returned to the corporate scene. Thus, several studies have examined this way of working more thoroughly from an organizational vantage point. Given that the revitalization of telework is strongly tied to the COVID-19 outbreak and that the study of its effect on organizational performance has gained momentum and increased traction over the last half-decade, the general objective of this study is to establish, on an evidence-weighted and theory-informed basis, under which conditions and through which organizational mechanisms teleworking affects organizational performance. The specific objectives are to:

1) Characterize and critically appraise the evidence on the relationship between teleworking and organizational performance by comparing the included studies on their theoretical lenses, research designs, samples, contexts and performance measures, and by assessing their methodological quality;
2) Establish, by telework regime and with an explicit level of confidence, which organizational outcomes have been associated with teleworking and how consistent these findings are;
3) Theorize the mechanisms and boundary conditions through which teleworking translates into organizational performance, with particular attention to knowledge sharing, and derive from them research propositions and evidence-based managerial guidance.

Although there is a significant body of research on telework, primary studies have generally focused on specific aspects, notably work-life balance (Gachet-Mauroz et al., 2022), employee well-being (Mbey Sendegue & Grouille, 2023) and psychological consequences (Chamoux, 2021) during the COVID-19 pandemic, and the organizational implications

of teleworking have often been examined in a fragmented manner. Several reviews and meta-analyses have already synthesized parts of this literature, and the present review's contribution must be assessed against them (Table 1). Gajendran and Harrison (2007) meta-analyzed the psychological mediators and individual consequences of telecommuting, and Allen et al. (2015) assessed the effectiveness of telecommuting in a narrative review; both focus primarily on individual-level outcomes such as attitudes, well-being, and job performance. Harker Martin and MacDonnell (2012) meta-analyzed perceptions of telework and organizational outcomes, Mutiganda et al. (2022) systematically reviewed the association between telework and organizational economic performance indicators, and Hackney et al. (2022) reviewed the effects of work-from-home arrangements on personal and organizational productivity in the digital economy. These organization-level syntheses are valuable, but they share four limitations that the present review addresses. First, they treat telework as a homogeneous practice and do not separate voluntary or planned telework, mandatory telework imposed during the COVID-19 pandemic and post-pandemic hybrid arrangements, although these regimes differ in the mechanisms they activate (Section 2.1.4). Second, they do not weight conclusions by the methodological quality of the primary studies, so consistent findings from weak designs and inconsistent findings from stronger designs receive equal credit. Third, they are largely atheoretical or rely on a single lens, which limits their capacity to explain contradictory results. Fourth, none examine the knowledge-related mechanisms (knowledge sharing, knowledge hiding and fragmentation, knowledge leadership) that are central to organizational performance in the knowledge economy.

Accordingly, this review makes four contributions. (1) It provides a transparent and replicable synthesis of two decades of evidence (2004-2023) in which the included studies are compared theoretically, methodologically, contextually and in terms of samples and measures, and in which their quality is appraised. (2) It separates the evidence produced under different telework regimes and grades the confidence that can be placed in each finding, which leads to conditional rather than general conclusions. (3) It integrates social exchange theory, the job demands-resources model, the resource-based and knowledge-based views and institutional theory into a single framework that specifies mechanisms and boundary conditions, and it derives research propositions from the contradictions identified in the evidence. (4) It translates the graded evidence into managerial recommendations that are explicitly linked to the findings that support them.

Table 1: Positioning of this review relative to prior reviews and meta-analyses of telework outcomes

Review	Type and period	Level of analysis and outcomes	Telework regimes distinguished	Quality-weighted synthesis	Theoretical integration	Knowledge-related mechanisms
Gajendran and Harrison (2007)	Meta-analysis (46 studies)	Individual: psychological mediators, satisfaction, performance, turnover intent, stress	No (telecommuting intensity examined as a moderator)	No	Single mediation model	Not examined
Harker Martin and MacDonnell (2012)	Meta-analysis (22 studies)	Organizational, as perceived: productivity, retention, commitment, performance	No	No	Limited	Not examined
Allen et al. (2015)	Narrative review	Individual and organizational effectiveness of telecommuting	No (mostly voluntary, pre-pandemic evidence)	No	Several perspectives discussed, not integrated	Not examined
Mutiganda et al. (2022)	Systematic review	Organizational economic performance indicators	Voluntariness noted as a factor; regimes not compared	No	Not the focus	Not examined

Review	Type and period	Level of analysis and outcomes	Telework regimes distinguished	Quality-weighted synthesis	Theoretical integration	Knowledge-related mechanisms
Hackney et al. (2022)	Systematic review	Personal and organizational performance and productivity of work-from-home arrangements	Pre-pandemic and pandemic studies included; regime not used as an analytical dimension	No	Not the focus	Not examined
This review	Systematic review, 2004-2023 (80 publications, 27 core studies)	Organizational performance (productivity, retention, innovation, costs, service quality) and its organizational antecedents	Yes: voluntary or planned, mandatory pandemic, post-pandemic hybrid	Yes: quality appraisal and confidence grading (Sections 3.5, 4.3, 5.7)	Yes: four perspectives integrated into a mechanism-based framework (Sections 2.3, 6)	Coded and synthesized: knowledge sharing, hiding, fragmentation, knowledge leadership

Note: The characterization of prior reviews is based on their stated scope and synthesis approach.

The overall research question reads as follows:

> RQ: Under which conditions, and through which organizational mechanisms, does teleworking affect organizational performance?

The overall question is decomposed into four sub-questions that correspond, respectively, to the appraisal of the corpus (Section 4), the evidence-weighted synthesis of outcomes (Section 5), the theorization of mechanisms and boundary conditions (Sections 2.3, 5 and 6) and the derivation of propositions and recommendations (Sections 7 and 8). The same dimensions structure the search strategy, the coding scheme, and the quality appraisal (Section 3 and Table 3), ensuring consistency from the research questions to the conclusions. The sub-questions read as follows:

> RQ1: What are the theoretical lenses, research designs, samples, contexts and performance measures of the studies that examine the relationship between teleworking and organizational performance, and what is their methodological quality?
>
> RQ2: Which organizational outcomes (productivity, costs, innovation, retention, service quality) have been associated with teleworking, how consistent is the evidence, and how does it differ between voluntary, mandatory pandemic and hybrid telework regimes?
>
> RQ3: Through which organizational mechanisms (reciprocity based on support and trust, the balance between job demands and resources, and knowledge sharing) and under which boundary conditions (telework regime, monitoring intensity, institutional and cultural context) does teleworking translate into organizational performance?
>
> RQ4: Which theoretically grounded propositions and evidence-based managerial recommendations follow from the contradictions and gaps identified?

We employ a systematic literature review (SLR) to address these questions, drawing on articles published over approximately two decades (2004-2023). This time frame enables us to offer a comprehensive view of the phenomenon under study, explore its evolution over time, compare selected research results, and analyze telework's effects on corporate organizational performance. The review follows the guidance of Tranfield et al. (2003) and Denyer and Tranfield (2009) for systematic reviews in management and is reported in accordance with the PRISMA 2020 statement (Page et al., 2021). It is adapted to the social sciences and the business field along with previous studies (Ertz et al., 2022; Quenum & Ertz, 2026).

The article is organized as follows. Section 2 presents the conceptual background on teleworking and organizational performance, distinguishes between telework regimes, and develops the theoretical framework that guides the review. Section 3 details the methodology, including the search strategy, eligibility criteria, screening, coding, quality appraisal and synthesis procedures. Section 4 describes the corpus and appraises its methodological quality. Section 5 presents

the evidence synthesis, organized around outcomes, mechanisms and boundary conditions, and weighs the evidence. Section 6 proposes the integrated framework, Section 7 derives research propositions from the identified contradictions and gaps, Section 8 discusses the theoretical and managerial implications, and Section 9 concludes with the review's limitations.

2. Conceptual background and theoretical framework

2.1. Teleworking

2.1.1. The foundations of telework

Work is an integral part of human life, and it helps individuals ensure security across various aspects of their lives. Historically, work has been narrowly defined, especially in terms of function and transaction, under the control of a predetermined workplace (Colbert et al., 2016), remuneration (Kustini & Purwanto, 2020), and employment (Pettinger, 2019). Traditional definitions focus on location, employment, or remuneration. Other researchers have proposed contemporary definitions that account for new dimensions of work, such as well-being and the innate nature of work. For example, Van der Laan et al. (2023) defined work as an inherent human function that determines an individual's purpose and role. It follows a relational approach, training through social interactions and the work context. The meaning of work comes from reflection and personal effort. Thus, personal and social values guide work and influence individuals' well-being (Van der Laan et al., 2023).

Teleworking started to be documented in the 1990s and early 2000s as information technologies enabled individuals to perform work-related tasks remotely (Kurland & Bailey, 2000). Teleworking is described as a way of working that emerged along with technological advances, allowing workers to carry out their tasks from home in a less formal environment than orthodox workplaces, such as offices, thanks to new information and communication technologies (Bailey & Kurland, 2002; Biron & Van Veldhoven, 2016; Stanworth, 1998). Sewell and Taskin (2015) added the nuance that teleworking involves performing a professional task, at least in part, with the help of digital tools. The main criteria for teleworking include working remotely from a location outside the company's physical premises and using specific technological tools and software (Nakrošienė et al., 2019). This mode can also be seen as an agreement between workers and managers to carry out planned remote work using digital tools (Basile & Beauregard, 2016).

Several other definitions have been attributed to telework, as well as expressions derived from this work mode. Allen et al. (2015) define telework as transferring certain work activities to employees to address challenges in energy distribution and consumption. Miele and Tirabeni (2020) define teleworking as remote work, often at home, that involves participating virtually in meetings via information and communication technologies to finalize tasks outside the company's premises. This concept can be described as "remote work," "virtual work," or "working from home" (Messenger & Gschwind, 2016). It involves working remotely using information technology and includes three types: fixed-site work, mobile telework, and flexible telework (Garrett & Danziger, 2007).

In addition, several researchers have managed to conceptualize work done outside the usual work environment, such as teleworking or remote work (Mayo et al., 2016; De Vries et al., 2019; Delanoeije et al., 2019; Delanoeije & Verbruggen, 2019; Golden & Gajendran, 2019; Golden & Eddleston, 2020; Mukherjee & Narang, 2023). Historically, telecommunications and IT development companies were among the first to adopt remote work (Mayo et al., 2016), but it has since spread to several sectors, particularly production and personnel management (Belzunegui-Eraso & Erro-Garcés, 2020). In other words, since the emergence of teleworking, this mode of working has been adopted relatively slowly (Parisi et al., 2018). The adoption rate may not have been as dramatic as Toffler (1980) predicted in the 1980s, when he predicted teleworking would become the most popular way of working in several contexts within a short period. Still, it surely did so quite abruptly from 2020 onwards.

Meanwhile, research on telework has generated extensive information on various telework variables over the years (Hodder, 2020). Like all essential organizational innovations, telework theories have led to various outcomes, often divergent. Some studies have shown that teleworking has facilitated new autonomy frameworks for employees and enabled management to base decisions on trust (Kurland & Cooper, 2002). Others have taken the opposite approach, questioning these assumptions and arguing that teleworking has instead intensified monitoring through information and communication technologies (Dimitrova, 2003; Sewell & Taskin, 2015; Aloisi & De Stefano, 2022).

Despite the long-standing existence of teleworking and its extensive coverage in the literature, as the discussion above shows, teleworking remained relatively unknown before COVID-19 and was used little by workers and employers accustomed to traditional frameworks for accomplishing their professional tasks.

2.1.2. From the perception to the implementation of telework in organizations

Perceptions of teleworking have evolved over time. Previously, organizations often viewed teleworking as an optional way of working, adopted in specific situations without clear principles. Management teams also regularly frowned upon it, fearing a loss of employee focus, interaction, and commitment. Today, however, it has become essential for innovative companies. This shift stems from the emergence of new information and communication technologies that provide tools for remote work, which employees must master to succeed in teleworking.

Companies decide to telework to support employees' well-being and protect company resources. Employees' personal balance affects their professional balance, as their quality of life can influence their willingness to telework. In some areas of activity or organization, this way of working is implemented alternately with in-person work in equal parts. In contrast, teleworking has a much larger share in other organizations. According to Kazekami (2020), teleworking can offer significant benefits, including increased profits, performance, productivity, and quality of service, which is why remote working is popular. In other words, it is part of continuous improvement regarding government organizations.

For teleworking to be effective in an organization, managers and leaders must be open to adopting it. An employee cannot telework alone without the management team's agreement or implementation of this provision. As a result, managers must evaluate work-mode choices considering the company's operating context. Bouiss and Azéma (2021) indicate that a personal evaluation system, an assessment of the business challenges of remote work, and an understanding of its components and expectations are factors in the successful implementation and adoption of remote work. Still, in this dynamic, it is essential to build trust with employees, treating the company as an entity governed by procedures while also prioritizing the human link that unites its components. Establish an ecosystem in which communication is fluid among stakeholders, while providing an environment where points of divergence can be resolved.

In addition, teleworking involves using telecommunication software on a machine connected to the Internet, with the organization managing the employee’s workload remotely (Gajendran & Harrison, 2007). Therefore, teleworking requires a customized technological infrastructure for the implementation of the remote workstation, the planning of the work, the context for the preparation of an appropriate partnership in terms of information systems, dynamism in the technological collaboration, including support devices for teleworking applications, mobile phone equipment, laptops, the provision of secure access to data and systems, an IT system to monitor teleworking processes, and so on. Implementing telework also requires managers to give employees some freedom to organize their daily activities and manage missions and projects (Vayre & Delfosse, 2019).

2.1.3. The characteristics of telework

Beyond the aspect of organizational performance, on which this study is based, telework has been studied concerning a vast array of factors, including the geographical location where this mode of work is carried out (Martínez Sánchez et al., 2007), technology and accessibility to connectivity (Hackney et al., 2022), the flexibility of working time (Martínez Sánchez et al., 2007), communication tools (Stoian et al., 2022), collaborative worker engagement (Stoian et al., 2022), the vision of productivity, profitability and performance that the company has according to the objectives set and the expected results (Hackney et al., 2022). Other characteristics have been identified from the literature, namely work-life balance (Allen et al., 2015), loneliness in teleworking (Wang et al., 2021), and the sanitary and ergonomic prerequisites for teleworking that require teleworkers to be accompanied and supported, especially in terms of mental and physical health (Lulli et al., 2021). Working remotely also requires adequate training and integration with telework conditions and tools (Lulli et al., 2021), as well as awareness of institutional and company-level agreements and policies that enable telework. In addition, organizations implement a management and monitoring system (Wang et al., 2021) and establish an organizational culture that promotes this way of working (Allen et al., 2015).

Several added values of teleworking have been identified, including reduced travel between the workplace and home, greater flexibility in working hours, and the possibility of achieving a work-life balance (Neufeld & Fang, 2005; Ahmed et al., 2014; O’Keefe et al., 2016). Employees are also less willing to resign (Marx et al., 2021). They also show more investment in the company (Masuda et al., 2017) and a significant increase in performance (Abdel Hadi et al., 2021).

As highlighted above, teleworking also entails challenges related to a significant decrease in socialization, the blurred boundary between private and professional life, and the need for a technological ecosystem and decent working conditions (Felstead & Henseke, 2017; Fauzi & Lucca, 2022). Teleworking can lead to loneliness, a lack of support between employees and managers (Ruiller et al., 2019), and apprehensions of abandonment (Oakman et al., 2020). Given that people working from home tend to make less physical effort (Fukushima et al., 2021), adopt a less healthy diet (Henke et al., 2016), and lose track of time during their remote tasks, research also underscored the issues related to neglect of health, which can lead to negative consequences (Ferreira et al., 2022).

Among best practices, social support is crucial for maintaining consistency in work (Bentley et al., 2016; Pulido-Martos et al., 2021). Additionally, the company is responsible for providing teleworkers with the necessary equipment and ensuring the teleworking conditions (Fauzi & de Lucca, 2022; Carrizosa-Prieto, 2022). It is also essential to consider the adaptation time needed to implement or integrate teleworking for both companies and workers.

2.1.4. Telework regimes: voluntary, mandatory and hybrid arrangements

The literature reviewed spans three distinct telework regimes, which this review treats as an analytical dimension rather than a background condition. The first regime is voluntary or planned telework, typically negotiated between employees and managers, limited to a share of working time, and implemented in organizations that chose this arrangement before 2020 (Allen et al., 2015; Gajendran & Harrison, 2007). The second is mandatory telework imposed during the COVID-19 pandemic, in which entire workforces were relocated to their homes with little preparation, under conditions of health anxiety, school closures and improvised infrastructure; such telework has been described as constrained telework and as an emergency work arrangement rather than as an organizational choice (Chamoux, 2021; Kniffin et al., 2021; Mbey Sendegue & Grouille, 2023; Wang et al., 2021). The third is post-pandemic hybrid telework, in which organizations deliberately combine remote and on-site days as part of their work design and talent strategies (Bloom et al., 2024; Naqshbandi et al., 2024).

These regimes differ in the mechanisms they activate. Voluntariness sustains the reciprocity that social exchange theory places at the heart of the relationship between organizational support and performance, whereas imposed telework removes the arrangement's discretionary character (Cropanzano & Mitchell, 2005). Emergency conditions inflate job demands and deplete resources in ways that the job demands-resources model predicts will harm well-being and performance, independently of telework itself (Bakker & Demerouti, 2017). Hybrid designs, finally, allow organizations to allocate interdependent and knowledge-intensive tasks to on-site days, which alters the knowledge-sharing conditions discussed in Section 2.3. For these reasons, findings obtained under mandatory pandemic telework cannot be interpreted as directly comparable to those obtained under voluntary or hybrid arrangements, and the synthesis in Sections 4 and 5 reports the regime under which each finding was produced.

2.2. Organizational performance

2.2.1. The foundations of organizational performance

The literature distinguishes between different forms of performance, particularly social performance (Allouche & Laroche, 2005; Fabi & Lacoursière, 2009), organizational performance (Arcand et al., 2004), operational performance (Faems et al., 2005; Fabi et al., 2009), environmental performance (Hitchens et al., 2003), economic performance (Brulhart et al., 2009), financial performance (Allouche & Laroche, 2005; Faems et al., 2005; Maes et al., 2005; Sels et al., 2006; Brulhart et al., 2009), accounting and stock market performance (Allouche & Laroche, 2005; Bughin & Colot, 2008), human, commercial and productive performance (Allouche & Laroche, 2005; Brulhart et al., 2009) and overall or unqualified performance (Oswald et al., 2009; Fernhaber & Li, 2010; Pettersen et al., 2011; Gronum et al., 2012; Blackburn et al., 2013; Saeed et al., 2014; Lonial & Carter, 2015; Maseda et al., 2015). Although the literature has discussed these types of performance, they are not the only aspects to consider.

Within this research theme, particular attention is paid to organizational performance (Perry-Smith & Blum, 2000; Obloj et al., 2010). Organizations primarily aim to optimize business performance and competitiveness. Management scientists argue that organizational performance is a crucial factor that should not be overlooked. The energy invested in the market, customers, and capital determines this performance, which is necessary for the survival of contemporary companies. Organizations can assess their overall health and market position using performance indicators.

According to the literature, organizational performance is defined not by what it represents, but by the elements that make it measurable. It is similar to organizational effectiveness and reflects how well an organization achieves results with minimal effort from its team, given its limited resources (Georgopoulos & Tannenbaum, 1957). Other researchers

have noted that organizational performance results from a company's ability to leverage its environment to obtain and use limited resources (Yuchtman & Seashore, 1967).

An organization is considered a performance organization when productivity, motivation, and stakeholder satisfaction are high. At the same time, turnover rates, costs, and a poor work climate are low or nonexistent (Warmington et al., 1977). Porter (1986) characterizes an organization's performance as its ability to deliver value to its target. The term "performance" was first used in the literature. According to Taouab and Issor (2019), small business operations are generally less complex, and performance is often measured by cash flow. In large companies, however, performance matters because success depends on each stakeholder's commitment to achieving the main objectives (Atkinson et al., 1997). The performance measurement system is a separate grouping of (non-)financial measures that supports decision-making by processing and evaluating measurable performance data (Gimbert et al., 2010).

Organizational studies show that various determinants influence organizational performance. Kaplan and Norton (2005) deepened understanding of performance measurement by developing the *Balanced Scorecard (BSC)*. They argue that the BSC combines financial and non-financial performance measures to help companies optimize internal and external processes. Regarding internal processes, after evaluating decision-making tools, performance must be considered to better meet target needs and create added value (Kaplan & Norton, 2005). This measurement method has become widely used and adapted across sectors (Al-Najjar & Kalaf, 2012). Likewise, Awan et al. (2015) defined organizational performance as a dynamic concept that combines financial and non-financial factors to assess the achievement of results relative to stated objectives (Lebas & Euske, 2002).

In addition, the company's internal strategies are reflected in all its activities and market impact, guided by the objectives it has set for itself (Pedro, 2004). The vision of innovation and organizational development considers intangible elements such as human resources, know-how, and company culture in the company's value-creation trajectory (Sharma, 2009). It is also essential to build the company's infrastructure, management, and information systems and procedures (Kaplan, 2012) to support the organization's expansion.

The notion of overall performance or organizational performance is also viewed by some authors as the manifestation of long-term development (Acquier & Aggeri, 2007; Ivory & Brooks, 2018), equivalent to a conception of the organization's development in line with the company's sustainability challenges, as well as with all the human and natural systems in which it is situated. This conception draws on stakeholder theory, derived from Kant's second categorical imperative, to argue that each stakeholder in an organization should be treated as an end (i.e., with independent motivations, goals, and preferences) rather than a means to accomplish others' objectives (Evan & Freeman, 1988). This approach serves as the theoretical basis for the organization's overall performance. It requires redefining the company's meaning as a combination of various stakeholders' interests and the satisfaction of those interests beyond those of company shareholders.

2.2.2. Measuring organizational performance

Several quantitative or qualitative non-financial criteria are used to measure an organization's performance (Bansal, 2005). However, this performance measure has become skewed toward financial indicators over time because they were considered more objective, reliable, and easier to operationalize. Yet, over the past few decades, organizational performance has gradually become less limited to financial aspects alone, as it has become evident that organizational performance is a multidimensional concept despite the challenges of measuring a multifactor construct. In fact, the complexity of achieving certain types of performance and the difficulties of epistemological compatibility of performance measures at different levels are frequent issues.

Ittner and Larcker (1998) argue that during the 1990s, normative models that integrated several aspects of overall performance based on performance descriptions assimilated criteria of integration and equilibrium. Performance measurement and quality improvement are imperative to research and work growth (Farzianpour et al., 2011; Ballard, 2019; Habtoor & Alharbi, 2020). One of managers' roles is to ensure the company's performance at all levels (Kim et al., 2021; Rasul et al., 2021). Organizational performance is a broad concept that encompasses the products and services a company offers (Arif & Akram, 2018; Posthuma et al., 2018; Tweedie et al., 2019). In other words, organizational performance refers to how the company's mission, tasks, and activities are implemented and the quality level achieved (April Chang & Chung Huang, 2005; Ahmad & Ahmad, 2019). Thus, evaluating organizational performance is one of the challenges that has captured much of researchers' and business leaders' attention. Several researchers have examined organizational performance and its relevance in companies (Marr & Schiuma, 2003; Goshu & Kitaw, 2017; Bourne et al., 2018).

Organizational performance measurement is an effective and essential measure for resource management, as it ensures that the objectives and interests of employees and organizations are optimally achieved (Boxall & Huo, 2022; Cooke et al., 2022). The organization's desire to grow and have talented employees requires an effective evaluation system (Thoma et al., 2021; Daharat et al., 2022). Table 2 summarizes the various measures of organizational performance.

Table 2: The different measures of organizational performance

Measures/Factors	Explanations	Interpretations
Financial profitability	Measurement of benefits made against costs and investments.	Measures the ability of organizations to manage net profits to ensure financial sustainability and growth by reinvesting profits.
Productivity	A measure of the efficiency with which resources are used to produce goods and services.	Evaluate resource efficiency to drive cost reduction and increase profit margins. The higher the productivity, the more competitive the business.
Quality	Measurement of compliance with standards and quality expectations of products or services.	Quality measurement ensures that products and services meet customer needs, thereby influencing customer satisfaction and loyalty. Meeting customers' needs and expectations is a key performance factor.
Customer satisfaction	A measure of customer satisfaction with the products or services offered.	Assessing customer satisfaction helps identify weaknesses in the organization and improve them. This factor must be measured to contribute to organizational performance.
Innovation	A measure of the organization's ability to innovate and introduce new products, services, or processes.	A high level of innovation differentiates the company from its competitors and helps it meet the changing needs of its target. Indeed, an innovative organization reflects its performance.
Environmental performance	Measuring the environmental impact of the organization's operations.	Considering this factor shows the company's commitment to sustainable practices. This helps manage energy consumption and reduce waste.
Social Performance	Measuring the social impact of the organization, including corporate social responsibility, diversity, and ethics.	Improved social performance reflects the organization's commitment to corporate social responsibility. Effective social performance considers stakeholders' needs and interests and promotes inclusion and relationships among them.
Operational efficiency	A measure of the organization's ability to achieve its business objectives effectively.	Evaluating operational efficiency reduces costs and waste. Process optimization helps maintain the company's competitiveness and reduces operational risks.

2.3. Theoretical framework: mechanisms linking telework to organizational performance

Rather than treating theories as optional lenses for interpretation, this review uses four complementary theoretical perspectives to specify the mechanisms through which telework may affect organizational performance and the conditions under which these mechanisms operate. These perspectives were selected because they address the four families of antecedents that recur in the telework literature (relational, psychological, resource-based and institutional) and because, taken together, they explain why the same practice can produce divergent outcomes. They structured the coding scheme (Section 3.4), the organization of the evidence synthesis (Section 5), the integrated framework (Section 6) and the research propositions (Section 7).

Social exchange theory (Blau, 1964; Cropanzano & Mitchell, 2005; Cropanzano et al., 2017) conceptualizes telework as a discretionary benefit that signals organizational trust and support. Employees who perceive this support reciprocate through commitment, effort and reduced turnover, which in turn sustain productivity and retention (Redmond, 2015). The theory identifies a first mechanism, reciprocity, and a first boundary condition: exchange requires voluntariness

and trust. Imposed telework, or telework accompanied by intensive digital monitoring, weakens or reverses the exchange because the arrangement no longer signals trust (Aloisi & De Stefano, 2022; Sewell & Taskin, 2015).

The job demands-resources model (Bakker & Demerouti, 2007, 2017) explains how telework reshapes the balance between the demands employees face and the resources available to them. Telework adds resources such as autonomy, flexibility and reduced commuting, but it also creates demands such as isolation, technostress, blurred boundaries between work and private life and, under emergency conditions, care obligations and inadequate home workspaces (Fernández-Fernández et al., 2023; Vayre, 2019). Well-being and work engagement mediate how this balance affects individual and, in aggregate, organizational performance. The model thus supplies a second mechanism, the resource-demand balance, and a second boundary condition: telework intensity and home conditions determine whether resources or demands dominate.

The resource-based view (Barney, 1991) and its knowledge-based extension (Grant, 1996; Nonaka, 1994) locate telework's performance effects in organizational resources and capabilities rather than in the practice itself. Digital infrastructure, digital skills, remote-management capabilities and, above all, routines for creating, sharing and applying knowledge are the resources that make telework productive. Because dispersed work reduces the incidental, face-to-face interactions through which tacit knowledge circulates, telework can fragment organizational knowledge and encourage knowledge hiding unless it is accompanied by deliberate knowledge routines (Cirielli De Mola et al., 2025; Danko & Crhová, 2025; Mubarak et al., 2024). This knowledge-sharing mechanism anchors the review in the knowledge economy literature; its boundary conditions are task interdependence and the tacit or explicit nature of the knowledge involved.

Institutional theory (DiMaggio & Powell, 1983; Scott, 2014) explains why organizations adopt and design telework as they do, and the contextual heterogeneity of its effects. Coercive pressures (public health mandates and labour regulation), normative pressures (professional and sectoral norms) and mimetic pressures (imitation of peers) shape adoption independently of expected performance gains. National culture and legal frameworks further condition how telework practices are perceived and enacted (Caraiani et al., 2023). Institutional theory thus supplies a third boundary condition, context, and explains why the pandemic regime, which was institutionally imposed, activates different mechanisms than voluntary adoption.

Figure 1 summarizes the a priori model that results from these perspectives. Telework affects organizational performance through three mechanisms (reciprocity, the resource-demand balance and knowledge sharing) that are enabled or constrained by organizational factors (support and trust, leadership and management practices, digital infrastructure and skills, and knowledge routines) and moderated by three boundary conditions (telework regime and voluntariness, telework intensity and home conditions, and institutional and cultural context). The empirical synthesis in Sections 4 and 5 confronts this model with the evidence, and Section 6 refines it into the integrated framework.

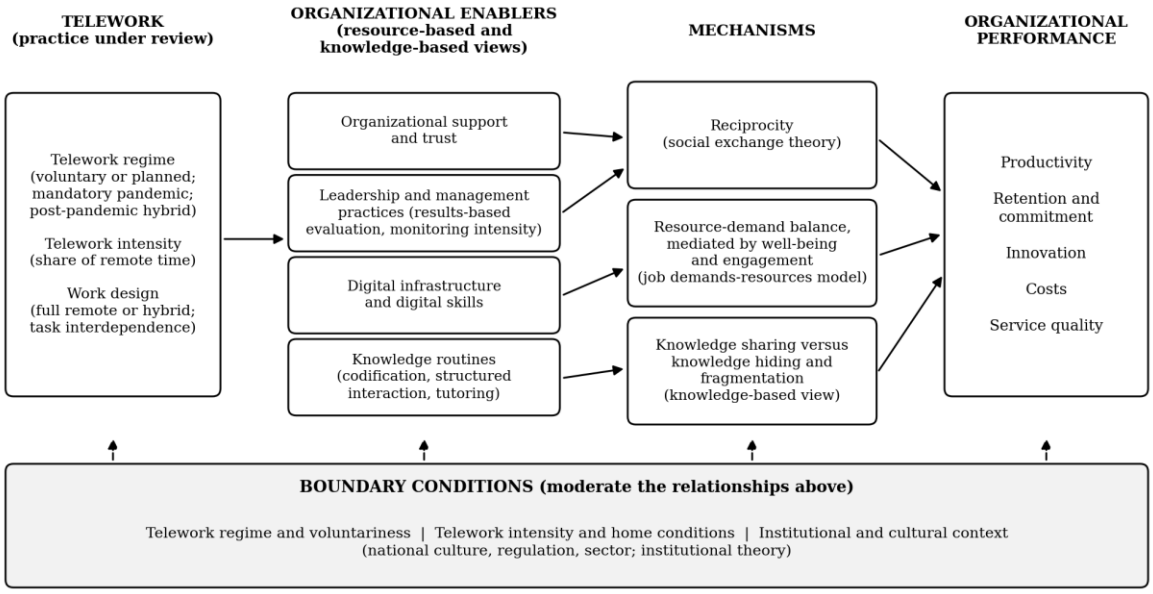

Figure 1. A priori model of the mechanisms and boundary conditions linking telework to organizational performance

3. Methodology

3.1. Review design and reporting

Following a rigorous, transparent, and reproducible process, we conducted a systematic literature review (SLR) to answer the research questions and reach the specific research objectives set out in Section 1. This approach systematically and comprehensively identifies, selects, evaluates, and analyzes research results on a specific theme (Tranfield et al., 2003). Systematic approaches are considered, first, as the least biased and most rational channels for summarizing research results, and second, as a powerful tool for providing the best available knowledge about a research topic (Fox, 2005).

The review was designed as a theory-informed, configurative synthesis (Tranfield et al., 2003; Denyer & Tranfield, 2009): its purpose is not to estimate a pooled effect of telework on performance, which the heterogeneity of the outcomes, designs and contexts involved would not permit, but to establish which findings are consistent, under which conditions they hold and how much confidence they warrant. The review is reported in accordance with the PRISMA 2020 statement (Page et al., 2021), and Figure 2 presents the flow of records. No protocol was registered in advance; however, we fixed the eligibility criteria, coding scheme, and appraisal criteria described below before data extraction began.

Table 3 shows how the four research questions are carried through the search strategy, the coding scheme, the quality appraisal and the analysis, so each conclusion can be traced back to the question it answers and to the evidence on which it rests.

Table 3: Coherence between the research questions, the search strategy, the coding scheme and the analysis

Research question	Search strategy element	Coding categories (Table 6)	Analysis and reporting
RQ1: theoretical lenses, designs, samples, contexts, measures and quality of the studies	Eligibility criterion I4 (relationship between telework and a performance outcome); no restriction on design or context, so that the profile of the corpus can be described	Theoretical lens; design; sample; context; performance measure; regime	Study characteristics (Section 4.2, Table 7) and quality appraisal (Section 4.3, Table 8)

Research question	Search strategy element	Coding categories (Table 6)	Analysis and reporting
RQ2: outcomes associated with telework, consistency of the evidence and differences between regimes	Performance and organizational performance concept blocks (Section 3.2)	Outcome type; direction and significance of findings; regime; telework intensity	Outcome-by-outcome synthesis with confidence grading (Sections 5.1 to 5.4 and 5.7, Table 9)
RQ3: mechanisms and boundary conditions	Telework and organization concept blocks; full-text screening for organizational antecedents	Mechanism codes (reciprocity, support and trust; resource-demand balance; knowledge sharing); boundary-condition codes (regime, monitoring intensity, context)	Mechanism-based synthesis (Sections 5.3, 5.5, 5.6) and integrated framework (Section 6)
RQ4: propositions and recommendations	Not applicable (derived from the synthesis)	Contradictions between studies; reported limitations and gaps	Contradiction analysis (Table 10), propositions (Section 7) and evidence-linked recommendations (Section 8, Table 11)

3.2. Search strategy

The review covers publications available between 2004 and 2023, that is, the two decades that followed the state-of-the-art review by Bailey and Kurland (2002), which found the empirical evidence on the outcomes of telework for organizations to be limited and largely based on self-reports. Research published before that date is synthesized by Bailey and Kurland (2002) themselves and by the meta-analysis of Gajendran and Harrison (2007), against which the present review is positioned (Table 1); the closing year allows post-pandemic hybrid arrangements to be captured. We considered publications in English and French because these are the two languages the research team masters and because a substantial part of the francophone literature on telework is not indexed in anglophone databases.

Between February 1st and February 28th, 2024, we searched eight sources, and Table 4 justifies their selection. ABI/Inform Collection and Business Source Complete were selected because they are the two most comprehensive databases in management and business studies and index the journals in which research on telework and organizational performance is concentrated; Scopus was added for its multidisciplinary coverage and citation data; Taylor & Francis Online was searched directly because several journals central to the field of work and employment are published there; Cairn.Info was searched for the francophone literature in management and psychology; Medline with Full Text was included because part of the telework literature on productivity and well-being is published in occupational health journals; Google Scholar was used as a complementary source to identify grey-adjacent peer-reviewed material not indexed elsewhere, with only the first pages of results screened; and Sofia, the discovery service of the Quebec university libraries, was used to identify additional records across the catalogues of the research team's institutions.

The search strings were constructed from six concept blocks, listed below as used in the original search. Within each block, terms were combined with the OR operator; blocks were then combined with the AND operator as follows: (teleworking block) AND (performance block OR organizational performance block) AND (organization block). The influence block and the work mode block were used as optional refinements in the two databases that returned very large numbers of records (ABI/Inform Collection and Business Source Complete). We searched the title, abstract, and keyword fields, adapted the field syntax to each database, and used the French equivalents of each term in Cairn.Info and Sofia.

The concept blocks of the original search were:

1) Teleworking: ("Working from home" **OR** "Remote work" **OR** "Work abroad");
2) Performance: ("Yield" **OR** "Performance" **OR** "Productivity" **OR** "Efficiency" **OR** "Profit");

3) Organizational performance: ("Organization performance" **OR** "Company Yield" **OR** "Firm Efficiency" **OR** "Firm accomplishment" **OR** "Organization profit");
4) Enterprise: ("Organization" **OR** "Company" **OR** "Firm");
5) Influence: ("Impact" **OR** "Effect");
6) Work mode: ("Work mode" **OR** "Work style" **OR** "Working Channel").

The database-specific strings are shown in the search log as Appendix C. Four terms in the original blocks ("work abroad", "yield", "company yield" and "working channel") are imprecise. We retained them at the search stage to maximize recall because they appear in translated or non-native English publications indexed in francophone and multidisciplinary sources, and their effect on precision was absorbed during screening. A post hoc check of the included publications shows that none was retrieved exclusively through these terms, so that their removal would not alter the corpus. Two limitations of the strategy are acknowledged in Section 9: the terminology of the field is evolving, and knowledge-related terms (knowledge sharing, knowledge hiding) were not included in the strings because the knowledge-based mechanism was introduced at the coding stage rather than at the search stage.

Table 4: Sources searched, rationale, fields and records retrieved

Source	Rationale and coverage	Fields and language	Records retrieved
ABI/Inform Collection (ProQuest)	Comprehensive coverage of management, business and economics journals	Title, abstract, keywords; English and French	5,392
Business Source Complete (EBSCO)	Comprehensive coverage of business and management journals, including practitioner-oriented journals	Title, abstract, keywords; English	1,592
Sofia (discovery service of the libraries of all the universities located in Quebec)	Cross-catalogue discovery of books, chapters and journals of the research team's institutions, including francophone sources	Title, abstract, subject; English and French	2,039*
Taylor & Francis Online	Direct access to journals central to work and employment research	Title, abstract, keywords; English	189
Cairn.Info	Francophone journals in management, psychology and sociology	Title, abstract, keywords; French	53
Medline with Full Text	Occupational health literature on telework, productivity and well-being	Title, abstract; English	21
Scopus	Multidisciplinary coverage and citation data	Title, abstract, keywords; English	12
Google Scholar	Complementary identification of peer-reviewed material not indexed elsewhere (first pages of results screened)	Full text; English and French	10
Total			9,308

Note: * The number of records retrieved from Sofia was obtained by difference between the total number of records (9,308) and the seven sources reported individually; it should be confirmed against the search log. Search period: 2004 to 2023. The searches across databases were executed between February 1st and February 28th, 2024.

3.3. Eligibility criteria and screening

Table 5 lists the inclusion and exclusion criteria, which were fixed before screening. The decisive criterion (I4) is that a publication examines the relationship between telework, whatever the term used by its authors, and at least one organizational or work performance outcome, or an organizational antecedent of that relationship for which performance results are reported. Publications that address only one of the two concepts (E1), or that mention performance without examining it (E2), were excluded.

Table 5: Inclusion and exclusion criteria

Criterion	Definition
I1 Publication type	Peer-reviewed journal articles and refereed conference papers with an accessible full text

Criterion	Definition
I2 Period	Published or available online between 2004 and 2023 (publications available online in 2023 whose volume year is 2024 were retained)
I3 Language	English or French
I4 Focus	Examines the relationship between telework (telework, telecommuting, remote work, working from home, virtual work, hybrid work) and at least one organizational or work performance outcome (productivity, performance, efficiency, innovation, costs, retention, service quality), or an organizational antecedent of this relationship for which performance results are reported
E1 Single concept	Addresses telework or organizational performance, but not the relationship between them
E2 Performance not examined	Mentions performance in the background or implications only, without reporting results on it
E3 Publication type	Editorials, theses, working papers, consultancy reports and non-refereed proceedings
E4 Duplicate report	Duplicate report of a study already included (the most complete version was retained)
E5 Access	Full text not accessible through the institutions' subscriptions or from the authors

Note: I = inclusion criterion; E = Exclusion criterion.

Figure 2 presents the flow of records in the PRISMA 2020 format (Page et al., 2021). The searches identified 9,308 records. Records were exported to the EndNote reference manager, where duplicates were first identified automatically based on the digital object identifier, title, and first author, then confirmed manually, following the procedure recommended by Bramer et al. (2016). This step removed 6,000 records. The high proportion of duplicates reflects overlapping coverage across ABI/Inform Collection, Business Source Complete, and the Sofia discovery service, which indexes several other sources, as well as retrieving the same record under several concept blocks.

One reviewer screened the remaining 3,308 records by title, abstract, and keywords against the criteria in Table 5. Records were excluded when these three elements did not show a joint focus on telework and organizational performance or fell outside the scope of the review (n = 2,627), or when they addressed only one of the two concepts (criterion E1, n = 300). The 381 publications retained were assessed for eligibility in full text, and 301 were excluded, mainly because performance was mentioned but not examined (E1 and E2), and to a lesser extent because they were not peer-reviewed (E3), duplicated an included study (E4) or could not be accessed (E5).

Eighty publications met all the inclusion criteria, and, of these, 27 reported extractable evidence (primary empirical results, or synthesized results in the case of reviews and meta-analyses) on the relationship between telework and organizational performance; they constitute the core analytical corpus on which the study characteristics (Section 4.2), the quality appraisal (Section 4.3) and the evidence synthesis (Section 5) are based, and they are listed in Table 7. The remaining 53 publications met the inclusion criteria because they document the organizational antecedents or contextual conditions of the telework-performance relationship without reporting performance results; they inform the conceptual background (Section 2) and the interpretation of the boundary conditions (Section 5.6).

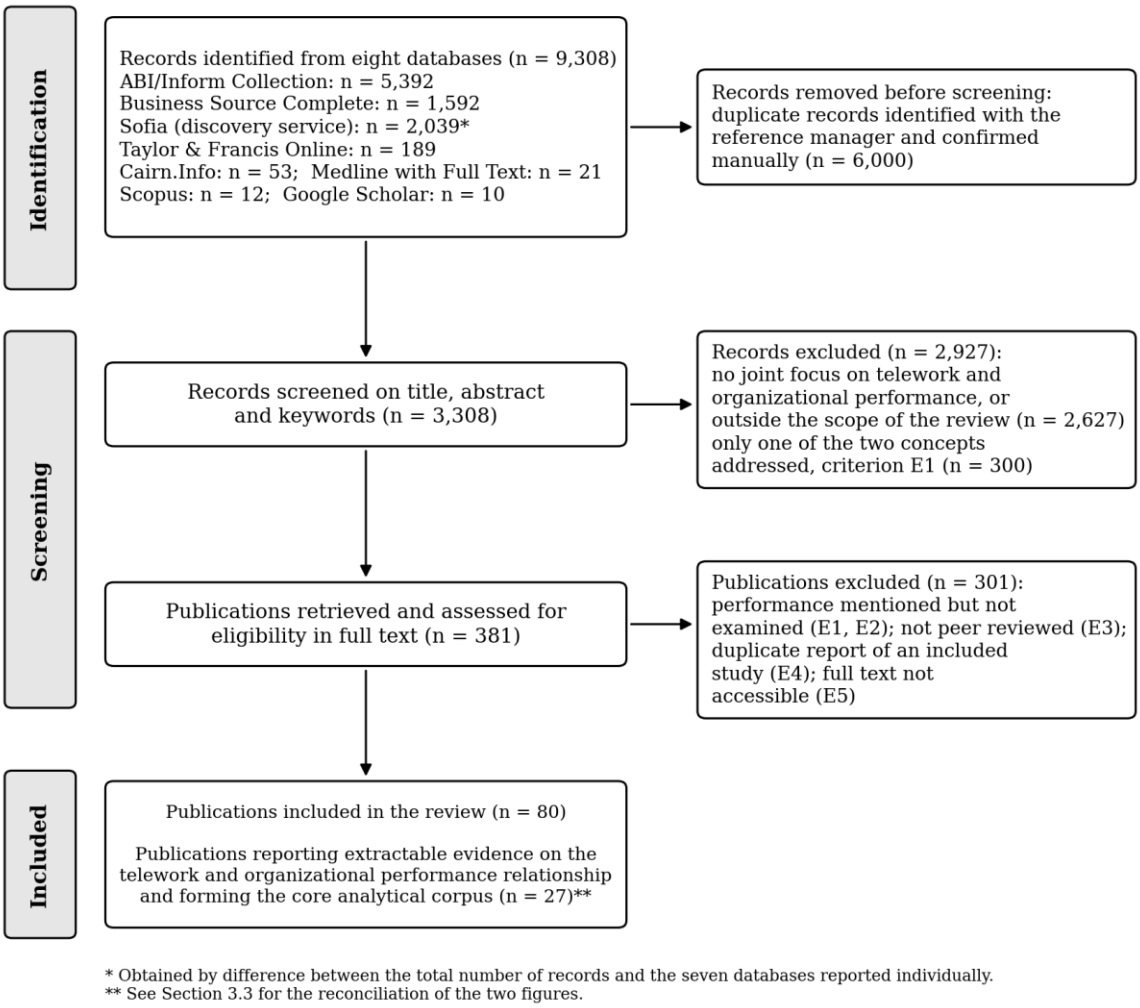

Figure 2. PRISMA 2020 flow diagram of the identification, screening and inclusion of publications

3.4. Data extraction and coding

Each of the 80 included publications was read in full using a structured reading procedure in which the title, abstract, results, and discussion were examined first, followed by the full text (Tanti et al., 2010). For each publication, a structured reading note recorded its objectives, theoretical lens, research design, sample, context, performance measures, main results, limitations and a critical commentary; an example and the full set of notes are provided in Appendix A of the supplementary materials.

The reading notes enable a deeper, more straightforward understanding of each article through in-depth analysis of the arguments, results, and implications as presented by the authors. These notes also highlight data from various sources, supporting a critical and reasoned approach to the scientific literature on the subject. Northedge (2005) suggests maintaining awareness of the larger context from which the text is extracted to maximize the effectiveness of note-taking. These notes should be clear and concise, capturing the document's foundation (Cook & Dupras, 2004).

The note-taking process also followed a research strategy, including thoroughly understanding the research topic, formulating essential questions, and identifying achievable goals (Punch, 2016). The evaluation also examined the publication’s organization, structure, and main ideas (Snow et al., 2000). It also highlighted the publication’s sources, implications, and conclusions. This approach enabled a coherent analysis of the publication set. For illustrative purposes, we present a sample reading note in the appendix (Table A.1). Additional reading notes are available in Appendix A of the “supplementary materials” file.

We then coded the reading notes using the scheme presented in Table 6, derived from the research questions and the theoretical framework in Section 2.3. The scheme distinguishes descriptive dimensions (theoretical lens, design, sample, context, performance measure), the telework regime under which the evidence was produced, the mechanisms and boundary conditions specified in Section 2.3 (including the knowledge-related mechanisms), and the direction and statistical significance of each reported relationship. Coding was performed by one author and checked by a second; discrepancies were resolved by returning to the full text.

Table 6: Coding scheme applied to the included publications

Dimension	Categories and codes
Theoretical lens	Named theory or model (e.g., social exchange, job demands-resources, leadership theories, social network, institutional); no explicit theory
Research design	Cross-sectional survey; longitudinal survey; experiment or quasi-experiment; secondary or administrative data; qualitative; conceptual or narrative review; systematic review or meta-analysis
Sample	Level (employees, managers, teams, firms); size; sampling method (probability, convenience, single organization); occupational group
Context	Country and region; sector (public administration, information technology, education, business services, other); organization type
Telework regime	Voluntary or planned (pre-2020 or by organizational choice); mandatory pandemic (data collected under COVID-19 restrictions); post-pandemic hybrid; mixed or not specified
Telework intensity	Full remote; hybrid; partial (share of remote time when reported)
Performance outcome and measurement	Outcome (productivity, individual or team performance, organizational performance, innovation, costs, retention or turnover, service quality, well-being as intermediate outcome); measurement (self-reported perception, supervisor rating, objective indicator); level of analysis
Mechanisms (Section 2.3)	Reciprocity: organizational support, trust, autonomy; resource-demand balance: well-being, engagement, technostress, work-life boundaries, home conditions; knowledge sharing: knowledge sharing, hiding, fragmentation, knowledge leadership, communication routines, tutoring; leadership and management practices: results-based evaluation, monitoring intensity, e-leadership
Boundary conditions	Voluntariness; monitoring intensity; national culture and regulation; sector; task interdependence
Findings	Direction (positive, negative, null, mixed) and significance of each reported relationship; effect size when reported; contradictions with other studies
Limitations	Limitations reported by the authors (design, sample, measurement, generalizability)

3.5. Quality appraisal and confidence grading

Because a synthesis's value depends on the quality of the studies it aggregates, the authors appraised the 27 core studies using criteria adapted from the Mixed Methods Appraisal Tool (Hong et al., 2018) and the literature on method bias in survey research (Podsakoff et al., 2003). Five criteria were applied to the primary studies: (1) research design, distinguishing cross-sectional, longitudinal and experimental or quasi-experimental designs; (2) sample quality, distinguishing probability samples and large administrative samples from convenience samples and single-organization samples, and considering sample size; (3) measurement validity, distinguishing validated multi-item scales with reported reliability from ad hoc measures; (4) the nature of the performance measure, distinguishing objective indicators and supervisor ratings from self-reported perceptions; and (5) the risk of common-method bias, which is high when predictors and outcomes are collected from the same respondents at the same time without procedural or statistical remedies. We appraised reviews and meta-analyses for search transparency, the presence of a quality assessment of primary studies, and the coherence of their synthesis; we did not rate conceptual or narrative contributions but used them only to interpret mechanisms. Each primary study received an overall rating (low, moderate or high). Ratings were assigned by one author and checked by a second.

We used the ratings in two ways. First, we reported them study by study (Table 8) so readers can see the basis for each finding. Second, they were combined with the consistency and the volume of the evidence to grade the confidence that can be placed in each synthesized finding, following the logic of the GRADE-CERQual approach for evidence syntheses (Lewin et al., 2018). Confidence was graded as high when a finding rests on several methodologically adequate studies with consistent direction across regimes and contexts; moderate when the direction is consistent but the studies are predominantly cross-sectional, single-source or confined to one regime; low when the finding rests on few studies, on low-rated studies or on divergent results; and very low when it rests on a single low-rated study or on conceptual work only. Table 9 reports the grades and qualifies every statement made in Sections 5 to 8.

3.6. Synthesis approach

The synthesis proceeded in three steps, combining the thematic analysis retained from the previous version of the review with a structured comparison of the studies. First, an inductive thematic analysis of the reading notes (Braun & Clarke, 2006; Paillé & Mucchielli, 2021) identified the corpus's recurring themes; this step is documented in Appendix B of the supplementary materials. Second, the themes were mapped onto the outcomes, mechanisms and boundary conditions of the theoretical framework (Section 2.3), which produced the structure of Section 5: outcomes (productivity and individual performance; retention, commitment and costs; innovation and knowledge sharing; well-being and the resource-demand balance), mechanisms (leadership, support and monitoring) and boundary conditions (regime, intensity, institutional and cultural context). Third, within each theme, the studies were systematically compared on their theoretical lenses, designs, samples, contexts, measures, and regimes (Table 7), and the direction of their findings was tabulated. Contradictory findings were not averaged; instead, they were examined for design, measurement, regime, or context differences that could explain them (Table 10), following the configurative logic of thematic synthesis (Thomas & Harden, 2008). This procedure allows higher-order conclusions to be drawn from the pattern of agreement and disagreement across studies rather than from the results of individual studies.

The first step, thematic analysis, is a qualitative method that involves identifying, analyzing and interpreting patterns of meaning (themes) in qualitative data. Overall, thematic analysis divides the body of publications into fundamental elements, deepening understanding of key issues, trends, and emerging patterns.

This method consists of several steps. First, familiarization with the data involves thoroughly reading scientific publications and taking notes. Second, researchers identify initial themes based on research objectives or questions and organize them from the data. Once the main themes have been identified, the thematization process begins, a central step that aims to transform a given corpus into several topics or categories (Paillé & Mucchielli, 2021). This step requires the researcher to reflect analytically and interpret the data. The next step is to revisit the themes by examining their relevance to the data and research objectives. At this point, themes can be refined, merged, divided, or excluded. This entire process, involving the recombination of themes, the creation of sub-themes, the major contributions per theme and the emerging themes, is outlined in Appendix B of the supplementary materials file. The six themes that emerged (employee performance and engagement, organizational performance and telework management, well-being and mental health, innovation and the evolution of telework practices, adaptation to environmental change, and remote leadership and management) were then mapped onto the outcomes, mechanisms and boundary conditions of the theoretical framework, as described above.

4. Description and appraisal of the corpus

4.1. Bibliometric profile of the core studies

This section characterizes the corpus before synthesizing results, because the studies' profile determines the weight their findings can carry. Section 4.1 summarizes the bibliometric profile of the core studies; the keyword frequencies and the authors' affiliations previously reported in the body of the article are provided in Appendix B (Tables B.1 and B.2). Section 4.2 compares the studies on their theoretical lenses, designs, samples, contexts, measures and regimes (RQ1), and Section 4.3 appraises their methodological quality.

The keyword analysis (Appendix B, Table B.1) indicates that "Telework" is the most frequent concept, with 19 occurrences. Other keywords, such as working from home and COVID-19, also appear frequently (6 occurrences each). These results highlight the strong relationship between the pandemic context and the development of new work methods.

Additionally, some keywords relate to individual and organizational performance, such as employee and leadership perceived performance (4 occurrences each), productivity, and employee job performance (2 occurrences each). These keywords indicate an interest in studying the effects of telework on employee and organizational performance.

In addition, several underrepresented concepts include “hybrid work environment” and “work flexibility.” Despite their relevance to examining the effects of remote work, the literature explores them less. Terms associated with satisfaction and well-being appear 2 and 3 times, respectively, indicating the critical role of the human dimension in remote work. By inference, the researchers attach importance to studying the effect of telework on employees’ quality of life in the existing literature.

4.1.1. Geographical distribution

Figure 3 highlights the geographical diversity among authors whose publications are encompassed within the sample. According to this figure, Indonesia (13%) and Canada (13%) have a higher proportion of authors, suggesting that the high importance given to this topic, driven by either the adoption of teleworking or the high number of searches on this phenomenon, is a factor. This proportion is moderate in Nigeria (8%), Romania (8%), the United States (8%) and France (6%). These countries thus pay particular attention to teleworking and its implications for organizational performance and employee well-being.

Other countries have a more modest presence, such as Sri Lanka (4%), Spain (4%), the United Kingdom (4%), Australia (4%), Brunei Darussalam, Finland, Pakistan, Botswana, Greece and Iran (each at 2%).

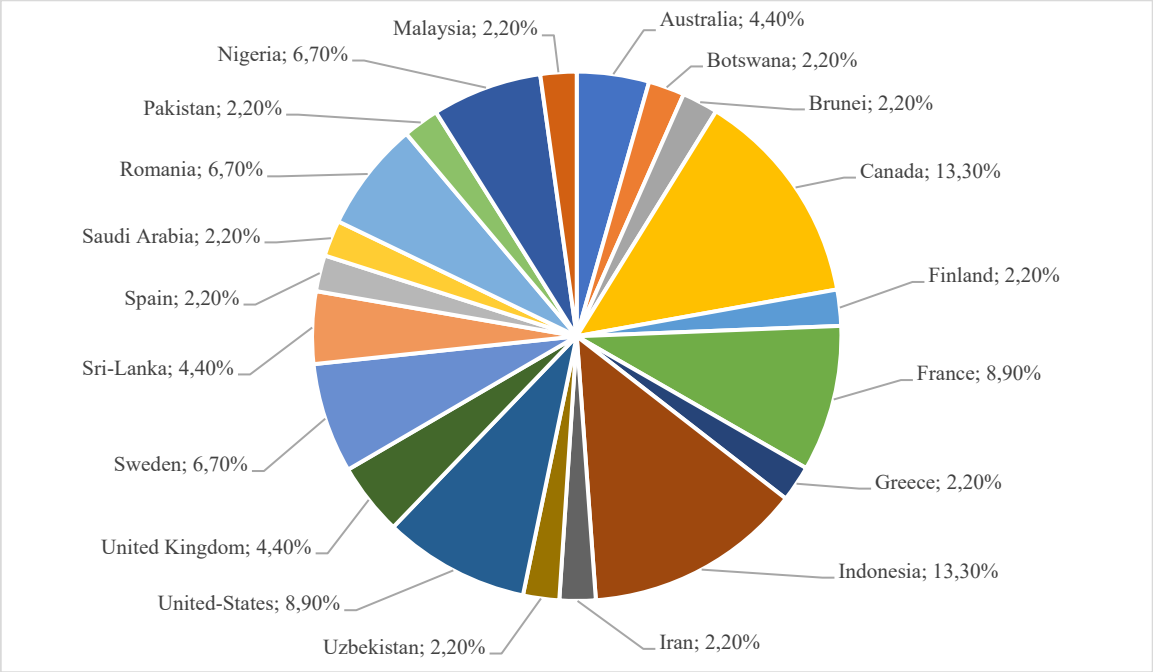

Figure 3. Graph **of the authors’ countries of origin**

Continent-wise, Figure 4 indicates that most authors are from Asia (40%) or Europe (35%). These regions thus contribute significantly to research on teleworking and organizational performance. Third, Africa and America contribute equally. Thus, these continents contribute less than Asia and Europe. Lastly, Oceania represents only 5% of the total research in the sample, reflecting reduced participation in the topic.

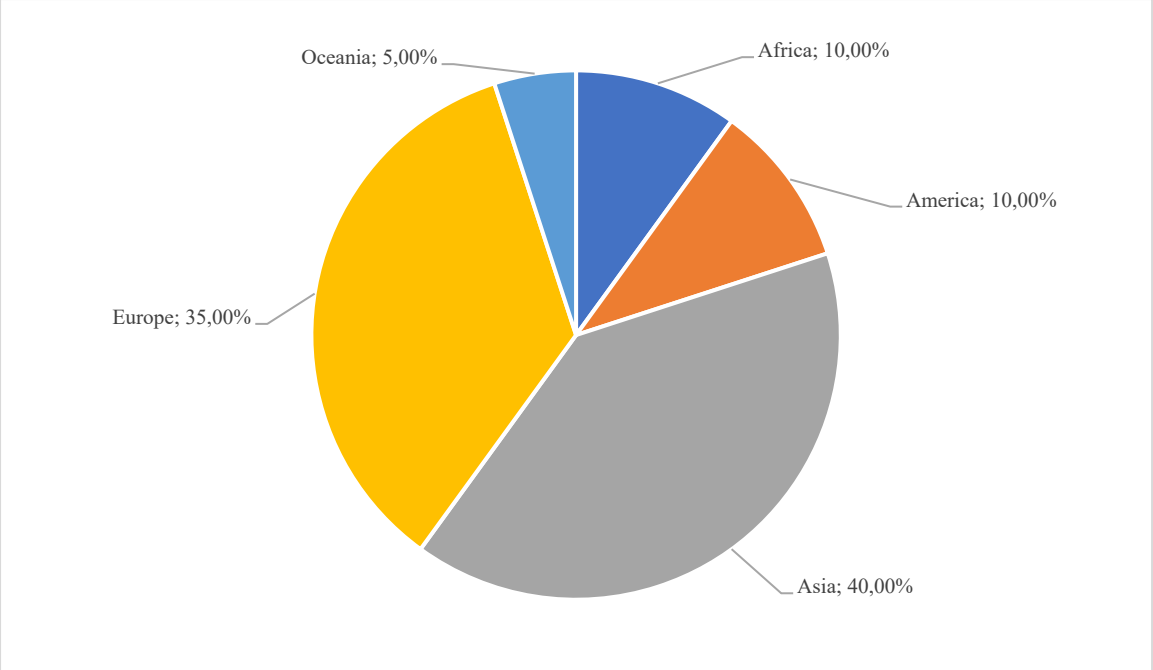

Figure 4. Graph of the authors' continents

4.1.2. Distribution of the studies by year of publication

For this research, we selected articles published between 2004 and 2023. During this period, we observed that research on the impact of telework on an organization's performance has sharply increased. The following figure shows the number of articles published annually and their proportions (see Figure 5).

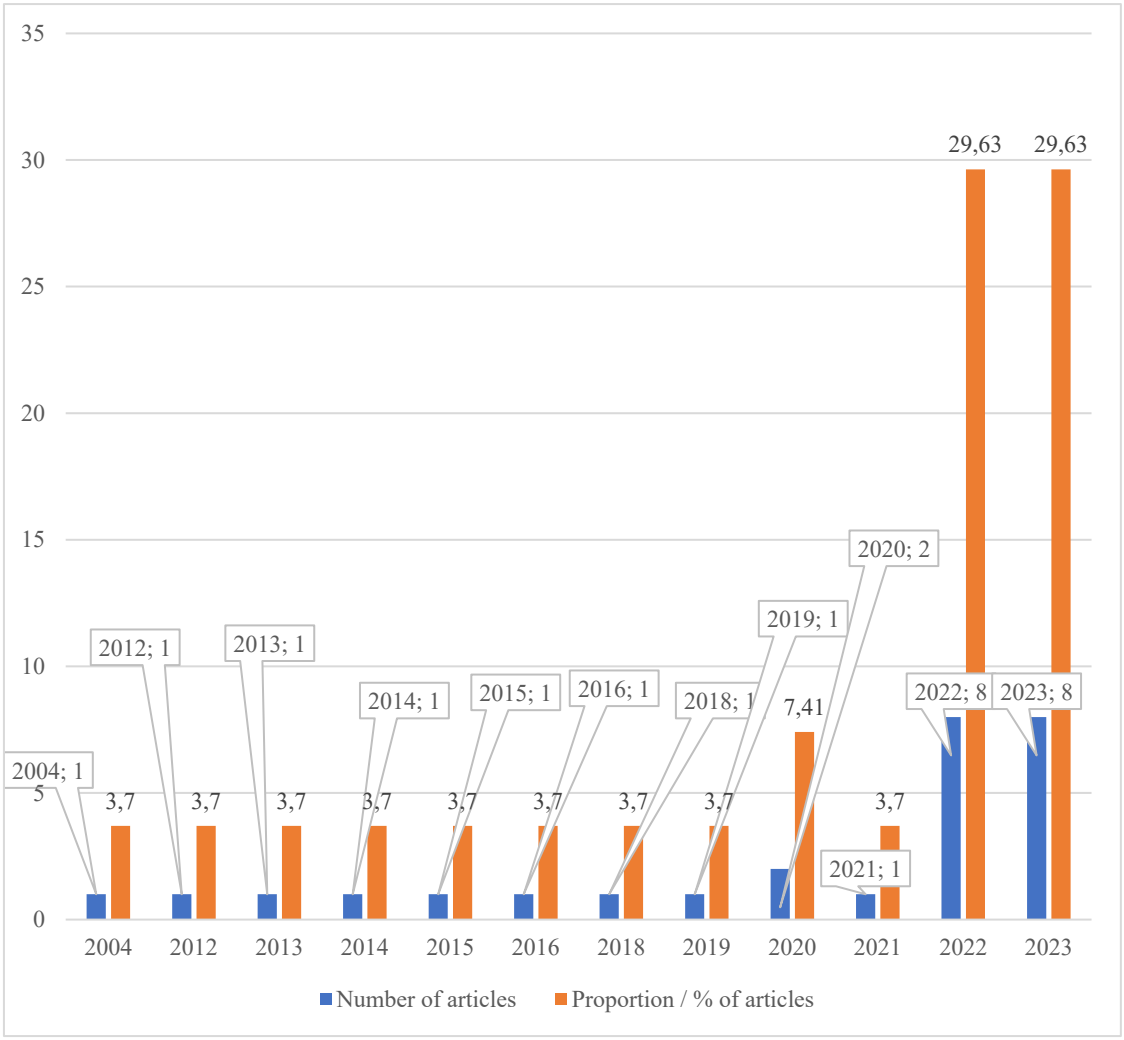

Figure 5. *Evolution* **of the number and proportion of articles published (2004–2023)**

According to this representation, the number (proportion) of articles published between 2004 and 2021 is generally low and constant (the blue [orange] bars), i.e., 1 article per year, except in 2020, when 2 articles were published. In contrast, in 2022 and 2023, the number of articles increased sharply, with eight topical articles per year. Changes in research objectives, orientations, scientific trends or editorial policy due to the COVID-19 pandemic and its aftermath may justify this increase. The consequence for the synthesis is that the corpus is dominated by studies whose data were collected during or immediately after the COVID-19 pandemic, that is, under the mandatory regime described in Section 2.1.4; this is why the regime under which each finding was produced is reported systematically in Sections 4.2 and 5. The counts in Figure 5 sum to 27 and therefore describe the core studies listed in Table 7 rather than the 80 included publications.

4.2. Study characteristics: theoretical lenses, designs, samples, contexts and measures

Table 7 compares the 27 core studies on the dimensions of the coding scheme, and four patterns emerge. First, the corpus is weakly theorized: only ten studies mobilize an explicit theory or model, and these are heterogeneous (the job demands-resources model, leadership theories, a social network perspective, adaptive capacity, technostress, boundary theory and the behavioural model of productive behaviour), while the remaining studies test relationships between variables without an explicit theoretical lens. None of the primary studies mobilizes social exchange theory or the knowledge-based view explicitly, although several measure constructs (organizational support, trust, autonomy, communication and knowledge sharing) that correspond to the mechanisms these theories specify; the mechanisms discussed in Section 5 are therefore inferred from the constructs measured rather than from the theoretical claims of the primary studies.

Second, the designs are homogeneous and limited. Twenty-two of the 27 core studies are primary empirical studies; of these, 20 rely on cross-sectional questionnaire data collected at a single point in time, one uses firm-level data from a national innovation survey (Merlet & Poussing, 2020), and one is a qualitative interview study (Korkeakunnas et al., 2023). No longitudinal, experimental or quasi-experimental study met the inclusion criteria, which is notable given that such designs exist in the wider literature on working from home (Bloom et al., 2013; Bloom et al., 2024; Choudhury et al., 2021; Gibbs et al., 2023) but were published as working papers or in economics journals outside the databases and period covered, or examine productivity without reference to organizational performance as defined here. Three publications are syntheses (Hackney et al., 2022; Harker Martin & MacDonnell, 2012; Mutiganda et al., 2022) and two are conceptual or narrative contributions (Heimburger, 2022; Vayre, 2019).

Third, the samples and contexts are narrow. Primary studies rely almost exclusively on convenience samples of employees, often drawn from a single organization or occupational group (public administration, information technology professionals, education workers, business services), with sizes typically between one hundred and a few hundred respondents. Geographically, Romania, Indonesia, the United States, Nigeria, Canada, and France account for most primary studies, and no study compares countries or sectors within a single design. Fourth, performance is measured almost exclusively through self-reported perceptions of individual or organizational performance; the only objective organizational indicators in the corpus are the innovation outputs used by Merlet and Poussing (2020) and the economic indicators synthesized by Mutiganda et al. (2022). Finally, the regime coding shows that ten studies concern voluntary or planned telework (all pre-pandemic), eleven concern mandatory telework under COVID-19 restrictions, three concern post-pandemic hybrid arrangements, and three could not be assigned to a single regime.

Table 7: Characteristics of the 27 core studies

Study	Country and context (sector)	Design and sample	Theoretical lens	Regime	Performance measure	Direction of the main finding
Arling (2004)	United States; organization with teleworkers	Cross-sectional survey with social network analysis	Social network and social capital perspective	Voluntary	Self-reported performance and satisfaction	Positive, conditional on consistency of media use
Harker Martin and MacDonnell (2012)	International	Meta-analysis of 22 studies	None explicit	Voluntary (pre-pandemic primary studies)	Perceived productivity, retention, commitment, performance	Small positive relationships
Stawarz et al. (2013)	United Kingdom; office workers using tablets	Exploratory study, small sample	Work-life boundary perspective	Voluntary	Work-life balance (no organizational measure)	Negative for work-life boundaries
Aboalmaali et al. (2015)	Iran; ministry employees (public administration)	Cross-sectional survey	None explicit	Voluntary	Self-reported components of performance improvement	Positive; organizational commitment most important
Church (2015)	United States; employees	Cross-sectional survey	None explicit (job benefit perspective)	Voluntary	Perceived benefits, commitment	Positive perceptions; equity concerns
Torten et al. (2016)	United States; teleworkers	Cross-sectional survey	None explicit	Voluntary	Self-reported telework success	Positive; experience is the main predictor

Study	Country and context (sector)	Design and sample	Theoretical lens	Regime	Performance measure	Direction of the main finding
Uchenna et al. (2018)	Nigeria; telecommunication firms	Cross-sectional survey	None explicit	Voluntary	Self-reported quality and timeliness of work, service delivery	Positive but limited effect of tools
Vayre (2019)	France	Narrative synthesis	Psychosocial perspective	Voluntary	Workload, motivation, satisfaction, health	Mixed; risks for workload and health
Merlet and Poussing (2020)	Luxembourg; firms (national innovation survey)	Firm-level secondary survey data, econometric analysis	Innovation economics	Voluntary	Product and process innovation (firm-reported outputs)	Positive; conditional on document access and versatility
Fayzieva et al. (2020)	Uzbekistan; enterprises	Descriptive survey	None explicit	Mandatory pandemic	Labour productivity, entity efficiency (self-reported)	Mixed: positive and negative channels
Busu and Gyorgy (2021)	Romania; employees	Cross-sectional survey, PLS-SEM	Adaptive capacity (mediation model)	Mandatory pandemic	Perceived organizational performance	Positive, mediated by the ability to adapt
Elyousfi et al. (2021)	Canada; public organization, virtual teams	Cross-sectional survey	E-leadership and team dynamics	Not specified	Self-reported virtual team performance	Positive; team dynamics stronger than e-leadership
Catană et al. (2022)	Romania; graduate employees	Cross-sectional survey, cluster analysis	None explicit	Mandatory pandemic	Perceived well-being and productivity	Positive perceptions; heterogeneous clusters
Heimburger (2022)	France	Conceptual	Organizational behaviour theories	Not applicable	Engagement, adaptive performance	Theoretical model, not tested
Hackney et al. (2022)	International	Systematic review	None explicit	Mixed (pre-pandemic and pandemic)	Personal and organizational productivity	Predominantly positive; primary evidence of limited quality
Meiryani et al. (2022)	Indonesia; employees (n = 136)	Cross-sectional survey, regression	Transformational leadership	Mandatory pandemic	Self-reported employee performance	Positive for telework; transformational leadership not significant

Study	Country and context (sector)	Design and sample	Theoretical lens	Regime	Performance measure	Direction of the main finding
Shahrom (2022)	Malaysia; employees under work-from-home requirements	Cross-sectional survey	None explicit	Mandatory pandemic	Self-reported employee performance	Work environment and leadership positive; organizational support not significant
Mutiganda et al. (2022)	International	Systematic review	None explicit	Mostly voluntary (pre-pandemic primary studies)	Organizational economic performance indicators	Positive when telework is voluntary and planned; lower turnover
Varotsis (2022)	Greece; public services	Cross-sectional survey	None explicit	Mandatory pandemic	Self-reported work performance and efficiency	Telework not significant; flexible schedules positive
Naqshbandi et al. (2024)	Hybrid workplace employees	Cross-sectional survey, SEM	Job demands-resources model	Post-pandemic hybrid	Self-reported job performance, work engagement	Remote work not significant; flexible work positive via engagement
Chiguvi and Bakani (2023)	Botswana; revenue service (public administration)	Cross-sectional survey, single organization	None explicit	Mandatory pandemic	Self-reported productivity	Positive; resource constraints negative
Caraiani et al. (2023)	Romania; business services employees	Cross-sectional survey, SEM	Organizational behaviour and culture	Mandatory pandemic and transition	Perceived organizational performance, behaviour, culture	Positive; weaker when complex technology is required
Fernández-Fernández et al. (2023)	Spain; teleworkers	Cross-sectional survey, PLS-SEM	Technostress	Mandatory pandemic and after	Self-reported performance, satisfaction, anxiety	Technostress negative for satisfaction and performance
Jayanandana and Jayathilaka (2023)	Sri Lanka; information technology professionals	Cross-sectional survey, regression	None explicit	Mandatory pandemic and after	Self-reported job performance	Work environment and work-life balance positive; flexible arrangements not significant
Suhariadi et al. (2023)	Indonesia; education workers	Cross-sectional survey, SEM	Behavioural model of productive behaviour	Mandatory pandemic	Self-reported productive behaviour	Positive, conditional on well-being and new norms

Study	Country and context (sector)	Design and sample	Theoretical lens	Regime	Performance measure	Direction of the main finding
Korkeakunnas et al. (2023)	Sweden; managers	Qualitative interviews	None explicit	Voluntary and post-pandemic hybrid	Managers' perceptions of performance and work environment	Mixed: individual benefits, risks for cohesion and decision quality
Gutu and Medeleanu (2023)	Romania; teleworkers	Cross-sectional survey, PLS-SEM	Transformational and transactional leadership	Post-pandemic	Workforce sustainability, telework inputs and outputs	Positive; transformational leadership and contingent rewards positive

Note: Regime: voluntary = voluntary or planned telework, pre-pandemic data; mandatory pandemic = data collected under COVID-19 restrictions; post-pandemic hybrid = data collected after restrictions were lifted in organizations combining remote and on-site work. SEM = structural equation modelling; PLS = partial least squares.

4.3. Methodological quality appraisal

Table 8 reports the appraisal of the core studies. Its main lesson is that no primary study reaches a high rating: one firm-level study is rated moderate to high (Merlet & Poussing, 2020), nine primary studies are rated moderate, twelve are rated low, the three syntheses are rated moderate or moderate to high on the criteria applicable to reviews, and the two conceptual contributions are not rated. The low ratings are explained by a recurrent combination of features: a cross-sectional design in which telework and performance are measured at the same time, so that reverse causality (better performers being allowed to telework, or performing employees selecting telework) cannot be ruled out; convenience samples drawn from a single organization, sector or country; ad hoc measures of performance; and the collection of predictors and outcomes from the same respondents, which exposes the estimates to common-method variance (Podsakoff et al., 2003). Moderate ratings correspond to studies that use validated scales and report statistical checks of method bias but remain cross-sectional, single-source, and self-reported. Two consequences follow for the synthesis. First, read the positive associations reported in the corpus as associations between telework and perceived performance, not as causal effects on organizational performance. Second, the findings of the low-rated studies are reported in Section 5 but receive less weight than those of the moderate-rated studies and the syntheses when confidence grades are assigned in Table 9.

Table 8: Methodological quality appraisal of the core studies

Study	Design	Sample	Measure	Performance measure	Common-method bias	Rating
Arling (2004)	Cross-sectional	Convenience	Network measures	Self-reported	Single source, not addressed	Low
Harker Martin and MacDonnell (2012)	Meta-analysis	Not applicable	Perceptual effect sizes	Perceptual	Not applicable	Moderate (synthesis)
Stawarz et al. (2013)	Exploratory	Small convenience	Ad hoc	None (work-life balance)	Not applicable	Low
Aboalmaali et al. (2015)	Cross-sectional	Convenience, single ministry	Ad hoc	Self-reported	Single source, not addressed	Low
Church (2015)	Cross-sectional	Convenience	Ad hoc	Perceived benefits	Single source, not addressed	Low
Torten et al. (2016)	Cross-sectional	Convenience	Ad hoc	Self-reported	Single source, not addressed	Low
Uchenna et al. (2018)	Cross-sectional	Convenience, few firms	Ad hoc	Self-reported	Single source, not addressed	Low

Study	Design	Sample	Measure	Performance measure	Common-method bias	Rating
Vayre (2019)	Narrative synthesis	Not applicable	Not applicable	Individual outcomes	Not applicable	Not rated
Merlet and Poussing (2020)	Cross-sectional, firm level	Large national survey sample	Standardized survey items	Firm-reported innovation outputs	Mitigated by firm-level design	Moderate to high
Fayzieva et al. (2020)	Cross-sectional	Convenience	Ad hoc	Self-reported	Single source, not addressed	Low
Busu and Gyorgy (2021)	Cross-sectional	Convenience	Validated scales	Self-reported	Single source, statistical checks	Moderate
Elyousfi et al. (2021)	Cross-sectional	Single organization	Validated scales	Self-reported	Single source, not addressed	Moderate
Catană et al. (2022)	Cross-sectional	Convenience	Partly validated	Self-reported	Single source, not addressed	Low
Heimburger (2022)	Conceptual	Not applicable	Not applicable	Not applicable	Not applicable	Not rated
Hackney et al. (2022)	Systematic review	Not applicable	Quality appraisal of primary studies	Mixed	Not applicable	Moderate (synthesis)
Meiryani et al. (2022)	Cross-sectional	n = 136, formula-based	Partly validated	Self-reported	Single source, not addressed	Low
Shahrom (2022)	Cross-sectional	Convenience	Validated scales	Self-reported	Single source, not addressed	Low
Mutiganda et al. (2022)	Systematic review	Not applicable	Quality assessment of primary studies	Economic indicators	Not applicable	Moderate to high (synthesis)
Varotsis (2022)	Cross-sectional	Public sector employees	Partly validated	Self-reported	Single source, not addressed	Low
Naqshbandi et al. (2024)	Cross-sectional	Convenience	Validated scales	Self-reported	Single source, statistical checks	Moderate
Chiguvi and Bakani (2023)	Cross-sectional	Single organization	Ad hoc	Self-reported	Single source, not addressed	Low
Caraiani et al. (2023)	Cross-sectional	Convenience	Validated scales	Perceived organizational performance	Single source, statistical checks	Moderate
Fernández-Fernández et al. (2023)	Cross-sectional	Convenience	Validated scales	Self-reported	Single source, statistical checks	Moderate
Jayanandana and Jayathilaka (2023)	Cross-sectional	Convenience	Validated scales	Self-reported	Single source, not addressed	Moderate
Suhariadi et al. (2023)	Cross-sectional	Convenience	Validated scales	Self-reported	Single source, statistical checks	Moderate
Korkeakunnas et al. (2023)	Qualitative	Purposive	Not applicable	Perceptions	Not applicable	Moderate (qualitative criteria)

Study	Design	Sample	Measure	Performance measure	Common-method bias	Rating
Gutu and Medeleanu (2023)	Cross-sectional	Convenience	Validated scales	Self-reported	Single source, statistical checks	Moderate

Note: Ratings follow the criteria described in Section 3.5. "Single source, statistical checks" indicates that predictors and outcomes were collected from the same respondents and that the authors report at least one statistical test of common-method variance; "not addressed" indicates that no remedy is reported.

5. Evidence synthesis: outcomes, mechanisms and boundary conditions

This section synthesizes the evidence of the core studies (RQ2 and RQ3). It is organized around the outcomes, mechanisms and boundary conditions of the theoretical framework rather than around the six inductive themes of the previous version of the review, which are mapped onto this structure as described in Section 3.6. For every finding, the regime under which the evidence was produced (Section 2.1.4 and Table 7) and the quality of the contributing studies (Table 8) are indicated, and each subsection ends with an explicit statement of the confidence that the finding warrants. Section 5.7 tabulates these judgements (Table 9), examines contradictions between studies (Table 10), and draws the higher-order conclusions that the framework in Section 6 formalizes.

5.1. Individual performance: work environment, communication, support and leadership

Four core studies examine the determinants of performance among employees working from home, three under the mandatory pandemic regime and all with cross-sectional, self-reported designs (Table 7). In Malaysia, Shahrom (2022) finds that the work environment and leadership are significantly associated with employees' perceived performance under work-from-home requirements, whereas perceived organizational support is not. Improved communication, an appropriate work environment, and work-life balance contribute to higher perceived performance, and effective communication is crucial to sustaining performance in the context of teleworking.

Among Sri Lankan information technology professionals working from home (Jayanandana & Jayathilaka, 2023), a more positive physical work environment is associated with higher self-reported performance. We also inferred that work-life balance is strongly associated with better performance among remote workers (Jayanandana & Jayathilaka, 2023). However, flexible work arrangements have not been linked to improved performance because of factors such as stress and an excessive focus on results. Jayanandana and Jayathilaka (2023) recommend improving communication infrastructure and introducing new support practices for teleworkers to encourage performance. It is also essential to develop tools to analyze work conditions and the evolution of organizational behaviour theories. Indeed, teleworking changes how work is organized and how professionals perform by breaking with traditional structures of place and time. On the other hand, physical and psychological distancing leads to changes in employee behavior and how they interact with the organization (Heimburger, 2022).

In Romania, also under pandemic conditions, Busu and Gyorgy (2021) model the mediating role of the ability to adapt to telework. Psychological and social needs, system determinants, work behavior, levels of regulation, and employees' adaptability at work significantly mediate the relationships between the independent variables and organizational performance (Busu & Gyorgy, 2021). In a pre-pandemic study of Nigerian telecommunication firms (Uchenna et al., 2018), the tools enabling telework have a positive but limited effect on work quality, underscoring the importance of other factors. Agreements on the telework environment promote timely work execution, thereby improving service delivery for organizations. Teleworkers' motivation and environment also influence work quality (Uchenna et al., 2018).

Taken together, these studies agree that communication quality, organizational support, the work environment, and leadership are fundamental determinants of successful telework (Busu & Gyorgy, 2021; Jayanandana & Jayathilaka, 2023; Shahrom, 2022). However, some studies remain inconsistent about the importance of these factors. For example, some studies indicate that organizational support has no direct effect on employee performance (Shahrom, 2022), while others highlight its indirect effects through adaptive performance and employees' psychological and social resources (Busu & Gyorgy, 2021). This difference suggests that organizational support can be viewed as a contextual mechanism whose effectiveness varies with employees' adaptability, managerial practices, and the quality of the work environment. We can also infer that this contrast stems from the different methodological approaches researchers adopt. Indeed, some researchers have conducted cross-sectional studies in a single country, such as Malaysia, which limits the generalizability of the results to other cultural contexts. We therefore argue that the literature lacks longitudinal and comparative studies to better understand the relationship between organizational support and (1) leadership, (2) the

work environment over time, and (3) communication, as well as their impacts on organizational performance in the context of telework. Weighed against the appraisal of Section 4.3, these findings warrant moderate confidence for the association between the work environment, communication and leadership and perceived individual performance, because their direction is consistent across four studies conducted in four countries, and low confidence for the role of organizational support, whose direct effect is null in one study (Shahrom, 2022) and indirect in another (Busu & Gyorgy, 2021). All four studies measure performance through the perceptions of the employees concerned, at the same time as its predictors, and three were conducted under mandatory pandemic telework; they therefore describe how employees perceived their own performance under emergency conditions rather than the effect of telework on measured performance. Table 10 contrasts the null direct effect of support in Malaysia with its indirect effect in Romania; it is consistent with the social exchange argument in Section 2.3 that support translates into performance only when employees can reciprocate, which an imposed regime constrains.

5.2. Organizational outcomes: productivity, retention and costs

The earliest study in the corpus, a pre-pandemic social network analysis in a United States organization (Arling, 2004), locates the effect of telework on performance in the structure of employees' communication networks rather than in telework itself. First, providing and using multiple communication channels is important to maintain connections between remote workers and the company. Consistency in media use appears to be more important than the type of media used in the office and remotely (Arling, 2004).

The systematic review of Mutiganda et al. (2022), which synthesizes mostly pre-pandemic studies using organizational economic indicators, provides the strongest evidence in the corpus on organizational outcomes. According to this synthesis, remote workers' performance often exceeds that of office-based employees, and performance changes vary depending on individual factors and how organizations implement remote work (Mutiganda et al., 2022). Teleworking is associated with improved organizational performance, especially in homogeneous groups performing similar tasks (Mutiganda et al., 2022). When voluntary, telework is associated with lower employee turnover and lower intentions to leave the organization. In fact, when remote work is planned before implementation, it benefits employees, the organization, and society (Mutiganda et al., 2022). In a qualitative study of Swedish managers by Korkeakunnas et al. (2023), which spans voluntary and post-pandemic hybrid arrangements, managers recognize that telecommuting influences both organizational performance and the work environment, affecting employee behavior depending on where they work. This way of working can bring small teams closer together while distancing external members, leading to feelings of isolation and inefficiency.

While remote work can encourage urgent decisions, these can lack objectivity in the long run. Trust between managers and employees is essential for successfully implementing remote work. Open communication about the effects of teleworking is crucial to maintain a functional organization. Thus, telework management strategies aim to improve employees' long-term performance (Korkeakunnas et al., 2023). In Indonesia, under mandatory pandemic telework, Meiryani et al. (2022) find that transformational leadership does not significantly influence employee performance, whereas the overall leadership style does. An improved leadership style then leads to better employee performance, and vice versa. Conversely, weak leadership leads to a decline in workers' performance. Similarly, good management promotes job satisfaction and employee motivation.

Nevertheless, transformational leadership does not always guarantee improved employee performance and can sometimes compromise it when poorly applied. More flexible supervision influences employee performance, but stricter supervision is essential during in-person audits and via virtual exchanges, with penalties for those who don't follow the rules (Meiryani et al., 2022).

Furthermore, the literature indicates that telework improves organizational performance when it is based on consistent managerial practices. Several studies have highlighted the importance of communication, leadership, trust, and adequate supervision in maintaining employee performance (Arling, 2004; Korkeakunnas et al., 2023; Meiryani et al., 2022). However, certain tensions persist. Indeed, while flexible managerial practices contribute to employee engagement and organizational commitment, excessive or rigid supervision and control undermine autonomy, a crucial element of telework. The question at hand here concerns managerial effectiveness. Does it depend less on the intensity of supervision or on the manager's ability to balance employee autonomy with organizational responsibility? Furthermore, studies examine organizational performance based on employees' self-reported perceptions rather than objective organizational indicators, which could skew the results and complicate our understanding of the relationship between organizational performance and telework management. In terms of evidence weight, the association between voluntary or planned telework and lower turnover is the most robust organizational finding of the corpus: it is reported

by two syntheses that aggregate mostly pre-pandemic studies (Harker Martin & MacDonnell, 2012; Mutiganda et al., 2022), it is consistent with the reciprocity mechanism, and it is corroborated by recent experimental evidence outside the corpus (Bloom et al., 2024); it warrants moderate confidence. The association between telework and organizational productivity warrants only low to moderate confidence: it is positive in the syntheses and in several pandemic-era surveys (Busu & Gyorgy, 2021; Chiguvi & Bakani, 2023; Meiryani et al., 2022), null in two studies (Naqshbandi et al., 2024; Varotsis, 2022), and measured almost exclusively through perceptions. The corpus asserts cost reductions (Aboalmaali et al., 2015; Fayzieva et al., 2020) but never measures them with accounting data, so this finding warrants low confidence.

5.3. Innovation and knowledge sharing

Among firms in Luxembourg before the pandemic, telework is positively associated with product and process innovation (Merlet & Poussing, 2020); this is the only firm-level finding of the corpus based on innovation outputs rather than on perceptions, and it is rated moderate to high in Table 8. However, some aspects of remote work require special attention. Employees' versatility and digital access to company documents are important considerations (Merlet & Poussing, 2020). On the other hand, tutoring can slow down the telework process while promoting adaptation to changes. Other factors that can stimulate creativity and contribute to organizations' performance are coworking spaces (Merlet & Poussing, 2020). Thus, experience plays a crucial role in the success of teleworking and can significantly impact organizations' financial performance. So, remote workers need proper training and experience to succeed. Business leaders should use experience as a criterion to identify remote workers and evaluate their performance against set goals. This trend is particularly noticeable among generations for whom information and communication technologies are increasingly important in organizations (Torten et al., 2016).

Studies on the future of remote work, focusing on hybridization, have found that remote and flexible work affect job performance differently (Naqshbandi et al., 2024; Varotsis, 2022). Contrary to expectations, remote work itself has no significant direct effect on job performance in the post-pandemic hybrid sample of Naqshbandi et al. (2024), a null result that echoes Varotsis (2022) in Greek public services during the pandemic. However, the JD-R theoretical model recognizes the importance of resources in improving performance in a hybrid work environment (Naqshbandi et al., 2024). It has also been shown that flexible working can contribute to professional engagement, which is positively linked to job performance (Naqshbandi et al., 2024). Additionally, flexible work can directly affect job performance, while work engagement mediates the link between flexible work and performance (Naqshbandi et al., 2024).

In the Romanian business services industry, during the pandemic and the transition that followed it, Caraiani et al. (2023) find that the positive factors associated with telework have a significant and positive influence on the organizational dimension (Caraiani et al., 2023). Workers who focus on several characteristics that promote teleworking tend to be more satisfied with their work and communicate better with leaders, despite performance requirements (Caraiani et al., 2023). However, when teleworking is studied in the context of complex digital technology, its impact decreases across organizational dimensions, but remains significant for organizational behavior and culture. Thus, specific criteria can hinder teleworking employees' ability to achieve their objectives, negatively affecting organizational behavior (Caraiani et al., 2023). The impact of negative factors employees perceive regarding telework decreases significantly when complex technology is required (Caraiani et al., 2023).

Although telework can stimulate innovation by promoting knowledge and organizational practice sharing, as well as flexibility (Caraiani et al., 2023; Merlet & Poussing, 2020), this positive effect is not systematic. Furthermore, innovation depends on other factors, such as organizational learning capacity, digital maturity, access to necessary technological resources, and employee experience. Consequently, telework should be viewed as a facilitating factor rather than a direct driver of innovation. This finding aligns with research on the knowledge economy, which indicates that knowledge sharing is a key factor in organizational performance and influences innovation, financial performance, and market efficiency (Danko & Crhová, 2025). However, in the context of telework, the benefits of knowledge sharing depend on organizations' ability to implement the managerial and digital conditions necessary to facilitate exchange among geographically dispersed employees and apply that knowledge. Furthermore, organizational learning, knowledge management practices, and the quality of digital collaboration influence the relationship between innovation and telework. As the knowledge-based view (Section 2.3) shows, these results indicate that telework's innovation effect operates through knowledge sharing and is therefore fragile. Dispersed work reduces the incidental interactions through which tacit knowledge circulates and increases the risk of knowledge hiding and knowledge fragmentation (Cirielli De Mola et al., 2025); the conditions identified by Merlet and Poussing (2020), namely digital access to documents, tutoring and employee versatility, are precisely routines that substitute deliberate, codified or structured exchanges for the incidental ones that co-location provided. Knowledge leadership, that is, the capacity of

managers to organize knowledge creation and sharing among dispersed employees, appears as a further condition (Mubarak et al., 2024), and the weaker effects observed when complex technology is required (Caraiani et al., 2023) suggest that digital skills condition the mechanism. Because this mechanism is documented by one firm-level study, one employee survey and conceptual contributions from the knowledge economy literature, and because none of the primary studies measured knowledge sharing or knowledge hiding directly, the innovation finding warrants low confidence and is the object of Propositions 4 and 5 (Section 7).

5.4. Well-being, technostress and the resource-demand balance

In Romania, under pandemic conditions, Catană et al. (2022) identify five factors that influence the impact of teleworking on employees' perceptions of well-being and productivity: individual, social, organizational, technological, and family aspects. These factors include the ability to work from home in the event of a health issue and the aspiration for a better work-life balance.

These studies indicate that these factors positively influence perceptions of well-being and productivity, highlighting the importance of implementing telework and balancing business objectives with employee needs. Remote work has become essential in the modern world, prompting many companies to adopt a work-from-home environment (Catană et al., 2022). On the other hand, Fernández-Fernández et al. (2023) document, among Spanish teleworkers, a link between technostress, satisfaction, anxiety and performance: lower technostress is associated with higher satisfaction and performance, whereas higher technostress is associated with increased anxiety and reduced satisfaction (Fernández-Fernández et al., 2023). In the narrative synthesis of Vayre (2019), which covers pre-pandemic evidence, implementing teleworking can negatively impact workload, professional management, motivation, job satisfaction, and workers' physical and psychological health (Vayre, 2019). To mitigate these effects, organizations must strengthen workers' inclusion, identification, and sense of belonging. It is crucial to consider the contractual dimension of teleworking to ensure adequate support and effective implementation (Vayre, 2019). Each organization must define its strategy by considering individual needs and organizational constraints. Managers must foster quality social interactions between in-person and remote workers and effectively oversee remote performance (Vayre, 2019). In addition, a training plan for teleworkers, including managers, is necessary to ensure effective telework implementation. These actions help clarify the implications of teleworking at the professional, family, and social levels (Vayre, 2019). A pre-pandemic exploratory study of office workers in the United Kingdom (Stawarz et al., 2013) has highlighted that using technological tools can disrupt the work-life balance of telecommuting employees. Gadgets like tablets can negatively impact the boundary between personal and professional life (Stawarz et al., 2013).

In summary, the literature confirms that employee well-being is a key mechanism that mediates the impact of telework on organizational performance (Fernández-Fernández et al., 2023; Catană et al., 2022). However, the literature has highlighted a paradox related to telework. High flexibility improves the balance between job satisfaction and work-life balance. At the same time, the increased use of digital technologies contributes to rising technostress and negatively affects employees' psychological well-being and the boundary between personal and professional life (Fernández-Fernández et al., 2023; Stawarz et al., 2013). So, whether telework is beneficial or harmful depends on the organizational conditions under which it is implemented, including employees' ability to maintain work-life balance, the digital practices adopted, and organizational support. This conclusion is provisional, because the long-term psychological consequences of telework have not been examined longitudinally and because the growing prevalence of hybrid arrangements changes the balance of demands and resources. In terms of the job demands-resources model (Section 2.3), the paradox is explained rather than merely observed: telework simultaneously adds resources (autonomy, flexibility, time saved) and demands (technostress, isolation, permeable boundaries between work and private life), and its net effect on well-being, engagement and hence performance depends on which of the two dominates. The evidence for the negative effect of technostress and of boundary-blurring technologies on satisfaction and performance is consistent across the two studies that measure it (Fernández-Fernández et al., 2023; Stawarz et al., 2013), coherent with the narrative synthesis of Vayre (2019) and with the wider occupational health literature, and warrants moderate confidence. Evidence that well-being and engagement mediate the telework-performance relationship rests on cross-sectional mediation models (Busu & Gyorgy, 2021; Catană et al., 2022; Naqshbandi et al., 2024; Suhariadi et al., 2023), in which mediation cannot be established causally, and warrants low to moderate confidence.

5.5. Leadership, support and monitoring: the reciprocity mechanism

In a Canadian public organization, the study of e-leadership and virtual teams by Elyousfi et al. (2021) shows that perceived team dynamics, including member attitude, collaboration, and support, significantly and moderately influence performance (Elyousfi et al., 2021). In contrast, perceived leadership, including manager trust,

communication, and leadership coordination, has a small but significant impact on remote workers' performance (Elyousfi et al., 2021). In Romania, after the pandemic, Gutu and Medeleanu (2023) measure the link between telework and workforce sustainability, moderated by perceived leadership, and indicate that workforce sustainability positively influences telework and its inputs and outputs. Workforce sustainability, labour inputs, and outputs positively correlate with transformational leadership and contingent rewards. However, these elements do not adversely affect management. In addition, workforce sustainability is positively associated with teleworking, with practical implications at all levels (Gutu & Medeleanu, 2023).

In addition, studies examining the relationship between telework and factors that promote employee performance improvement show that telework is positively associated with certain factors. The flexibility of remote work is seen as a driver of improved employee performance (Naqshbandi et al., 2024; Varotsis, 2022). In a pre-pandemic study of Iranian ministry employees, factors linked to improved performance included organizational commitment, cost reduction, motivation, job satisfaction, and the ability to focus (Aboalmaali et al., 2015). Organizational commitment is the most significant factor, while promotion is the least relevant in the context of teleworking (Aboalmaali et al., 2015).

A pre-pandemic survey of the perceived benefits of working from home in the United States shows that workers generally view this practice positively. However, organizations need to adjust policies to ensure equity in promotion opportunities between homeworkers and office-based workers (Church, 2015). Managers face challenges trusting remote employee performance, but clear strategies can build that trust (Church, 2015). The meta-analysis of Harker Martin and MacDonnell (2012), which aggregates pre-pandemic perceptual studies, confirms a small positive link between telework and perceived organizational outcomes, including productivity, retention, organizational commitment and performance; the authors conclude that teleworking is effective and adds value to the organization, while noting that the effect sizes are small and based on perceptions.

Leadership is a crucial factor in the success and effectiveness of telework. However, it does not, on its own, guarantee improved organizational performance. For example, Elyousfi et al. (2021) indicate that, compared to perceived e-leadership, perceived team dynamics have a stronger influence on teleworkers' performance. Church (2015) also emphasized that trust in management and fair practices are important for maintaining employee engagement among teleworkers. Similarly, Gutu and Medeleanu (2023) noted that conditional rewards and transformational leadership contribute positively to workforce retention. By deduction, leadership is an integral part of the organizational ecosystem, encompassing communication, organizational justice, collaboration, and trust. Differences among studies may reflect contextual diversity and the leadership dimensions considered. Furthermore, studies conducted during the COVID-19 pandemic limit our understanding of how leadership practices evolve in stable hybrid work environments.

Indeed, organizational support is not the same as intensive digital monitoring. Although digital technology facilitates communication, performance management, and coordination in telework, intensive monitoring could undermine employees' trust and psychological well-being. Consequently, the effectiveness of organizational support depends on both the technological tools themselves and how employees perceive their implementation. These findings also highlight the importance of considering the ethical implications of various digital surveillance practices, particularly as they relate to employee privacy and the responsible use of digital technologies in the telework environment.

Taken together, the leadership and support findings describe the reciprocity mechanism of social exchange theory (Section 2.3). Where telework is accompanied by trust, fair treatment and results-based evaluation, employees reciprocate with commitment and effort, and performance follows (Church, 2015; Gutu & Medeleanu, 2023; Korkeakunnas et al., 2023); where it is accompanied by intensive digital monitoring, the arrangement no longer signals trust and the exchange weakens (Aloisi & De Stefano, 2022; Sewell & Taskin, 2015). Three confidence judgements follow. The association between trust, fair treatment and results-based supervision and perceived performance is consistent across regimes and warrants moderate confidence. The evidence on leadership style warrants low confidence because it is inconsistent: transformational leadership is not significant in Meiryani et al. (2022) but positive in Gutu and Medeleanu (2023), a contradiction that Table 10 attributes to the regime (mandatory versus post-pandemic) and to the outcome measured (individual performance versus workforce sustainability). The finding that team dynamics matter more than e-leadership rests on a single study (Elyousfi et al., 2021) and warrants very low confidence.

5.6. Boundary conditions: telework regime, intensity, and institutional and cultural context

In Greek public services during the pandemic, Varotsis (2022) reports mixed effects. While teleworking is not associated with increased work efficiency, flexible schedules have improved performance. This suggests that the

flexibility offered by teleworking can improve performance, but it can also negatively affect the bottom line if performance falls short of expectations (Varotsis, 2022).

In the Botswana Revenue Service, under mandatory pandemic telework, teleworking is associated with increased self-reported productivity, thanks to better concentration and flexibility (Chiguvi & Bakani, 2023). Nevertheless, a lack of resources can hinder productivity (Chiguvi & Bakani, 2023). Therefore, it is essential to assess the cultural and practical implications of teleworking to ensure the company culture embraces new ways of working (Chiguvi & Bakani, 2023). Thus, beyond organizational culture, the literature suggests that the national and institutional context affects the implementation and effectiveness of telework (Caraiani et al., 2023), and these authors emphasized the importance of evaluating telework within each country's specific legal framework and organizational culture. In contrast, Catană et al. (2022) suggested expanding studies beyond specific geographic areas to generalize the results. By extension, national cultural contexts can deepen understanding of telework outcomes. Indeed, cultural values could influence employees' attitudes toward telework, organizational support, and managerial practices. For example, collectivist societies are more likely to place great importance on collaboration, team cohesion, and hierarchical relationships. In contrast, individualistic societies may encourage autonomy, flexible work arrangements, and self-management. These differences partly explain the heterogeneity observed in studies on leadership effectiveness and employee and organizational performance. Based on this interpretation, we encourage future research to analyze the moderating role of national culture. In Uzbekistan, Fayzieva et al. (2020) indicate that the effects of pandemic telework on business performance can be positive or negative. This depends mainly on two channels: directly, by influencing employees' efficiency, motivation, and creativity; and indirectly, by reducing costs and allowing reorganization to improve productivity (Fayzieva et al., 2020). Several factors influence work productivity, including mental health, boredom, engagement, organizational support, stress, and job creation. Teleworking policies cannot overlook any of these elements if they want to maintain high performance and achieve objectives.

According to our corpus, the effects of telework depend on the context. The data collected during the COVID-19 period reflect emergency working conditions rather than a well-established practice. Consequently, the results can not be generalized to the post-pandemic context. This helps explain the inconsistencies observed in organizational effectiveness, productivity, and employee performance. We must therefore look beyond crisis-driven studies to better understand how organizational culture adapts to the telework environment. The regime coding of Table 7 makes this point precise. The ten pre-pandemic studies of voluntary or planned telework converge on positive associations with perceived performance, retention and innovation (Aboalmaali et al., 2015; Arling, 2004; Church, 2015; Harker Martin & MacDonnell, 2012; Merlet & Poussing, 2020; Mutiganda et al., 2022; Torten et al., 2016; Uchenna et al., 2018), with the reservations on well-being and work-life boundaries noted by Stawarz et al. (2013) and Vayre (2019). The eleven pandemic studies are more heterogeneous: positive perceptions of productivity coexist with null effects on efficiency (Varotsis, 2022), with negative effects of technostress (Fernández-Fernández et al., 2023) and with the finding that organizational support did not translate into performance (Shahrom, 2022); all of them describe employees who did not choose to telework, worked under health and family constraints and used improvised infrastructure. The three post-pandemic hybrid studies report that remote work as such is not significant while flexibility and engagement are (Naqshbandi et al., 2024), that leadership and contingent rewards sustain workforce sustainability (Gutu & Medeleanu, 2023) and that managers perceive both individual benefits and collective risks (Korkeakunnas et al., 2023). Two further boundary conditions emerge from this comparison: telework intensity and home conditions, which the job demands-resources model identifies as determining whether resources or demands dominate (Section 5.4), and the institutional and cultural context, whose influence is asserted in the corpus (Caraiani et al., 2023; Catană et al., 2022) but never tested comparatively, because no study compares countries, sectors or regulatory settings within a single design. Given the concentration of the primary studies in a small number of countries and in service and public organizations (Section 4.2), the findings of this review are generalizable, at best, to service and public organizations in the countries represented; their transfer to manufacturing or to other institutional settings is a matter for future research rather than a conclusion of this review.

5.7. Weighing the evidence: consistency, contradictions and confidence

Table 9 summarizes the findings of Sections 5.1 to 5.6, with the studies and regimes that contribute to each, the direction and consistency of the evidence, the quality of the contributing studies and the resulting confidence grade. Table 10 lists the contradictions identified between studies and the candidate explanations suggested by the structured comparison in Table 7. These tables yield four higher-order conclusions that answer RQ2 and RQ3.

Table 9: Summary of findings, contributing studies, consistency and confidence

Finding	Contributing studies (regime)	Direction and consistency	Quality of contributing studies (Table 8)	Confidence
Voluntary or planned telework is associated with lower turnover and turnover intentions	Harker Martin and MacDonnell (2012, V); Mutiganda et al. (2022, V); Church (2015, V)	Positive and consistent (3 of 3); corroborated by experimental evidence outside the corpus (Bloom et al., 2024)	Two syntheses rated moderate or higher; one low	Moderate
Telework is associated with higher perceived productivity and individual performance	Positive: Aboalmaali et al. (2015, V); Harker Martin and MacDonnell (2012, V); Hackney et al. (2022, mixed); Busu and Gyorgy (2021, M); Catană et al. (2022, M); Chiguvi and Bakani (2023, M); Meiryani et al. (2022, M). Null: Varotsis (2022, M); Naqshbandi et al. (2024, H)	Predominantly positive (7 of 9) but null in two studies; all perceptual	Mostly low; three moderate; syntheses moderate	Low to moderate
Telework reduces organizational costs	Aboalmaali et al. (2015, V); Fayzieva et al. (2020, M)	Asserted, not measured	Low	Low
Telework is positively associated with product and process innovation, conditional on knowledge routines	Merlet and Poussing (2020, V, firm level); Caraiani et al. (2023, M)	Positive (2 of 2), conditional on document access, tutoring, versatility and digital skills	Moderate to high; moderate	Low (single firm-level study; mechanism not measured)
Technostress and boundary-blurring technologies reduce satisfaction and perceived performance	Fernández-Fernández et al. (2023, M); Stawarz et al. (2013, V); Vayre (2019, narrative)	Negative and consistent (2 of 2 empirical studies), coherent with the narrative synthesis	Moderate; low; not rated	Moderate
Well-being, engagement and adaptive capacity mediate the telework and performance relationship	Busu and Gyorgy (2021, M); Catană et al. (2022, M); Suhariadi et al. (2023, M); Naqshbandi et al. (2024, H)	Consistent positive mediation (4 of 4), but cross-sectional models only	Moderate; low; moderate; moderate	Low to moderate
Work environment, communication and leadership quality are associated with perceived performance	Shahrom (2022, M); Jayanandana and Jayathilaka (2023, M); Uchenna et al. (2018, V); Elyousfi et al. (2021, NS); Meiryani et al. (2022, M)	Positive and consistent (5 of 5)	Low to moderate	Moderate

Finding	Contributing studies (regime)	Direction and consistency	Quality of contributing studies (Table 8)	Confidence
Organizational support translates into performance only indirectly and conditionally	Shahrom (2022, M, null direct effect); Busu and Gyorgy (2021, M, indirect effect); Church (2015, V)	Divergent: null direct effect versus indirect effect	Low; moderate; low	Low
Transformational leadership improves teleworkers' performance	Meiryani et al. (2022, M, not significant); Gutu and Medeleanu (2023, H, positive)	Contradictory (1 of 2)	Low; moderate	Low
Intensive monitoring undermines trust, well-being and the reciprocity on which performance depends	Korkeakunnas et al. (2023, V and H); Meiryani et al. (2022, M); wider literature (Aloisi & De Stefano, 2022; Sewell & Taskin, 2015)	Consistent direction, few studies	Moderate; low	Low
The effects of telework differ between mandatory pandemic and voluntary or hybrid regimes	Cross-regime comparison of the 27 core studies (Section 5.6)	Consistent pattern: pre-pandemic positive; pandemic heterogeneous; hybrid: flexibility rather than remoteness matters	Mixed	Moderate for the pattern; low for any specific contrast
National culture and regulation moderate the effects of telework	Caraiani et al. (2023, M); Catană et al. (2022, M)	Asserted, not tested comparatively	Moderate; low	Very low

Note: Regime of the contributing studies: V = voluntary or planned (pre-pandemic); M = mandatory pandemic; H = post-pandemic hybrid; NS = not specified. Confidence grades follow Section 3.5.

Table 10: Contradictory findings and candidate explanations

Contradiction	Studies	Candidate explanations (design, measure, regime, context)	Proposition
Organizational support: null direct effect versus positive indirect effect on performance	Shahrom (2022) versus Busu and Gyorgy (2021)	Both are cross-sectional pandemic surveys; only the second models a mediator (adaptive capacity); the outcomes differ (individual versus organizational perceived performance); Malaysia versus Romania; under an imposed regime, support cannot be reciprocated through discretionary effort	P1, P2
Telework and performance: positive versus null association	Chiguvi and Bakani (2023), Meiryani et al. (2022), Busu and Gyorgy (2021) versus Varotsis (2022), Naqshbandi et al. (2024)	Outcome measured (self-rated productivity versus efficiency of public services or job performance net of engagement); regime (mandatory versus hybrid); in hybrid settings, remoteness is confounded with flexibility; task interdependence in public services	P3, P9
Transformational leadership: not significant versus positive	Meiryani et al. (2022) versus Gutu and Medeleanu (2023)	Regime (mandatory versus post-pandemic); outcome (individual performance versus workforce sustainability); Indonesia versus Romania; sample size (136 versus larger); crisis conditions favour task-oriented practices	P6

Contradiction	Studies	Candidate explanations (design, measure, regime, context)	Proposition
Flexibility: positive versus null association with performance	Varotsis (2022), Naqshbandi et al. (2024) versus Jayanandana and Jayathilaka (2023)	Flexibility conceptualized differently (schedule flexibility versus flexible arrangements); stress and results pressure among information technology professionals; regime	P3
Well-being: telework improves versus harms well-being	Catană et al. (2022) versus Fernández-Fernández et al. (2023), Stawarz et al. (2013), Vayre (2019)	Constructs (general well-being versus technostress and boundary permeability); intensity of technology use; home conditions; regime	P2
Innovation: positive firm-level effect versus weaker employee-level effects when complex technology is required	Merlet and Poussing (2020) versus Caraiani et al. (2023)	Level of analysis (firm versus employee); measure (innovation outputs versus perceived organizational dimensions); presence versus absence of knowledge routines; digital skills; regime	P4, P5

Note: Propositions are formulated in Section 7.

First, the effect of telework on organizational performance is conditional, not general. No finding in the corpus warrants high confidence, and the two findings that warrant moderate confidence are conditional statements: voluntary or planned telework is associated with lower turnover, and technostress and boundary-blurring technologies reduce satisfaction and perceived performance. The sweeping claim that telework improves productivity, costs, and organizational performance, which earlier versions of this review and parts of the literature convey, is not supported once the evidence is weighted: the productivity evidence is perceptual, partly null, and largely produced under a regime that no longer exists.

Second, the contradictions between studies are largely explained by three differences rather than by genuine disagreement: the regime under which the data were collected (mandatory pandemic telework versus voluntary or hybrid arrangements), the outcome measured (self-rated individual performance versus organizational efficiency, innovation or workforce sustainability) and the level of analysis (individual versus firm). Table 10 shows that each of the six contradictions can be traced to at least one of these differences, which is why the framework of Section 6 treats the regime as an exogenous condition and separates individual from organizational outcomes, and why the propositions of Section 7 specify the conditions under which each relationship is expected to hold.

Third, the mechanisms specified in Section 2.3 are observable in the corpus, but unevenly documented. The reciprocity mechanism is the best supported (support, trust, and results-based supervision recur as correlates of perceived performance, and monitoring as a threat to it); the resource-demand balance is supported through the consistent effects of technostress and the cross-sectional mediation of well-being and engagement; the knowledge-sharing mechanism is the least documented, because no primary study measured knowledge sharing or hiding directly, although the conditions attached to the innovation effect (document access, tutoring, versatility, digital skills) all point to it. Fourth, the boundary conditions are asserted more often than tested: the regime is the only one examined by comparing studies, intensity and home conditions are examined within single studies, and the institutional and cultural context has not been tested comparatively.

6. Integrated framework

The integrated framework (Figure 6) refines the a priori model of Figure 1 in the light of the evidence synthesized in Section 5. It retains the architecture of the a priori model (telework regime, organizational enablers, mechanisms, performance outcomes, and boundary conditions) but introduces four evidence-based modifications. First, the telework regime is treated as an exogenous condition (R1) that moderates every other relationship, because the regime comparison of Section 5.6 explains a larger share of the differences between studies than any organizational variable. Second, individual and team performance are separated from organizational outcomes (R5), because the corpus documents the former almost exclusively and because aggregating individual gains into organizational performance is itself conditional (Sections 5.2 and 5.5; Korkeakunnas et al., 2023). Third, results-based evaluation and monitoring intensity are positioned as a single enabler with opposite poles, because the evidence shows that the same digital tools

can sustain the reciprocity mechanism when they serve results-based evaluation, or undermine it, when they serve surveillance. Fourth, each enabler carries the confidence grade of the evidence that supports it (Table 9), so that the framework distinguishes what is established from what is proposed.

The framework specifies three mechanisms. Reciprocity (R2) links organizational support, trust, and results-based evaluation to commitment, effort, and retention, following social exchange theory; voluntariness and monitoring intensity moderate this link. The resource-demand balance (R3) links digital infrastructure, digital skills, and home working conditions to well-being and engagement, and through them to performance, following the job demands-resources model; telework intensity and technostress moderate this relationship. Knowledge sharing (R4) links knowledge routines (codification of and digital access to documents, structured synchronous interaction, tutoring and hybrid anchor days) and knowledge leadership to innovation and to the quality of collective work, following the knowledge-based view; it is moderated by task interdependence and by the tacit or explicit nature of the knowledge involved. The institutional and cultural context (R6) conditions all three mechanisms by regulating telework, the norms of presence and control that prevail in a country or sector, and the expectations employees attach to autonomy and hierarchy, following institutional theory.

Three features distinguish this framework from the previous version of the review and from earlier frameworks in the literature. It is mechanism-based rather than factor-based: it does not list the individual, technological, organizational and managerial factors associated with telework but states how and why they affect performance. It is conditional: every relationship is qualified by a boundary condition and by the regime under which it was observed. And it is evidence-graded: the confidence grades of Table 9 are carried into the framework, so that the propositions of Section 7 target the relationships for which the evidence is weakest or most contradictory, and the recommendations of Section 8 rest on the relationships for which it is strongest. The framework thus answers RQ3 by stating the mechanisms and the boundary conditions through which teleworking translates into organizational performance, and it positions teleworking as a knowledge-organizing practice: its performance effects depend less on where work is performed than on how organizations sustain reciprocity, the balance of demands and resources, and knowledge creation and sharing among dispersed employees.

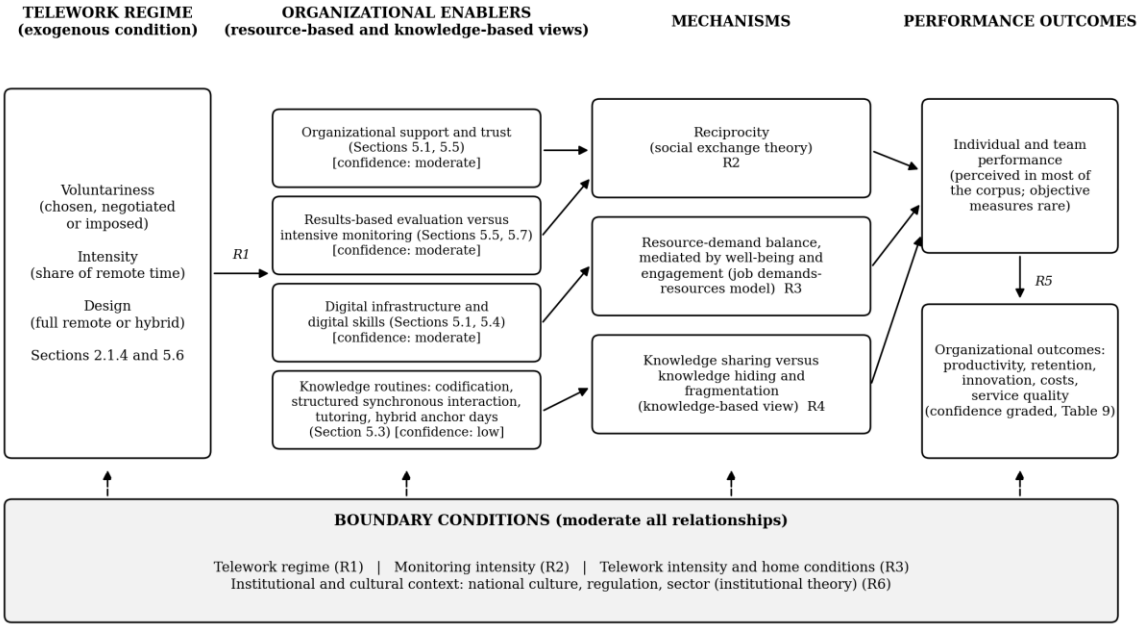

Figure 6. Integrated framework of the mechanisms and boundary conditions linking telework to organizational performance (R1 to R6 refer to the relationships discussed in Sections 6 and 7; confidence grades from Table 9)

7. Research propositions derived from the contradictions and gaps

Rather than a list of open questions, this section formulates nine propositions, each derived from a contradiction or a gap identified in Section 5.7 (Table 10) and formulated as a testable relationship with its boundary conditions. Each

proposition is followed by its rationale in italic, which states the contradiction or gap from which it is derived and the theoretical perspective that grounds it. Together, the propositions answer RQ4 and constitute the theory-based agenda of the review.

P1. The positive association between organizational support and teleworkers' performance is conditional on the voluntariness of the arrangement: it is strongest when telework is chosen or negotiated, weaker when telework is imposed, and null or negative when telework is accompanied by intensive digital monitoring.

P1 is derived from the first contradiction of Table 10 (the null direct effect of support in Shahrom, 2022, against its indirect effect in Busu & Gyorgy, 2021, both under mandatory telework) and from the consistent but thinly documented finding that monitoring undermines trust (Table 9). Social exchange theory explains the pattern: support signals trust only when employees can reciprocate through discretionary effort, which an imposed arrangement constrains and which surveillance contradicts (Cropanzano & Mitchell, 2005; Sewell & Taskin, 2015). The proposition can be tested by estimating the support-performance association across regimes and monitoring levels within a single design.

P2. The effect of telework on well-being, and through well-being on performance, follows an inverted U-shape in telework intensity and is moderated by home working conditions and technostress: moderate intensity under adequate conditions maximizes the balance between resources and demands, whereas full-time remote work under inadequate conditions or high technostress reverses it.

P2 is derived from the fifth contradiction of Table 10 (telework improves well-being in Catană et al., 2022, but harms it in Fernández-Fernández et al., 2023, Stawarz et al., 2013, and Vayre, 2019). The job demands-resources model predicts that telework adds resources and demands simultaneously (Bakker & Demerouti, 2017), and earlier meta-analytic evidence shows that its effects depend on intensity (Gajendran & Harrison, 2007). The pandemic corpus conflates full-time remote work with inadequate home conditions, which is why the proposition specifies both moderators.

P3. In post-pandemic hybrid arrangements, performance is driven by the flexibility of the arrangement and by the allocation of tasks between remote and on-site days rather than by the share of remote time as such; once flexibility and engagement are accounted for, the share of remote time has no direct effect on performance.

P3 is derived from the second and fourth contradictions of Table 10: remote work as such is not significant while flexible work is (Naqshbandi et al., 2024), flexible schedules improve performance where telework does not (Varotsis, 2022), and flexible arrangements are not significant among information technology professionals under results pressure (Jayanandana & Jayathilaka, 2023). The proposition is consistent with experimental evidence that hybrid arrangements improve retention without damaging performance (Bloom et al., 2024) and reframes the object of study from the location of work to its design.

P4. Telework is positively associated with innovation only in organizations that institute deliberate knowledge routines (codification of and digital access to documents, structured synchronous interaction, tutoring of newcomers and on-site anchor days for interdependent tasks) that substitute for the incidental knowledge exchange of co-location; in their absence, telework fragments organizational knowledge and is negatively associated with innovation.

P4 is derived from the sixth contradiction of Table 10 (a positive firm-level innovation effect in Merlet & Poussing, 2020, against weaker employee-level effects when complex technology is required in Caraiani et al., 2023) and from the observation that the innovation effect is conditional on document access, tutoring and versatility. The knowledge-based view explains why: dispersed work removes the incidental interactions through which tacit knowledge circulates, so that innovation depends on the routines that replace them (Grant, 1996; Nonaka, 1994; Cirielli De Mola et al., 2025; Danko & Crhová, 2025).

P5. Knowledge hiding among dispersed employees increases with the intensity of digital monitoring and decreases with perceived organizational support and knowledge leadership, so that the knowledge-sharing mechanism depends on the reciprocity mechanism.

P5 articulates two of the perspectives of Section 2.3. Knowledge sharing is a discretionary behaviour that employees withhold when the exchange relationship deteriorates (Cropanzano & Mitchell, 2005), and knowledge leadership is the managerial capacity that organizes it at a distance (Mubarak et al., 2024). No study in the corpus measured knowledge hiding in telework settings, which makes this the least documented relationship of the framework (Table 9) and a priority for research in the knowledge economy.

P6. The effect of leadership style on the performance of teleworkers is contingent on the regime: under mandatory or crisis telework, task-oriented practices (clear objectives, results-based evaluation and contingent rewards) have a stronger effect than transformational behaviours, whereas under voluntary and hybrid regimes transformational leadership and contingent rewards jointly sustain performance and workforce sustainability.

P6 is derived from the third contradiction of Table 10 (transformational leadership is not significant under mandatory telework in Meiryani et al., 2022, but positive after the pandemic in Gutu & Medeleanu, 2023). Under emergency conditions, employees need structure and clarity more than vision, which the job demands-resources model interprets as a shift in the resources that matter; under stable regimes, the reciprocity mechanism restores the value of relational leadership.

P7. The association between telework and performance is larger when performance is self-reported than when it is measured objectively or rated by supervisors, and larger in cross-sectional than in longitudinal designs; a part of the positive evidence in the literature therefore reflects perception and selection effects rather than performance gains.

P7 is derived from the quality appraisal of Section 4.3: the corpus contains no longitudinal or experimental study and almost no objective measure, and the studies outside the corpus that use personnel and productivity data report smaller, null or negative effects of remote work on productivity (Bloom et al., 2013; Gibbs et al., 2023) alongside positive effects on retention (Bloom et al., 2024). The proposition is a methodological hypothesis that future meta-analyses can test by coding the measurement of performance as a moderator.

P8. The strength and direction of the telework and performance relationship vary with the institutional and cultural context: they are more favourable where regulation frames telework and the right to disconnect and where cultural values favour autonomy and results-based evaluation, and less favourable where presence norms and hierarchical control prevail.

P8 is derived from the twelfth finding of Table 9, whose confidence is very low because the influence of context is asserted (Caraiani et al., 2023; Catană et al., 2022) but never tested comparatively. Institutional theory explains why the same practice is adopted under coercive, normative or mimetic pressures and enacted differently in different fields (DiMaggio & Powell, 1983; Scott, 2014); the proposition requires comparative designs across countries, sectors and regulatory settings.

P9. Individual performance gains from telework translate into organizational performance only when task interdependence is low or when coordination routines compensate for it; in highly interdependent work, individual gains coexist with collective losses in cohesion, decision quality and service delivery.

P9 is derived from relationship R5 of the framework and from the level-of-analysis differences that underlie the second and sixth contradictions of Table 10: telework benefits homogeneous groups performing similar tasks (Mutiganda et al., 2022), managers perceive individual benefits alongside collective risks (Korkeakunnas et al., 2023), and public services report no efficiency gain (Varotsis, 2022). The proposition requires multilevel designs that measure performance at the individual, team and organizational levels simultaneously.

Testing these propositions requires designs that the corpus lacks: longitudinal and quasi-experimental studies with objective performance measures (P2, P3, P7), multilevel designs that link individual and organizational outcomes (P9), comparative designs across countries and sectors (P8), and studies that measure knowledge sharing, knowledge hiding and knowledge leadership directly in dispersed settings (P4, P5). The propositions also specify the variables that such studies should record and control, which the corpus rarely reports: the regime and voluntariness of telework, its intensity, the intensity of monitoring and the home working conditions of employees.

8. Theoretical and managerial implications

8.1. Theoretical implications

The theoretical contribution of this review is threefold. First, it reframes the question that telework research has asked for two decades. The corpus shows that asking whether telework improves organizational performance produces contradictory answers because the practice is heterogeneous (Section 2.1.4), the outcomes are measured at different levels and mostly through perceptions (Section 4), and the conditions under which the practice is enacted differ between studies (Section 5.6). The question that the evidence can answer, and that the framework of Section 6 formalizes, is under which conditions and through which mechanisms telework affects performance. This reframing converts the inconsistencies of the literature from a limitation into an object of theory: the contradictions of Table 10 are explained by the regime, the outcome and the level of analysis, and each explanation becomes a proposition.

Second, the review shows that the four theoretical perspectives it mobilizes are complementary rather than competing, and it specifies how they articulate. Social exchange theory explains why voluntariness and trust matter (reciprocity); the job demands-resources model explains why intensity and home conditions matter (the balance of demands and resources); the resource-based and knowledge-based views explain why infrastructure, skills and knowledge routines matter (capabilities); and institutional theory explains why the same practice is adopted for different reasons and produces different effects in different contexts (the regime as an institutional condition). Telework is, in this respect, a strategic research setting for these theories: it separates, as few organizational practices do, the discretionary from the imposed (social exchange theory), resources from demands (job demands-resources model), incidental from deliberate knowledge exchange (knowledge-based view) and organizational choice from institutional pressure (institutional theory). Propositions 1, 2, 4 and 8 formulate the tests that this setting allows, and Proposition 5 articulates two of the perspectives by making knowledge sharing dependent on reciprocity.

Third, the review contributes to the knowledge economy literature by positioning telework as a knowledge-organizing practice rather than as a spatial arrangement. Telework changes the conditions under which organizational knowledge is created, shared and applied: it reduces the incidental interactions through which tacit knowledge circulates, increases the risk of knowledge hiding and fragmentation (Cirielli De Mola et al., 2025), and makes deliberate knowledge routines and knowledge leadership (Mubarak et al., 2024) the conditions of its performance effects (Section 5.3). This reading explains why the review finds the innovation effect of telework to be real at the firm level and fragile at the employee level, and why the most robust performance effect of telework concerns retention rather than productivity: telework retains the holders of knowledge, but whether it allows them to combine that knowledge productively depends on how organizations organize knowledge at a distance (Danko & Crhová, 2025; Holl et al., 2025). The review also identifies the boundary of this contribution: no primary study measured knowledge sharing or hiding directly in telework settings, and the knowledge-based mechanism is therefore the least documented of the three (Table 9), which is why Propositions 4 and 5 give it priority.

8.2. Managerial implications

The managerial implications of this review differ from the general recommendations that the telework literature has produced (providing infrastructure, improving communication, training managers, adapting performance evaluation and protecting well-being) in three respects. Each recommendation is linked to the finding that supports it and to the confidence that this finding warrants; each is qualified by the boundary condition under which it applies; and several recommendations follow from findings that are specific to this review, in particular the regime dependence of the effects of telework, the opposition between results-based evaluation and monitoring, and the knowledge routines on which the innovation effect depends. Table 11 presents them.

Table 11: Evidence-linked managerial recommendations

Finding (confidence, Table 9)	Recommendation	Boundary condition	Supporting evidence
Voluntary or planned telework is associated with lower turnover (moderate)	Offer telework as a negotiated and reversible arrangement rather than as a mandate or a uniform rule, and use it explicitly as a retention lever for the holders of critical knowledge	Voluntariness: reciprocity requires that the arrangement be perceived as a benefit	Harker Martin and MacDonnell (2012); Mutiganda et al. (2022); Bloom et al. (2024)
Support translates into performance only when it can be reciprocated, and monitoring undermines it (low to moderate)	Replace activity monitoring by results-based evaluation with objectives agreed with employees; disclose any monitoring and restrict it to security or regulatory needs	Regime; monitoring intensity	Busu and Gyorgy (2021); Korkeakunnas et al. (2023); Shahrom (2022); Aloisi and De Stefano (2022)
Technostress and boundary-blurring technologies reduce satisfaction and performance (moderate)	Provide equipment and ergonomic support, set connection and disconnection norms, and train employees in the use of collaboration tools rather than only providing them	Telework intensity; home working conditions	Fernández-Fernández et al. (2023); Stawarz et al. (2013); Vayre (2019)

Finding (confidence, Table 9)	Recommendation	Boundary condition	Supporting evidence
The innovation effect of telework depends on knowledge routines (low)	Institute the codification of and digital access to documents, structured synchronous exchanges, the tutoring of newcomers and on-site anchor days for interdependent and creative tasks; assign knowledge leadership roles	Task interdependence; tacit knowledge	Merlet and Poussing (2020); Caraiani et al. (2023); Mubarak et al. (2024)
In hybrid arrangements, flexibility and task allocation matter more than the share of remote time (low to moderate)	Design hybrid schedules around tasks (which tasks are performed where) rather than around fixed quotas of remote days, and give teams autonomy over their schedules	Post-pandemic hybrid regime	Naqshbandi et al. (2024); Varotsis (2022); Bloom et al. (2024)
The effect of leadership style depends on the regime (low)	Under imposed or crisis telework, give priority to clarity of objectives, results-based evaluation and contingent rewards; in stable regimes, develop transformational and e-leadership capabilities through dedicated training	Regime	Meiryani et al. (2022); Gutu and Medeleanu (2023); Elyousfi et al. (2021)
Individual gains do not aggregate automatically into organizational performance (low)	Monitor team-level indicators (cohesion, decision quality, service delivery, integration of external members) alongside individual productivity, and protect the collective routines of interdependent teams	Task interdependence; team composition	Korkeakunnas et al. (2023); Mutiganda et al. (2022); Varotsis (2022)
The available evidence is perceptual and regime-specific (Sections 4.3 and 5.7)	Evaluate telework policies with objective indicators and before-and-after comparisons within the organization rather than with satisfaction surveys alone, and do not transfer pandemic-era results to hybrid policies	All	Sections 4.3 and 5.7

Note: Confidence grades refer to Table 9. Recommendations are ordered from the best supported to the least supported finding.

Three implications deserve emphasis because they run counter to common practice. First, because the effects of telework observed under pandemic conditions do not transfer to voluntary or hybrid arrangements, organizations should not base their post-pandemic policies on the productivity perceptions collected during the pandemic, whether favourable or unfavourable, but on the evaluation of their own hybrid arrangements with objective indicators. Second, because the reciprocity on which the performance of teleworkers depends is undermined by surveillance, the digital tools that make remote monitoring possible should be used for results-based evaluation and coordination rather than for activity tracking; where monitoring is required for security or regulatory reasons, it should be disclosed and limited. Third, because the innovation effect of telework depends on knowledge routines, organizations that expect telework to sustain innovation should invest in the codification of and access to knowledge, in structured synchronous interaction and in the tutoring of newcomers and should reserve on-site days for the interdependent and creative tasks in which tacit knowledge is exchanged, rather than distributing remote days uniformly.

9. Conclusion and limitations

This review set out to establish, on a theory-informed and evidence-weighted basis, under which conditions and through which organizational mechanisms teleworking affects organizational performance. Drawing on 80 publications identified through a systematic search of eight databases for the period 2004 to 2023, and on the 27 studies among them that report extractable evidence on the telework and performance relationship, it compared the studies on their theoretical lenses, designs, samples, contexts, measures and telework regimes, appraised their methodological quality, and graded the confidence that each synthesized finding warrants.

Three conclusions follow. First, the effect of telework on organizational performance is conditional rather than general: the evidence supports, with moderate confidence, that voluntary or planned telework is associated with lower turnover and that technostress and boundary-blurring technologies reduce satisfaction and perceived performance, whereas the widely asserted productivity gains rest on perceptual, cross-sectional and largely pandemic-era evidence and warrant only low to moderate confidence. Second, the contradictions of the literature are largely explained by the regime under which the data were collected, by the outcome measured and by the level of analysis, which the integrated framework of Section 6 formalizes through three mechanisms (reciprocity, the resource-demand balance and knowledge sharing) and three boundary conditions (regime, intensity and home conditions, and institutional and cultural context). Third, telework is best understood as a knowledge-organizing practice: its performance effects depend on how organizations sustain reciprocity and knowledge creation and sharing among dispersed employees, which is why the nine propositions of Section 7 and the recommendations of Section 8 give priority to the knowledge routines and to the management practices that the evidence identifies as decisive.

The review has limitations that should be acknowledged to weigh these conclusions. First, the search strategy relied on the most frequently used terms for telework and organizational performance in English and French; terminology in the field evolves, knowledge-related terms were not part of the search strings, and studies published in other languages, as working papers or in economics journals outside the databases covered, were not captured, which excludes in particular several experimental studies with objective productivity measures. Second, the core corpus is small, dominated by cross-sectional, single-source surveys relying on self-reported performance, concentrated in service and public organizations and in a limited number of countries, and largely produced under pandemic conditions; the confidence grades reflect these limitations but cannot compensate for them, and the findings should not be generalized to manufacturing or to institutional settings that the corpus does not represent. Third, the quality appraisal and confidence grading involve judgement; Section 3.5 reports the criteria, and Table 8 shows the ratings study by study so readers can assess them, but other reviewers may weigh the criteria differently. Fourth, the distinction between the 80 included publications and the 27 core studies rests on whether performance results are reported; the remaining publications were used for interpretation rather than synthesis. Finally, only one reviewer analyzed the full corpus. Research should address these limitations by using the Cochrane review methodology with more than one independent reviewer. The limitations could be further addressed through the designs identified in Section 7: longitudinal and quasi-experimental studies with objective performance measures, multilevel and comparative designs, and direct measurement of knowledge sharing, knowledge hiding, and knowledge leadership in dispersed settings.

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Appendix A. Example of a reading note

Components	Evaluation
Title	The Effect of Transformational Leadership and Remote Work on Employee Performance During the COVID-19 Pandemic
Author(s) (year)	Meiryani Nelviana, Yorick Koh, Gatot Soepriyanto, Mohammed Aljuaid, and Fakhrul Hasan. 2022
Objectives of the study	This study aims to analyze the effect of transformational leadership and telework on employee performance during the COVID-19 pandemic.
Presentation of the methodology	This study uses a quantitative approach based on factual and statistical research elements concerning conclusive research problems. The data source for this research is primary data obtained directly from the sources without intermediaries.
Description of Results	According to the authors, this study found that transformational leadership does not greatly impact employee performance. Leadership style positively influences employee performance. For Meiryani et al. (2022), if the management style of employees improves, then the performance of workers will also improve; it goes both ways: if the leadership given to workers is poor, the performance of workers will decrease. This shows that if management offers workers good benefits, employee job satisfaction will increase, leading to greater job stimulation, and vice versa. Moreover, the transformational management style does not necessarily increase employee performance. It can also be a driver of transformational leadership, which leaders implement to improve performance. For Meiryani et al. (2022), telework significantly affects workers' performance. Remote work should make the system more effective and efficient, and appropriate strategies should be implemented to improve employee performance. These results show that if telework applications are carried out correctly in accordance with the provisions in place and do not become a channel for employees to become incompetent, then workers' performance will increase. The study's results also prove that more flexible supervision has impacted workers' performance. In addition, oversight needs to be more thorough during office audits, involve virtual exchanges, and impose penalties on employees who hinder regulation.
Contributions	This research provides empirical evidence on the impact of transformational leadership and telework on worker performance. The results of this research proved that transformational leadership does not have a powerful effect on worker performance. Therefore, it is hoped that this remark will be considered so that managers can adopt a more suitable leadership style, particularly a supportive one, which leads workers to achieve the organization's objectives rather than an authoritarian style. The results of this study also show that remote work significantly impacts employee performance, which can be put forward to leaders and organizations that are still hesitant to adopt this way of working.
Limitations and Future Research Avenues	Meiryani et al. (2022) nevertheless consider that this research has shortcomings. Since the sample used does not necessarily reflect all teleworkers, it cannot accurately describe the situation of all teleworkers in general. It is, therefore, recommended that studies with much larger sample sizes be conducted. However, the sample of 136 research participants was estimated using Slovin's formula, so the sample size met academic requirements. The worker performance variable was considered in a self-assessment of performance so that the results were less objective. Future data should be used to inform an organization's evaluation of employee performance. However, the management style could be more adapted to increase employee performance. Future research should consider other leadership styles, such as participative and transactional leadership, which may influence employee performance.
Critical Commentary	As the research theme of this work is to analyze the influence of telework on organizational performance, this article seems relevant. This text seeks to measure the impact of

transformational leadership and remote work on employee performance during the health crisis. Indeed, in telework, there is a close relationship between managers and employees. Therefore, a specific leadership strategy drives the remote work process to achieve the expected goals. To this end, this article discusses management through the lens of transformational leadership. In telework, the way of leading and managing one's teams differs from how managers lead their teams to performance in face-to-face work. In this context, the authors argue that transformational leadership has little impact on employee performance. Leadership style positively influences employee performance.

Given the history of telework, it has been most widely practised during the COVID-19 pandemic. This is one of the reasons for choosing this article: the study was conducted in a context of intense telework, which allowed for various observations within its framework.

The primary goal of any business is to make a profit by optimally using its resources. With digital tools that allow the company and remote workers to stay operational while working remotely, work tasks are being performed, and the company benefits. However, the company must bear the costs of connectivity for teleworkers, as workers with weak internet connections experience decreased efficiency when teleworking. A teleworking context in the right frame of mind will boost employee performance, as remote work offers flexible working hours; therefore, the employee will be able to remain engaged and more operational during the hours when they feel most productive.

All in all, this text provides a clearer picture of how teleworking and transformational management can affect the organization's performance during the COVID-19 health crisis, but it is essential to note that the recommendations are applicable under normal conditions outside a health crisis.

Appendix B

Tables B.1 and B.2 report the keyword frequencies and the authors' institutional affiliations of the core studies, which were previously presented in the body of the article.

Table B.1: Keyword analysis of the core studies

Keywords affiliated with the search	Frequencies
Telecommuting	19
Work from home	6
COVID-19	6
Performance perceived by employees	4
Leadership	4
Welfare	3
Satisfaction	2
Productivity	2
Employee job performance	2
Performance	2
Work-life balance	2
Work Environment	2
Organizational Commitment	2
Performance improvements	1
Benefits of Remote Work	1
Team collaboration	1
Behavior	1
Productive Behavior	1
Organizational Behavior	1
Culture	1
Organizational dimensions	1

Perceived team dynamics	1
Digital economy	1
Efficiency	1
Entity Effectiveness	1
Employees	1
Virtual Employees and Employee Satisfaction	1
Employee engagement at work	1
Hybrid work environment	1
Performance evaluation	1
Flexibility of work	1
Technology Management	1
Innovation	1
Workforce sustainability	1
E-Leadership	1
Perceived e-leadership	1
Leadership and Organizational Support	1
Transformational Leadership	1
Hybrid workforce	1
Meta-analysis	1
Hybrid workplace model	1
New standards	1
Adaptive Performance	1
Virtual team performance	1
Organizational Economic Performance	1
Organizational Performance	1
Professional performance	1
Labor productivity	1
Personal and organizational productivity	1
Quality of life	1
Work/"non-work" relationships	1
Organizational Results	1
Staff turnover	1
Professional sphere	1
Organizational Structures	1
Leadership style	1
Information and communication technology	1
Digital Technology	1
Mobile Technology	1
Remote worker	1
Remote work	1
Education workers	1
Value added	1

Table B.2: Authors, institutions of affiliation and themes explored on telework

Authors' names	Identification of institutions	Keywords
Priscilla Arling	University of Minnesota, USA	Telecommuting, social network analysis, social capital, organizational engagement
Brittanny Harker Martin and Rihiannon MacDonnell	Haskayne School of Business; University of Calgary, Calgary, Canada	Telework, organizational structures, Benefits of telework, Organizational results, meta-analysis, Telework

Authors' names	Identification of institutions	Keywords
Katarzyna Stawarz, Ana L. Cox, Jon Bird, and Rachel Benedyk	University College London, Gower Street, London, United Kingdom	Work-life balance; touch-screen tablets; Mobile Technology
Fatemeh Sadat, Aboalmaali, Akram Abédi, Sanaz Ketabi	Islamic Azad University, Science and Research Branch, Tehran, Iran	Remote Work, Performance Improvement, Employees
Nicole Farideh Church	The Academy of Retail Business and Management (ABRM), USA	Telecommuting, working from home, benefits, organizational behavior, virtual employees, and employee satisfaction.
Ron Torten, Carmen Reaiche, Ervin L. Caraballo	Inphi Corporation, USA; University of Adelaide, Australia; Capella University, USA	Technology management, telecommuting, processes.
Uchenna Onyemaechi, Uruakpa Peter Chinyere and Uche Emmanuel	Department of Management, Abia State University, Uturu, Nigeria; Department of Banking and Finance, Abia State University, Uturu, Nigeria Department of Economics, Abia State University, Uturu, Nigeria	Telecommuting, employee performance
Emilie Vayre	University of Paris-Nanterre	Teleworking, professional sphere, work/" non-work" relationships, quality of life.
Jimmy Merlet, Nicolas Poussing	Universit d'Avignon, Avignon, France Luxembourg Institute of Socio-Economic Research, Esch-sur-Alzette, Luxembourg	CSR, teleworking, innovation, ICT, business, Luxembourg
Muyassarzoda Fayzieva, Sanjar Goyipnazarov and Gulnora Abdurakhmonova	Binary Graduate School, Tashkent Institute of Finance; Tashkent State University of Economics, Tashkent, Uzbekistan	Teleworking, Covid 19; Work productivity, employee performance, entity efficiency
Mihail Busu and Attila Gyorgy	Bucharest University of Economic Studies, Bucharest, Romania	Teleworking, organizational performance, econometric model, least squares Partial Least Squares (PLS), Modeling of Structural Equations (SEM), Adaptive Capacity, COVID-19, Psychological Impact
Stefan-Alexandru Catana, Sorin-George Toma, Cosmin Imbrişça and Marin Burcea	University of Bucharest, Bucharest, Romania	Telecommuting, well-being, productivity, cluster analysis, company, Romanian graduate employees
Clémence Heimburger	University of Paris 1 Panthéon Sorbonne; PRISM Sorbonne	Teleworking, organizational commitment, satisfaction, adaptive performance
Hackney Amy, Marcus Yung, Kumara G. Somasundram, Behdin Nowrouzi-Kia, Jodi Oakman, and Amin Yazdani.	Canadian Institute for Safety, Conestoga College Institute of Technology and Advanced Learning, Ontario, Canada; University of Toronto, Canada; La Trobe University, Bundoora, Australia; School of Public Health	Performance, Personal & Organizational Productivity, Work from Home, Digital Economy

Authors' names	Identification of institutions	Keywords
	systems, University of Waterloo, Ontario, Canada; McMaster University, Hamilton, Ontario, Canada	
Meiryani Nelviana, Yorick Koh, Gatot Soepriyanto, Mohammed Aljuaid, and Fakhrul Hasan.	Bina Nusantara University, Jakarta, Indonesia; King Saud University, Riyadh, Saudi Arabia; Liverpool Hope University, Liverpool, UK	COVID-19, transformational leadership, remote work, employee performance, leadership style
Fatima Elyousfi, Amitabh Anaud and Audrey Dalmasso	HEC Montréal, Montreal, Canada; SKEMA Business School, Université Côte d'Azur, Sophia Antipolis; Valbonne, France	Virtual Team Performance, Leadership, Perceived Team Dynamics, Team Collaboration, Electronic Leadership Canada
Natasha Aina, Binti Orissa, Melissa Shahrom	Universiti Teknologi MARA, Campus; Puncak Alam, Selangor, Malaysia	Covid 19, employee performance, working from home, work environment, leadership and organisational support
Jean-Claude Mutiganda, Birgitta Wiitavaara, Marina Heiden, Sven Svensson, Arne Fagerström, Gunnar Bergström and Emmanuel Aboagye	University of Gävle, Gävle, Sweden; Åbo Akademi University, Turku, Finland; Institute of Environmental Medicine; Karolinska Institutet, Stockholm, Sweden	Telework, turnover, systematic review, organizational economic performance, employee perceived performance
Nikolaos Varatsis	Ionian University; Corfu, Greece	Telecommuting, Work Performance, Utilities, COVID-19, Work Flexibility
Mr. Muzamil Naqshbandi, Ibrahim Kabir, Nurul Amirah Ishak and Md. Zahidul Islam	University of Brunei Darussalam; Northwest University Kano, Kano, Nigeria	Hybrid workforce, hybrid workplace model, hybrid work environment, employee engagement at work, employee job performance, performance review
Douglas Chiguvi and Keneilwe Bakani	BA ISAGO University, Gaborone, Botswana	Work from home (WFH), COVID-19, Productivity, Botswana Unified Revenue Services (BURS), Botswana
Chirata Caraiani, Camelia Iuliana Lungu, Cornelia Dascalu and Carmen-Alexandra Stoian	University of Economic Studies in Bucharest, Romania	Telecommuting; size Organizational; performance; behavior; culture; Digital Technology
María Fernandez-Fernandeza, Juan-Gabriel Martínez-Navalonb, Vera Gelashvilib, Camilo Prado Romane	King Juan Carlos University, Spain; Rey Juan Carlos University, Spain	Anxiety Measurement scale Performance PLS Software Satisfaction Technostress
Nilesh Jayanandana and Ruwan Jayathilaka	SLIIT Business School, Sri Lanka Institute of Information Technology, Malabe, Sri Lanka; Department of Information Management, SLIIT Business School, Sri Lanka Institute of Information Technology, Malabe, Sri Lanka	Telecommuting, Professional performance, Work from home

Authors' names	Identification of institutions	Keywords
Fendy Suhariadia, Rini Sugiartib, Dwi Hardaningtyasc, Rina Mulyatie, Evi Kurniasarif, Nurlailis Saadahg, Hilmi Yumnig, Ansar Abbash	Graduate School, Airlangga Universities, Surabaya, Indonesia; Universitas Semarang, Indonesia; Universitas 17 Agustus 1945 Surabaya, Indonesia; Universitas Wijaya Putra, Surabaya, Indonesia; Universitas Islam Indonesia, Indonesia; Politeknik Kesehatan, Kementrian Kesehatan Surabaya, Indonesia; MY Business School, Muslim Youth University, Islamabad, Pakistan	Productive behavior, Education workers, Work from home, New standards, Welfare
Korkeakunnas Tea, Marina Heiden, Malin Lohela-Karlsson and Komalsingh Rambaree	University of Gävle, Sweden; Uppsala University, Sweden;	Remote work; telecommuting; director; well-being; efficiency; deliver; work routines; social community; Value added; attractiveness
Ioana Gutu and Camelia Nicoleta Medeleanu	Alexandru Ioan Cuza University of Iasi, Romania	Electronic Leadership; workforce sustainability; telecommuting; Work Environment

Appendix C: Search strings across databases

Purpose and structure of the appendix

This appendix documents the search strategy of the review at the level of each source, as recommended by the PRISMA 2020 statement (Page et al., 2021, item 7). For each of the eight sources listed in Table 4 of the manuscript, it reports the interface used, the fields searched, the limits applied, the date of execution, the search string as executed and the number of records retrieved. The strings implement the six concept blocks defined in Section 3.2 of the manuscript and reproduced in Table C.1. Terms within a block are combined with the OR operator; blocks are combined with the AND operator as follows: (block A, teleworking) AND (block B, performance, OR block C, organizational performance) AND (block D, organization). In ABI/INFORM Collection and Business Source Complete, the two sources that returned very large result sets, block E (influence) and block F (work mode) were added as a further AND condition, combined with OR within it. Multi-word terms are searched as exact phrases. The field syntax, the limiters and the operators are those of each platform; the terms themselves are identical across sources, so that the eight searches are comparable, except in Cairn.Info and Sofia, where the French equivalents of Table C.1 were used (in Sofia, English and French terms were combined in the same string).

Four terms of the original blocks ("work abroad", "yield", "company yield" and "working channel") are imprecise; as explained in Section 3.2 of the manuscript, they were retained at the search stage to maximize recall, and a post hoc check showed that none of the included publications was retrieved exclusively through them. Knowledge-related terms (knowledge sharing, knowledge hiding) were not part of the strings, because the knowledge-based mechanism was introduced at the coding stage; this limitation is acknowledged in Section 9 of the manuscript.

Concept blocks

Table C.1. Concept blocks and their French equivalents

Block	English terms (all sources)	French equivalents (Cairn.Info and Sofia)
A. Teleworking	`"working from home" OR "remote work" OR "work abroad"`	`"télétravail" OU "travail à distance" OU "travail à domicile" OU "travail à l'étranger"`

Block	English terms (all sources)	French equivalents (Cairn.Info and Sofia)
B. Performance	`yield OR performance OR productivity OR efficiency OR profit`	`rendement OU performance OU productivité OU efficacité OU profit`
C. Organizational performance	`"organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit"`	`"performance organisationnelle" OU "performance de l'organisation" OU "rendement de l'entreprise" OU "efficacité de l'entreprise" OU "réussite de l'entreprise" OU "profit de l'organisation"`
D. Organization	`organization OR company OR firm`	`organisation OU entreprise OU firme OU société`
E. Influence	`impact OR effect`	`impact OU effet`
F. Work mode	`"work mode" OR "work style" OR "working channel"`	`"mode de travail" OU "style de travail" OU "canal de travail"`

Note: Blocks E and F were used only in ABI/INFORM Collection and Business Source Complete. In Google Scholar, block B was entered without block C, because of the 256-character limit of the query and because the exact phrases of block C are contained in the single-word terms of block B in a full-text search.

Search strings by source

C.2. ABI/INFORM Collection (ProQuest)

Interface	ProQuest, advanced search (command line), ABI/INFORM Collection selected as the only database
Fields searched	NOFT (anywhere except full text): title, abstract, subject headings, author keywords and other indexing fields
Limits	Peer reviewed; publication date 1 January 2004 to 31 December 2023; languages English and French

Search string	`noft("working from home" OR "remote work" OR "work abroad")`
	`AND noft(yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit")`
	`AND noft(organization OR company OR firm)`
	`AND noft(impact OR effect OR "work mode" OR "work style" OR "working channel")`
	`AND pd(20040101-20231231)`
	`AND la(english OR french)`
	`AND peer(yes)`

Records retrieved	5,392
Notes	Blocks A, B and C, D, E and F combined as described in Section C.1; the refinement blocks E and F were applied in this source because of the size of the result set. Terms were entered without truncation; the platform's default handling of plurals and spelling variants applies.

C.3. Business Source Complete (EBSCOhost)

Interface	EBSCOhost, advanced search, Business Source Complete selected as the only database; Boolean/Phrase search mode
Fields searched	TI (title), AB (abstract), KW (author-supplied keywords)
Limits	Scholarly (peer reviewed) journals; published date 20040101 to 20231231; language English
Search string	`(TI ("working from home" OR "remote work" OR "work abroad") OR AB ("working from home" OR "remote work" OR "work abroad") OR KW ("working from home" OR "remote work" OR "work abroad"))` `AND (TI (yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm`

	accomplishment" OR "organization profit") OR AB (yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit") OR KW (yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit")) AND (TI (organization OR company OR firm) OR AB (organization OR company OR firm) OR KW (organization OR company OR firm)) AND (TI (impact OR effect OR "work mode" OR "work style" OR "working channel") OR AB (impact OR effect OR "work mode" OR "work style" OR "working channel") OR KW (impact OR effect OR "work mode" OR "work style" OR "working channel"))
Records retrieved	1,592
Notes	Limits applied through the interface limiters (equivalent to the limiter codes DT 20040101-20231231 and LA English). Refinement blocks E and F applied as in ABI/INFORM Collection.

C.4. Sofia (discovery service of the Quebec university libraries, WorldCat Discovery)

Interface	Sofia (OCLC WorldCat Discovery, Bureau de coopération interuniversitaire), expert search with index labels
Fields searched	kw: (keyword index: title, subject, abstract and notes where available); English and French terms combined in the same string
Limits	Format: articles (including peer-reviewed articles and book chapters); publication years 2004 to 2023; languages English and French
Search string	(kw:"working from home" OR kw:"remote work" OR kw:"work abroad" OR kw:"télétravail" OR kw:"travail à distance" OR kw:"travail à domicile" OR kw:"travail à l'étranger") AND (kw:yield OR kw:performance OR kw:productivity OR kw:efficiency OR kw:profit OR kw:"organization performance" OR kw:"company yield" OR kw:"firm efficiency" OR kw:"firm accomplishment" OR kw:"organization profit" OR kw:rendement OR kw:productivité OR kw:efficacité OR kw:"performance organisationnelle" OR kw:"performance de l'organisation" OR kw:"rendement de l'entreprise" OR kw:"efficacité de l'entreprise" OR kw:"réussite de l'entreprise" OR kw:"profit de l'organisation") AND (kw:organization OR kw:company OR kw:firm OR kw:organisation OR kw:entreprise OR kw:firme OR kw:société)
Records retrieved	2,039 (obtained by difference between the total of 9,308 records and the seven other sources; to be confirmed against the search log)
Notes	Sofia indexes the catalogues of the Quebec university libraries and a central index that overlaps with ABI/INFORM Collection and Business Source Complete, which explains the high proportion of duplicates removed at the de-duplication stage (Section 3.3). The French block terms "performance" and "profit" are identical to the English ones and were not repeated.

C.5. Taylor & Francis Online

Interface	Taylor & Francis Online, advanced search (field-specific query)
Fields searched	Title, Abstract, Keywords
Limits	Publication date 2004 to 2023; content type: journal articles; language English
Search string	[[Title: "working from home" OR "remote work" OR "work abroad"] OR [Abstract: "working from home" OR "remote work" OR "work abroad"] OR [Keywords: "working from home" OR "remote work" OR "work abroad"]] AND [[Title: yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit"] OR [Abstract: yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR

	"company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit"] OR [Keywords: yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit"]] AND [[Title: organization OR company OR firm] OR [Abstract: organization OR company OR firm] OR [Keywords: organization OR company OR firm]]
Records retrieved	189
Notes	The bracketed syntax is what the platform displays when the advanced-search form is submitted; Boolean operators are accepted within a field clause. Refinement blocks E and F were not applied.

C.6. Cairn.Info

Interface	Cairn.Info, recherche avancée
Fields searched	Titre, Résumé, Mots-clés
Limits	Type de publication : articles de revues ; période : 2004 à 2023 ; langue : français
Search string	("télétravail" OU "travail à distance" OU "travail à domicile" OU "travail à l'étranger") ET (rendement OU performance OU productivité OU efficacité OU profit OU "performance organisationnelle" OU "performance de l'organisation" OU "rendement de l'entreprise" OU "efficacité de l'entreprise" OU "réussite de l'entreprise" OU "profit de l'organisation") ET (organisation OU entreprise OU firme OU société)
Records retrieved	53
Notes	French equivalents of blocks A, B, C, and D (Table C.1); "télétravail" was used as the French equivalent of "remote work" together with "travail à distance". The interface accepts the operators ET, OU and SAUF (and their English equivalents); the three fields were selected in the advanced-search form, and the same expression entered for each.

C.7. Medline with Full Text (EBSCOhost)

Interface	EBSCOhost, advanced search, Medline with Full Text selected as the only database; Boolean/Phrase search mode
Fields searched	TI (title), AB (abstract), KW (author-supplied keywords)
Limits	Scholarly (peer-reviewed) journals; published date 20040101 to 20231231; language English
Search string	(TI ("working from home" OR "remote work" OR "work abroad") OR AB ("working from home" OR "remote work" OR "work abroad") OR KW ("working from home" OR "remote work" OR "work abroad")) AND (TI (yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit") OR AB (yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit") OR KW (yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit")) AND (TI (organization OR company OR firm) OR AB (organization OR company OR firm) OR KW (organization OR company OR firm))
Records retrieved	21
Notes	Same syntax as Business Source Complete, without the refinement blocks E and F. No MeSH term was added, so that the string remains comparable across sources.

C.8. Scopus

Interface	Scopus, advanced search
Fields searched	TITLE-ABS-KEY (title, abstract, author keywords and indexed keywords)
Limits	Publication years 2004 to 2023; language English; document types: articles and conference papers

Search string	`TITLE-ABS-KEY("working from home" OR "remote work" OR "work abroad")`
	`AND TITLE-ABS-KEY(yield OR performance OR productivity OR efficiency OR profit OR "organization performance" OR "company yield" OR "firm efficiency" OR "firm accomplishment" OR "organization profit")`
	`AND TITLE-ABS-KEY(organization OR company OR firm)`
	`AND PUBYEAR > 2003 AND PUBYEAR < 2024`
	`AND (LIMIT-TO(LANGUAGE, "English"))`
	`AND (LIMIT-TO(DOCTYPE, "ar") OR LIMIT-TO(DOCTYPE, "cp"))`

Records retrieved	12
Notes	Scopus applies British and American spelling variants and singular and plural forms automatically to terms entered without braces. Refinement blocks E and F were not applied.

C.9. Google Scholar

Interface	Google Scholar, standard search box (no field codes other than the exact-phrase quotation marks and the OR operator)
Fields searched	Full text (all fields)
Limits	Custom range 2004 to 2023; patents and citations excluded; English and French results screened
Search string	`("working from home" OR "remote work" OR "work abroad") (performance OR productivity OR efficiency OR profit OR yield) (organization OR company OR firm)`
Records retrieved	10 (records retained after screening the first pages of results; see note)
Notes	Google Scholar was used as a complementary source and not as a systematic one: the AND operator is implicit between the parenthesized groups, the query is limited to 256 characters, results cannot be exported in bulk, and only the first pages of results were screened (the number of pages screened should be stated). The count reported is the number of records exported for screening, not the number of hits displayed by the engine.

Record flow

The eight searches identified 9,308 records in total (5,392 + 1,592 + 2,039 + 189 + 53 + 21 + 12 + 10). Section 3.3 and Figure 2 report the subsequent removal of 6,000 duplicate records, the screening of 3,308 records by title, abstract, and keywords, the full-text assessment of 381 publications, and the inclusion of 80 publications.