Jurnal Wacana Kinerja
Volume 29 | Nomor 2 | November 2026
DOI: 10.31845/jwk.v29i2.1048
p-issn: 1411-4917; e-issn: 2620-9063
http://jwk.lan.go.id

Information and Communication Technology (ICT)'s Dual Role in Work-From-Anywhere (WFA) Arrangements: A Thematic Review of the Paradox of Connectivity

Peran Ganda Teknologi Informasi dan Komunikasi (TIK) dalam Kebijakan Work-From-Anywhere (WFA): Tinjauan Tematik tentang Paradoks Konektivitas

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(Submitted 15/01/26; Revised 12/08/26; Accepted 27/08/26)

Abstrak

Adopsi global Work-From-Anywhere (WFA) yang cepat, dimungkinkan oleh teknologi informasi dan komunikasi (TIK), mengubah organisasi kerja. Dipandu oleh pertanyaan tentang bagaimana TIK sekaligus meredakan dan memperburuk tantangan WFA, tinjauan literatur tematik ini menyintesis 40 studi peer-reviewed yang dipilih melalui proses penyaringan hibrida dengan bantuan Scopus AI dan panduan SPIDER. Kami mengembangkan kerangka integratif yang mengidentifikasi empat domain ambivalensi teknologi yang saling terkait: (1) teknologi komunikasi yang meningkatkan kolaborasi sekaligus menumbuhkan budaya selalu terhubung; (2) alat manajemen batas yang menawarkan fleksibilitas sekaligus meningkatkan telepressure; (3) infrastruktur digital yang mendukung kesejahteraan sekaligus berkontribusi pada kelelahan digital; dan (4) faktor kontekstual yang memoderasi efek tersebut secara berbeda. Temuan menunjukkan bahwa dampak TIK tidak ditentukan oleh teknologi, melainkan muncul dari interaksi antara keterjangkauan alat, kebijakan organisasi, praktik kepemimpinan, dan keadaan individu. Tinjauan ini memajukan teori paradoks dengan mengonseptualisasikan peran ganda TIK sebagai ketegangan inheren yang perlu dinavigasi, bukan masalah yang harus diselesaikan. Studi ini berkontribusi pada model Job Demands-Resources dengan memosisikan TIK sebagai sumber daya sekaligus tuntutan, dan pada teori batas dengan mengidentifikasi pergeseran kerja batas dari spasial ke temporal-psikologis. Rekomendasi berbasis bukti dan agenda riset disediakan untuk lingkungan kerja digital yang berkelanjutan, setara, dan manusiawi.

***Kata Kunci**: Work-From-Anywhere (WFA), technostress, kelelahan digital, manajemen batas, sistem sosial-teknis.*

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Abstract

Rapid global adoption of Work-From-Anywhere (WFA) arrangements, enabled by information and communication technologies (ICT), is transforming work organization. Guided by the question of how ICT simultaneously mitigates and exacerbates WFA challenges, this thematic literature review synthesizes 40 peer-reviewed studies identified through a hybrid Scopus AI-assisted and SPIDER-guided screening process. We develop an integrative framework identifying four interconnected domains of technological ambivalence: (1) communication technologies that enhance collaboration while fostering always-on cultures; (2) boundary management tools that offer flexibility while increasing telepressure; (3) digital infrastructures that support well-being while contributing to digital fatigue; and (4) contextual factors that differentially moderate these effects. Findings show that ICT impacts are not technologically determined but emerge from interactions among tool affordances, organizational policies, leadership practices, and individual circumstances. The review advances paradox theory by conceptualizing ICT's dual role as inherent tensions to be navigated rather than a problem to be solved. It contributes to the Job Demands-Resources model by positioning ICT as both a resource and a demand, and to boundary theory by identifying a shift from spatial to temporal-psychological boundary work. Evidence-based recommendations and a research agenda are provided for sustainable, equitable, and humane digital work environments.

Keywords: Work-From-Anywhere (WFA), technostress, digital fatigue, boundary management, socio-technical systems.

1. INTRODUCTION

The global landscape of work has undergone a paradigmatic shift with the accelerated adoption of Work-From-Anywhere (WFA) arrangements. What began as a pandemic necessity has evolved into a permanent structural feature of modern work organization, fundamentally decoupling work from physical place and reconfiguring temporal, spatial, and relational dimensions of work (Hjartardóttir et al., 2025). WFA represents the most radical instantiation of remote work, granting employees unprecedented location autonomy while presenting organizations with novel challenges in coordination, collaboration, and culture-building (Choudhury et al., 2021; Knappertsbusch & Stute, 2024).

Information and Communication Technology (ICT) serves as the foundational infrastructure enabling this transformation. Unified communication platforms, cloud-based collaboration suites, project management tools, and mobile technologies collectively provide the digital scaffolding that makes location-independent work viable (Choudrie et al., 2017; Joseph, 2024). These technologies are designed to mitigate the core challenges of distributed work, facilitating real-time communication across distances, enabling knowledge sharing and social connection, and providing mechanisms for coordination and supervision in the absence of physical co-location.

However, emerging evidence reveals a more complex and paradoxical reality. The very technologies that empower WFA are simultaneously implicated in a range of negative psychosocial outcomes, suggesting that ICT functions as a double-edged sword (Karimikia et al., 2020; Nayak et al., 2025; Reimann et al., 2023; Stankevičiūtė, 2022). The essence of this paradox lies in the fact that the same technological affordance often produces both enabling and constraining outcomes simultaneously. Communication platforms that bridge geographical divides also foster "always-on" cultures that blur work–life boundaries (Nida et al., 2024). Mobile devices offering flexibility can transform into sources of telepressure—the

perceived obligation to maintain perpetual responsiveness (Levy et al., 2024; Lutz et al., 2020; Reimann et al., 2023). Constant connectivity that sustains distributed collaboration likewise contributes to digital fatigue, technostress, and diminished well-being, potentially offsetting gains in flexibility (Büchler et al., 2020). ICT, therefore, does not simply mitigate some WFA challenges while exacerbating others; rather, it frequently mitigates and exacerbates the same challenge through the same mechanism. This inherent tension—connection versus overload, flexibility versus permeability, autonomy versus exhaustion—constitutes the paradox of connectivity at the center of this review.

This dual nature cannot be understood by separating ICT's benefits from its harms; it must be examined as an integrated socio-technical tension. Such tension presents a significant theoretical and practical challenge. Existing literature often segments these effects, studying either ICT's enabling or constraining roles in isolation. Such bifurcation fails to capture the inherent paradox where ICT simultaneously mitigates and exacerbates WFA challenges (Kusairi et al., 2025; Mikołajczyk et al., 2024). A holistic understanding requires examining these opposing forces as interrelated outcomes of the same socio-technical system. The critical question shifts from evaluating whether ICT is beneficial or harmful for remote work to understanding the contingent conditions and mechanisms under which its mitigating or exacerbating effects become predominant.

Despite this growing body of research, existing reviews have not yet integrated ICT's contradictory roles within a single framework. Meta-analytic evidence on telecommuting and remote work has predominantly examined performance-related outcomes, treating ICT as an enabling condition rather than as a potential source of strain (Allen et al., 2015; Gajendran & Harrison, 2007; Harker Martin & MacDonnell, 2012). A parallel stream of systematic reviews has focused on remote workers' well-being, but these reviews typically discuss technostress, digital fatigue, and work–life conflict as separate outcomes rather than as the negative effects of the same technologies that enable flexibility (Charalampous et al., 2019; Lunde et al., 2022; Oakman et al., 2020). Reviews on technostress and boundary management have further documented the dark side of ICT use (Cousins & Robey, 2015; Piszczek, 2017; Ragu-Nathan et al., 2008; Tarafdar et al., 2019) yet they rarely connect these effects to the enabling functions of ICT within one integrative model. As a result, the literature remains bifurcated: ICT's enabling and constraining effects are studied in isolation, and a comprehensive framework that conceptualizes them as paradoxical and mutually constitutive is still lacking. This review examines how ICT functions as both a mitigating and an exacerbating force in Work-From-Anywhere arrangements. Specifically, it examines the domains in which ICT's paradoxical effects most clearly manifest, and the factors that moderate them, as well as how paradox theory, the Job Demands–Resources (JD-R) model, and boundary theory explain these dynamics. To address this gap and examine these interrelated dimensions, this review synthesizes evidence on ICT's dual role across communication, boundary management, well-being, and contextual domains

2. LITERATURE REVIEW AND PREVIOUS RESEARCH

The dual role of ICT in WFA arrangements cannot be adequately understood through purely technological or deterministic lenses. Instead, it requires a multidisciplinary theoretical foundation that accounts for the complex, often contradictory, ways in which technology interacts with individual, organizational, and social systems. This section synthesizes key theoretical perspectives that inform the analysis of ICT's paradoxical impacts in WFA contexts, focusing on three core frameworks: paradox theory, the Job Demands-Resources (JD-R) model, and boundary theory. Together, these theories provide a conceptual basis for

examining how ICT simultaneously enables and constrains remote work, and how its effects are moderated by contextual factors.

2.1 Paradox Theory

Paradox theory (Schad & Miron-Spektor, 2021; Smith & Lewis, 2011) offers a foundational lens for understanding ICT's dual role in WFA. Paradoxes are defined as persistent contradictions between interrelated elements that exist simultaneously and seem logical in isolation but irrational when juxtaposed. In the context of WFA, ICT embodies such paradoxes by functioning simultaneously as both an enabler of flexibility and a source of constraint, a tool for connection and a cause of overload, and a means of autonomy and a mechanism of control.

Traditional approaches often frame technological impacts as either beneficial or detrimental, which fails to capture the inherent tensions embedded in ICT use. Paradox theory moves beyond this dualistic thinking by positing that contradictory demands are not problems to be solved but conditions to be managed through ongoing negotiation and adaptation. This perspective aligns with the socio-technical systems view, which emphasizes the interdependence of technological tools, organizational structures, and human actors. In WFA arrangements, ICT paradoxes manifest in domains such as communication, boundary management, and well-being. Adopting a paradox lens allows researchers and practitioners to recognize these tensions as inherent features of digital work rather than anomalies, thereby fostering more nuanced strategies for navigating technological ambivalence.

2.2 The Job Demands-Resources (JD-R) Model

The Job Demands-Resources model (Demerouti et al., 2001) provides a robust framework for understanding how ICT influences employee well-being and performance in WFA settings. According to the JD-R model, job characteristics can be categorized as either demands (physical, psychological, social, or organizational aspects that require sustained effort) or resources (aspects that help achieve work goals, reduce demands, or stimulate growth). ICT uniquely operates as both a demand and a resource within the same technological affordance.

As a resource, ICT enhances job autonomy, facilitates communication and collaboration, and supports task efficiency, all critical for successful remote work. For example, cloud-based platforms enable seamless information sharing, while video conferencing tools sustain social presence in distributed teams. Conversely, as a demand, ICT introduces new stressors such as telepressure, digital fatigue, information overload, and the blurring of work–life boundaries. The constant connectivity afforded by mobile devices, while beneficial, can escalate into a demand when it leads to prolonged work hours and impaired recovery.

The dual classification of ICT within the JD-R model challenges static categorizations of technology and highlights the importance of contextual and individual factors in determining whether a specific ICT feature functions primarily as a resource or a demand. This dynamic interplay suggests that the impact of ICT on WFA outcomes is contingent on factors such as organizational policies, leadership practices, job design, and individual differences in digital literacy and self-efficacy. By integrating the JD-R model, this review advances a more fluid understanding of ICT's role in shaping remote work experiences.

2.3 Boundary Theory

Boundary theory (Ashforth et al., 2000; Clark, 2000) elucidates how individuals create, maintain, and transition between work and non-work domains. Traditionally, physical spaces (e.g., the office) served as clear boundaries separating professional and personal life. However, ICT-mediated WFA fundamentally transforms boundary work by dissolving spatial demarcations and shifting the locus of boundary management to temporal, psychological, and digital realms.

In WFA arrangements, ICT tools such as smartphones, messaging apps, and email enable continuous accessibility, making it difficult for employees to segment work from personal life. This leads to boundary permeability, where work intrusions into non-work time become commonplace. At the same time, ICT offers tools for boundary control—such as notification settings, "do not disturb" modes, and digital disconnection practices—that allow individuals to regulate their availability and protect their personal time.

The transformation from spatial to psychological-temporal boundary work underscores the increased cognitive and emotional labor required to manage WFA arrangements. Employees must actively negotiate when, where, and how they engage with work, often in the absence of clear organizational norms. This review extends boundary theory by conceptualizing boundary management not as a fixed preference for segmentation or integration, but as a fluid continuum influenced by technological affordances, organizational culture, job characteristics, and individual preferences. Understanding these dynamics is essential for designing policies and practices that support sustainable boundary management in digital work environments.

2.4 Integrating Theoretical Perspectives

The integration of paradox theory, the JD-R model, and boundary theory provides a comprehensive framework for analyzing ICT's dual role in WFA. Paradox theory offers a macro-level perspective on the inherent tensions of digital work, the JD-R model illuminates the micro-level mechanisms through which ICT affects well-being and performance, and boundary theory explains the shifting nature of work–life integration in the absence of physical boundaries. Together, these theories emphasize that ICT's impacts are not technologically determined but emerge from the dynamic interplay between tool affordances, organizational contexts, leadership approaches, and individual agency.

This theoretical synthesis informs the initial four-domain framework presented in Table 1, which structures the examination of ICT's paradoxical effects across communication technologies, boundary management dynamics, well-being and performance outcomes, and contextual moderators. By grounding the analysis in these established theories, this review contributes to a deeper understanding of how ICT both shapes and is shaped by the socio-technical systems of WFA, paving the way for more humane, equitable, and sustainable digital work environments.

Table 1. Thematic Framework for Analyzing ICT's Dual Role in Work-From-Anywhere Arrangements

Analytical Domain	Primary Constructs and Phenomena	Core Paradoxical Tension
Communication and Collaboration Technologies	• Synchronous vs. asynchronous communication modes • Platform ecosystems and interoperability • Media richness and social presence • Advanced Collaborative Environments (ACE)	Connection vs. Overload Presence vs. Performance
Boundary Management Dynamics	• Temporal and spatial boundary negotiations • Segmentation vs. integration preferences • Telepressure and responsiveness expectations • Digital disconnection practices	Flexibility vs. Permeability Control vs. Expectation
Well-being and Performance Outcomes	• Digital fatigue and recovery processes • Work engagement and flow states • Productivity paradoxes and efficiency metrics • Technostress and coping strategies	Autonomy vs. Isolation Efficiency vs. Exhaustion
Contextual Moderators	• Organizational culture and climate • Job design and task characteristics • Leadership styles and supervisory practices • Demographic and socioeconomic factors	Standardization vs. Personalization Equity vs. Differentiation

Source: Authors' Synthesis and Analysis, 2025.

3. RESEARCH METHOD

This study employs a thematic literature review methodology, synthesizing evidence from 40 peer-reviewed studies identified through a hybrid Scopus AI–assisted discovery process and manual SPIDER-guided screening. This approach is particularly appropriate for rapidly evolving domains where multiple research streams have emerged simultaneously, necessitating higher-order synthesis to identify overarching frameworks and contradictions (Aromataris et al., 2015).

Our methodology is grounded in a critical interpretivist paradigm, recognizing the impact of ICT as socially constructed and context-dependent. We adopt a paradox theory lens (Schad & Miron-Spektor, 2021; Smith & Lewis, 2011) as an analytical framework, examining ICT not as a neutral tool but as a source of inherent tensions producing simultaneous contradictory outcomes. This perspective enables a shift beyond binary classifications toward a nuanced understanding of how mitigation and exacerbation emerge from the same technological affordances under different conditions.

This study employed Scopus AI as an initial discovery tool, replacing conventional Boolean query formulation. Scopus AI was used to generate a thematic synthesis and an initial reference list related to the dual role of ICT in WFA arrangements. This process yielded 82 records. The AI-generated synthesis report, titled "The Dual Role of ICT in Mitigating and Exacerbating Work-From-Anywhere Challenges," served as the starting point for identifying potentially relevant studies.

The decision to use Scopus AI was based on its ability to map a broad, interdisciplinary literature base while reducing the limitations of traditional keyword-based searches, which often miss conceptual linkages across fields. However, this choice also introduced the need for subsequent manual screening to ensure the relevance and quality of the included studies.

Eligibility criteria were defined using the SPIDER framework (Cooke et al., 2012), covering Sample, Phenomenon of Interest, Design, Evaluation, and Research type. The criteria are presented in Table 2.

Table 2. Inclusion and Exclusion Criteria Based on the SPIDER Framework

Component	Inclusion Criteria	Exclusion Criteria
Sample	Employees, teams, or organizations in remote, hybrid, or WFA arrangements; studies focusing on knowledge workers or other occupational groups in digitally mediated work	Studies unrelated to remote work; studies focusing solely on traditional co-located work
Phenomenon of Interest	ICT use and its dual effects on communication, collaboration, boundary management, well-being, performance, technostress, and digital fatigue	Studies examining ICT only as a neutral tool or reporting single-direction effects without addressing paradox or duality
Design	Empirical studies (quantitative, qualitative, mixed-methods), meta-analyses, systematic reviews, and conceptual/theoretical papers	Editorials, commentaries, book reviews, and non-peer-reviewed sources
Evaluation	Outcomes related to productivity, job satisfaction, work-life balance, technostress, digital fatigue, collaboration quality, autonomy, and isolation	Studies focused on unrelated outcomes, such as hardware/software engineering performance
Research type	Peer-reviewed journal articles, conference proceedings, and book chapters in English or with English abstracts	Non-English full texts, duplicate records, and unavailable full texts

Source: Authors' Analysis, 2025.

The screening process consisted of two stages, namely title and abstract screening and full-text screening. All 82 records were screened by reading their titles and abstracts against the eligibility criteria. No records were excluded at this stage because the Scopus AI-generated corpus was already topically aligned with the review focus. However, because many studies did not explicitly signal their treatment of ICT's dual role in the title or abstract, this criterion could only be reliably assessed at the full-text stage. The full texts of the 82 records were then retrieved where possible and assessed against the same eligibility criteria. After this stage, 40 articles met all inclusion criteria and were included in the final synthesis. A total of 42 records were excluded for the following reasons: (a) the study did not examine ICT's dual or paradoxical role, (b) the article was not peer-reviewed, (c) the full text was not accessible, or (d) the study did not explicitly address WFA or remote work contexts. The selection process is summarized in Figure 1, which follows a PRISMA-style flow.

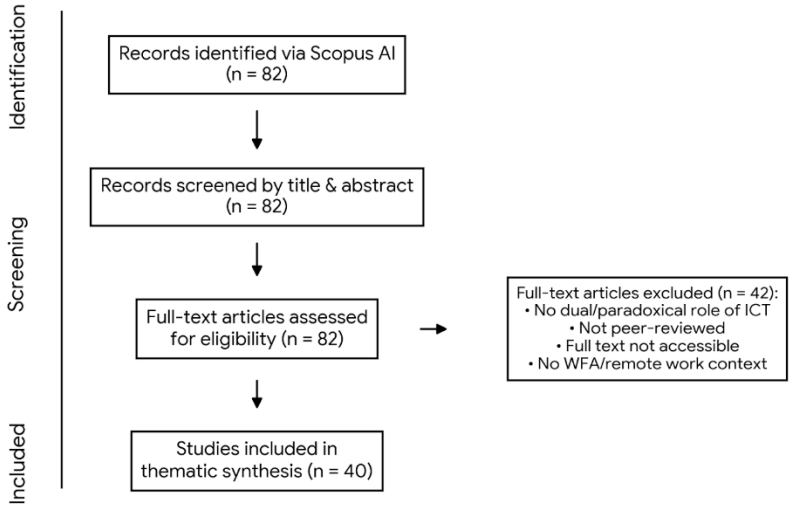


Image 1. PRISMA-Style Flow of Data Selection
Source: Authors' Analysis, 2025

Our analysis followed a structured four-phase approach adapted from established qualitative synthesis methods (Braun & Clarke, 2006; Thomas & Harden, 2008):

1. Phase 1: Familiarization and Study Mapping. We read and reread the 40 included full-text articles to gain familiarity with their key arguments, findings, and theoretical orientations. We then mapped the studies according to the four domains of the analytical framework.
2. Phase 2: Thematic Extraction and Coding. Using deductive and inductive coding, we coded the findings of each included study. Deductive codes were derived from the four-domain framework; inductive codes emerged through line-by-line analysis. Each coded segment was classified as a mitigating effect, an exacerbating effect, or a moderating factor.
3. Phase 3: Critical Analysis and Triangulation. To strengthen interpretive validity, we employed three triangulation strategies. First, we retrieved and independently analyzed 18 of the 40 included full-text articles (45%), selected through stratified random sampling based on the four thematic domains. Second, we conducted complementary searches for highly cited theoretical papers, recent empirical studies, and systematic reviews to ensure that core literature was not omitted. Third, we consulted three subject matter experts in organizational behavior and information systems to assess the coherence and interpretive validity of the emerging framework.
4. Phase 4: Framework Development and Synthesis. Based on identified patterns and relationships, we developed an integrative framework conceptualizing the interplay between ICT affordances, dual effects, and moderating factors, refining it through multiple iterations.

Building on the theoretically derived framework, the analytical process yielded an integrated four-domain framework that structures our understanding of ICT's paradoxical dual role in WFA arrangements. This framework emerged through iterative engagement with the literature, reflecting the complex interplay between technological affordances, individual experiences, organizational contexts, and broader structural factors. Each domain represents a distinct yet interconnected analytical lens through which ICT's contradictory impacts can be examined.

The four domains presented in Table 1 are not mutually exclusive but represent interconnected analytical perspectives that collectively capture the complexity of ICT's dual role. The framework serves three primary analytical functions. First, it identifies specific loci of technological ambivalence where ICT simultaneously enables and constrains WFA possibilities. For instance, within the Communication and Collaboration Technologies domain, the same platform features that facilitate real-time coordination (e.g., instant messaging, presence indicators) also create expectations of perpetual availability, illustrating how technological affordances inherently contain contradictory potential.

Second, the framework highlights mediating mechanisms that explain how ICT's dual effects manifest. In the Boundary Management Dynamics domain, mobile devices serve as both tools for boundary control (through notification management) and sources of boundary permeability (through constant connectivity), with organizational policies and individual practices determining which effect predominates.

Third, the framework acknowledges contextual contingency by identifying moderating factors that shape ICT impacts. The Contextual Moderators domain recognizes that identical technologies produce divergent outcomes depending on organizational culture, job design, leadership approaches, and individual characteristics, challenging deterministic views of technological impact.

The framework's structure reflects our analytical progression from examining specific technological features (Domain 1), to understanding their implications for work-life

integration (Domain 2), to evaluating resulting outcomes (Domain 3), and finally to identifying contextual factors that moderate these relationships (Domain 4). This progression mirrors the socio-technical systems perspective that informs our analysis, recognizing that technological impacts emerge from complex interactions between tools, tasks, individuals, and organizational contexts.

The use of Scopus AI as an initial discovery tool offers two main advantages. First, it enables efficient mapping of a broad, interdisciplinary literature base, which is particularly valuable for a rapidly expanding topic such as ICT-mediated remote work. Second, it reduces some limitations of traditional Boolean queries, which may miss relevant studies that use different terminology across disciplines. However, this approach also carries inherent limitations. Scopus AI operates with algorithmic opacity, meaning its selection and synthesis processes are not fully transparent or replicable. In addition, the generated reference list may be influenced by the tool's internal ranking and relevance criteria. To mitigate these limitations, we treated the Scopus AI output as a starting point rather than as a definitive search result, and we manually screened all identified records using the SPIDER framework. This hybrid approach combines the breadth of AI-assisted discovery with the rigor of human-led eligibility assessment.

In addition, as in any thematic synthesis, the interpretation of themes involves a degree of researcher judgment. This potential subjectivity was mitigated by using a structured coding framework, iterative discussions, and expert validation.

4. RESULTS AND DISCUSSION

The thematic analysis of the synthesized literature reveals that ICT functions as a constitutive force in WFA arrangements, producing a landscape of inherent tensions rather than unidirectional benefits or harms. These findings are organized within the established four-domain framework, with each domain presenting distinct patterns of mitigation and exacerbation. To provide a structured overview of the communication technology landscape, the contradictory effects of key ICT tools are synthesized in Table 3.

Table 3. The Dual Role of Communication Technologies in WFA

ICT Category and Focus	Mitigating Role: Key Findings	Exacerbating Role: Key Findings	Primary Moderating Factors
Synchronous Tools (e.g., video conferencing, live chat)	Enhance social presence, engagement, and rapid decision-making for complex tasks (Kerr & Murthy, 2009; Rahman et al., 2013).	Contribute to meeting fatigue ("Zoom fatigue") and create performance pressure to be visibly engaged (Verlinden et al., 2025).	Task urgency, established team familiarity, and clear meeting protocols (Giesbers et al., 2014).
Asynchronous Tools (e.g., email, project management platforms)	Support flexibility, allow for deeper reflection, and reduce work interruptions (Ocker, 2007).	Linked to lower psychological detachment from work and heightened anxiety about response times (Chen et al., 2024; Zinke et al., 2024).	Organizational norms for response times and individual boundary-setting tactics (Piszczek, 2017).
Advanced Collaborative Environments (ACE)	Enable integrated, real-time operations and data sharing, improving decision-making in distributed teams (Ragan	Can lead to information overload and increased digital complexity for users (Moore-Cernoch, 2010).	Quality of technical support and end-user training (Goodwin et al., 2010).

ICT Category and Focus	Mitigating Role: Key Findings	Exacerbating Role: Key Findings	Primary Moderating Factors
	et al., 2010; Udofia et al., 2015).		
Unified Communication Platforms	Facilitate seamless connectivity and reduce cognitive load from switching between disjointed apps (Fauziyah et al., 2023).	Cause notification overload and confusion over appropriate communication channels for different tasks (Golden, 2013; Lee, 2023).	Degree of platform integration and user ability to customize notification settings.

Source: Data Analysis, 2025

4.1 Communication Technologies as a Site of Paradox

The analysis confirms that communication platforms are the most influential ICT factor for WFA productivity (Fauziyah et al., 2023). However, their utility is intrinsically dualistic. Tools designed for connection consistently produce strains of overload. For instance, features like read receipts and typing indicators, intended to provide transparency, often intensify social pressure and anxiety regarding prompt responsiveness (Senarathne-Tennakoon, 2021). This creates a performative dimension to digital communication where visibility is mistakenly equated with productivity.

4.2 Boundary Management Dynamics: Flexibility Versus Permeability

ICT dissolves traditional spatial boundaries of the office, transforming boundary work into a continuous psychological and temporal negotiation. While multi-device strategies and application settings can empower employees to craft personalized boundaries (Cousins & Robey, 2015; Sayah, 2013) the same mobile and pervasive technologies act as vectors for constant work intrusion (Park et al., 2020). A key exacerbating mechanism identified is telepressure—the pervasive expectation and felt obligation to respond immediately to digital communications (Chesley, 2014). This is particularly detrimental in roles with high task interdependence, leading to increased strain, burnout, and insomnia (He et al., 2024), and triggering work-related rumination that impairs recovery (Barber & Jenkins, 2014; Qin et al., 2025). Organizational policies are decisive moderators; autonomy-granting approaches buffer these effects, whereas mandates for constant availability or after-hours monitoring exacerbate them (Belkin et al., 2020).

Table 4. Well-being and Performance Outcomes of ICT-Enabled WFA

Outcome Dimension	Evidence of Mitigation	Evidence of Exacerbation	Critical Moderating Factors
Mental Well-being	Increased autonomy and reduced commute-related stress improve emotional and financial well-being (Bolisetty et al., 2023; Orešković et al., 2023).	High prevalence of digital fatigue, technostress, and anxiety linked to constant ICT demands (González-Fernández et al., 2024; Zinke et al., 2024).	Job autonomy and perceived organizational support (POS) are significant buffers (Nayak et al., 2025).
Work-Life Balance	ICT affordances enable greater flexibility and control over work-life integration (Park et al., 2020; Sayah, 2013).	"Always-on" culture and after-hours digital intrusion severely blur work-life boundaries (Belkin et al., 2020).	Supportive supervisor behaviors and clear organizational policies on disconnection (Barber & Jenkins, 2014; Piszczek, 2017).
Job Satisfaction and Engagement	ICT can enhance communication satisfaction and engagement when tools fit needs (Lee, 2023; Sharma, 2017).	Communication overload, telepressure, and feelings of isolation can reduce satisfaction (Chesley, 2014).	Organizational culture and task-technology fit are paramount (Kamdjoug et al., 2023).
Productivity	ICT enables efficient collaboration and can boost measured output (Fauziyah et al., 2023).	Frequent interruptions and pressure for constant connectivity can fragment attention, reducing deep work and creative problem-solving (Ren et al., 2025).	Digital literacy and alignment of ICT with specific task characteristics (Bogicevic-Milikic & Cuckovic, 2019).

Source: Data Analysis, 2025

4.3 Well-being and Performance Outcomes: The Digital Trade-off

The WFA model, enabled by ICT, demonstrates a clear tension between autonomy and exhaustion. Employees benefit from increased schedule control and the elimination of stressful commutes (Bolisetty et al., 2023) yet they report significant digital fatigue—a state of emotional exhaustion and cognitive overload from perpetual connectivity (Zinke et al., 2024). A critical finding is the productivity paradox: tools implemented to enhance efficiency (e.g., excessive performance monitoring, poorly designed collaboration workflows) can systematically undermine deep work, creativity, and sustainable output (Reimann et al., 2023; Ren et al., 2025). A key mitigating resource is digital self-efficacy; confidence in using digital tools buffers against technostress and fosters better psychological detachment (Paredes-Aguirre et al., 2025). The comparative outcomes for well-being and performance are detailed in Table 4.

4.4 Contextual Moderators of ICT's Dual Effects

Across the domains examined, the predominance of ICT's mitigating or exacerbating effects was not uniform but systematically moderated by several contextual factors:

1. Organizational policies and norms shaped whether connectivity became a resource or a demand. Autonomy-granting policies and explicit disconnection norms buffered telepressure and boundary permeability, whereas mandates for constant availability and after-hours monitoring amplified strain (Barber & Jenkins, 2014; Belkin et al., 2020; Piszczek, 2017). Organizational culture and task–technology fit further determined whether ICT use enhanced or eroded job satisfaction and engagement (Kamdjoug et al., 2023; Lee, 2023).
2. Job design and task characteristics moderated ICT outcomes. Task urgency and team familiarity influenced the effectiveness of synchronous tools (Giesbers et al., 2014), while high task interdependence intensified after-hours telepressure and its adverse consequences (He et al., 2024). The alignment between ICT features and specific task requirements also conditioned productivity gains (Bogicevic-Milikic & Cuckovic, 2019).
3. Leadership and supervisory practices served as decisive moderators: supportive supervision and trust-based management strengthened the resource potential of ICT, whereas surveillance-oriented or availability-demanding leadership exacerbated its demand side (Barber & Jenkins, 2014; Belkin et al., 2020).
4. Individual differences in digital literacy, digital self-efficacy, and boundary-setting tactics shaped how employees appraised and managed ICT demands (Bogicevic-Milikic & Cuckovic, 2019; Paredes-Aguirre et al., 2025; Piszczek, 2017).
5. Technological support factors such as the quality of technical assistance and user training moderated the cognitive load associated with advanced collaborative environments (Goodwin et al., 2010).

Together, these moderators explain why identical ICT tools produce divergent WFA outcomes and reinforce the need to move beyond deterministic assessments of technology.

4.5 Theoretical Implications: Advancing a Paradox Lens

The findings necessitate a paradigm shift from viewing ICT as a neutral or unidirectional force. This review substantiates and elaborates on a paradox theory perspective (Schad & Miron-Spektor, 2021; Smith & Lewis, 2011), demonstrating that ICT's dual role constitutes an inherent and persistent tension in WFA systems, not a problem to be solved but a condition to be managed (Blount & Gloet, 2017). The four-domain framework provides a structure for identifying and analyzing these tensions, namely between connection and overload, flexibility and permeability, autonomy and isolation.

This perspective significantly extends the Job Demands-Resources (JD-R) model (Demerouti et al., 2001) in a digital context. ICT consistently operates as both a job resource (e.g., enabling flexibility and collaboration) and a job demand (e.g., creating telepressure, complexity) within the same technological feature (Ninaus et al., 2021). This dual classification challenges static categorizations and calls for dynamic models that account for how a specific ICT tool can shift from being a resource to a demand based on context, intensity of use, and individual appraisal (Reinke & Ohly, 2021).

Furthermore, the findings advance boundary theory. ICT has transformed boundary work from a primarily spatial challenge (commuting from the office to home) to a continuous psychological and temporal negotiation conducted through device settings, notification management, and communication norms (Sayah, 2013). This supports moving beyond a segmentation-integration dichotomy toward a boundary fluidity continuum, where optimal states are highly personalized and contingent on life stage, job type, and individual preferences, necessitating personalized rather than standardized organizational support (Tang et al., 2018).

4.6 Practical Implications: From Techno-Solutionism to Socio-Technical Design

For practitioners, the central implication is that ICT implementation is a necessary but insufficient condition for successful WFA. A purely techno-centric approach risks amplifying the exacerbating effects identified in this review. Instead, organizations must adopt a holistic, socio-technical design philosophy.

For Organizational Leaders and HR: Policy must go beyond merely providing tools to actively shaping the ecosystem in which they are used. This includes establishing "right-to-disconnect" guidelines, training managers in leading distributed teams with an emphasis on trust over surveillance, and designing jobs with clear outcomes rather than relying on monitoring activity. Investing in digital literacy programs that encompass well-being and boundary management is as crucial as technical training.

For Technology Designers: The findings underscore the need for human-centered design that prioritizes user control, transparency, and well-being. Features should empower users to manage connectivity (e.g., sophisticated "focus mode" settings, clear communication channel norms) rather than defaulting to maximizing engagement and availability.

For Policymakers: There is a pressing need to develop regulatory frameworks that address emerging digital labor issues, such as protecting employees from intrusive algorithmic surveillance in home environments and ensuring equitable access to the digital infrastructure required for remote work to prevent the entrenchment of a new digital divide.

4.7 Limitations and Future Research Directions

This review, while comprehensive, has limitations that point to fruitful avenues for future research. First, the heavy reliance on self-reported and cross-sectional data in the underlying literature limits causal inference. Future research should employ longitudinal and experience-sampling methodologies to trace the dynamic, reciprocal relationships among ICT use, well-being, and performance over time.

Second, the current evidence base predominantly focuses on knowledge workers in developed economies. There is an urgent need for intersectional and context-sensitive research exploring how ICT-mediated WFA affects manual, service, and creative workers, and how its impacts vary across cultural, socioeconomic, and geographic contexts. Research must also proactively investigate the implications of emerging technologies such as generative AI and immersive VR/AR workspaces, which will introduce new dimensions to the digital paradox.

Finally, more intervention-based studies are needed to move from diagnosing problems to testing solutions. Research should evaluate the efficacy of specific organizational policies, leadership training programs, and technology design principles in mitigating these negative outcomes while preserving the benefits of WFA.

5. CONCLUSION

This thematic review concludes that Information and Communication Technology (ICT) inherently serves a paradoxical dual role in Work-From-Anywhere (WFA) arrangements, functioning simultaneously as critical infrastructure and a significant source of strain. The analysis confirms that ICT mitigates core challenges of distributed work by enabling communication, collaboration, and flexibility, yet exacerbates others by fostering telepressure, blurring work-life boundaries, and contributing to digital fatigue. These contradictory outcomes are not determined by technology alone but are critically moderated

by organizational culture, job design, leadership practices, and individual demographics. The findings underscore that the impact of ICT is contingent and systemic, necessitating a paradox lens to understand WFA dynamics rather than seeking optimal technological solutions.

This study is limited by its reliance on existing empirical and conceptual studies, the cross-sectional and self-report nature of much of the underlying literature, and a focus predominantly on knowledge workers in Western contexts. Future research should prioritize longitudinal and mixed-methods designs to establish causality, investigate ICT's impacts across more diverse occupational and cultural groups, and examine the effects of emerging technologies like generative AI and immersive platforms on the evolving paradoxes of digital work.

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